

Annual Report



CIFOR

CENTER FOR INTERNATIONAL FORESTRY RESEARCH



1994

CIFOR

CIFOR'S MISSION

CIFOR's Mission is to contribute to the sustained well-being of people in developing countries, particularly in the tropics, through collaborative strategic and applied research and related activities in forest systems and forestry, and by promoting the transfer of appropriate new technologies and the adoption of new methods of social organisation, for national development.

CIFOR'S OBJECTIVES

- » To improve the scientific basis for ensuring the balanced management of forests and forest lands.
- » To develop policies and technologies for sustainable use and management of forest goods and services.
- » To strengthen national capacities for research to support the development of policies and technologies for the optimal use of forests and forest lands.

WHAT IS CIFOR?

CIFOR was established under the CGIAR system in response to global concerns about the social, environmental and economic consequences of loss and degradation of forests. It will operate through a series of highly decentralised partnerships with key institutions and/or individuals throughout the developing and industrialised worlds. The nature and duration of these partnerships will be determined by the specific research problems being addressed. This research agenda is under constant review and is subject to change as the partners recognise new opportunities and problems.

CIFOR has collaborative links with other CGIAR centres, particularly ICRAF, IFPRI and IPGRI, in development and implementation of programs. CIFOR and ICRAF are the principal organisations active in implementing the forestry-agroforestry agenda developed by Technical Advisory Committee for the CGIAR. CIFOR concentrates its programs on the conservation, rehabilitation and sustainable utilisation of forests, while ICRAF focuses on improved agroforestry systems on deforested and degraded farmland. CIFOR's philosophy emphasises the role of research carried out through partnerships with NARS to seek policies and technologies to ensure that the full value of forests accrues to poor people in the tropics.



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DIRECTOR GENERAL'S REPORT



Jeffrey A. Sayer
Director General

CIFOR grew rapidly in 1994. Our scientific staff and expenditure both doubled during the year. In addition, all of the major facilities and functions needed by an international research institute were put into place.

CIFOR staff will work through consortia of scientists from tropical developing countries and advanced research institutes. Members of these consortia clearly have to be involved in the early stage of decision making on the nature and process of the research. CIFOR's scientists therefore spent a great deal of time in 1994 visiting research institutes throughout the tropics and interacting with the steady stream of visitors to our Headquarters in Bogor. In addition, a number of overview and synthesis studies were initiated with potential partners to determine the state of the art in specific research areas and to clarify our research collaboration.

In Asia we enjoyed excellent collaboration with the Forest Research Institute Malaysia, the Royal Forest Department and the ASEAN Tree Seed Centre in Thailand, the Chinese Academy of Forestry and researchers in a number of governmental and non-governmental organisations in Indonesia. In Africa, we continued our review work of the management and conservation of dry Miombo woodland with partners in the Forestry Commission of Zimbabwe, the University of Zimbabwe and scientists from the SADC countries. Work in the humid forests of West Central Africa was initiated by reviews of the recent history of management of these forests carried out by the Forest Research Institute of Ghana. In central and south America we further developed our links with CATIE in Costa Rica on the management of secondary forest and non-timber forest products and with EMBRAPA and INPA and the University of São Paulo in Brazil on the management of the forests of the western Amazon. Researchers in Peru (IIAP) and Bolivia (IPHAE) also contributed to this work. But, these are only some of the individuals and institutions in the tropical developing world with whom CIFOR interacted over the course of the year. By year's end our quarterly Newsletter (now published in English, French and Spanish) was being sent to 3200 addresses in all parts of the world.

CIFOR followed with interest the various international initiatives to build a global consensus on forest issues and to prepare for the Commission on Sustainable Development debate on forests in 1995. Much of the debate centred on the uncertainties surrounding forest issues and potential international responses to them. During the year, there was special interest in the question of criteria and indicators for assessing sustainability. CIFOR was fortunate in receiving additional funding from a number of donors to begin a



Natural forest between blocks of eucalyptus plantations, Monte Daurado, Brazil.

program of testing the existing sets of criteria and indicators of forest sustainability. The testing itself is being conducted in partnership with research organisations and governmental and non-governmental management and conservation organisations in all three regions. It should result in strengthened capacity and a better scientific basis for assessing forest management.

CIFOR's establishment was partly a response to the weakness of the scientific content of the international debate on forests. The forestry research community has not had sufficient input to recent international processes relating to forests. In response to this situation, CIFOR organised an international dialogue on the research and information needs for the implementation of the Agenda 21 recommendations on forests. The dialogue, "Science, Forests and Sustainability", took place in Indonesia in December and was co-sponsored by the Government of Indonesia. It brought together individuals from governmental and non-governmental organisations, industry, the diplomatic community and scientists from all three tropical regions, as well as the boreal, northern temperate and southern temperate zones. A statement adopted by the dialogue participants has been introduced into the Commission on Sustainable Development process by FAO's Commission on Forestry. We believe it has led to renewed international consideration of the potential role of science in solving the world's forest problems.

The policy dialogue also provided an opportunity for CIFOR's staff, and a number of key constituents, to take stock of CIFOR's progress at the end of 1994. It provided fresh insights into the nature of the research required of CIFOR from a broad range of partners. CIFOR's own agenda had not before been subjected to such intense scrutiny by non-scientists. The dialogue reinforced our view that mobilising expertise from different disciplines and the conduct of inter-country comparative studies will yield major benefits for forest science.

CIFOR invested heavily during the year in expanding its contacts with the other research centres which form part of the CGIAR. We benefited greatly from the experience of fellow IARCs in the development of our research program. The issue of the relationship between the management of forests and agricultural lands was much debated during the year. The potential benefits and complementarity between CIFOR's work in the forests and that of the other IARCs on the agricultural side of the forest boundary was evident. International concern intensified as the problems of meeting the food needs of 10 billion people early in the next century were further analysed. As a contribution to this collective

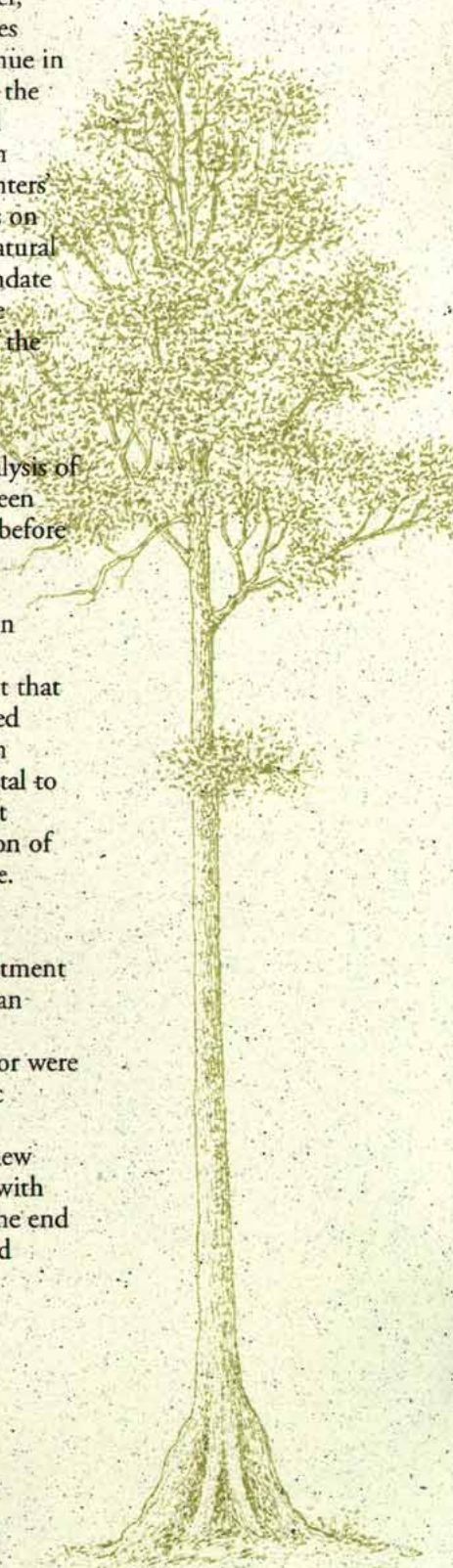


Acacia mangium canopy, 4 years old at P.T. Musi Hutan Persada plantation, Subanjeriji, South Sumatra, Indonesia.

thinking of the CGIAR system, CIFOR initiated studies on the role of forests in fulfilling the welfare needs of poorer, vulnerable people in developing countries. These studies emphasised the fact that forests are now, and will continue in the future, to be of enormous importance in sustaining the welfare of hundreds of millions of people. The renewal process of the CGIAR system initiated at the Mid-Term Meeting in New Delhi, and further consolidated at Centers Week in Washington in October, placed great emphasis on the need to integrate research on management of the natural forest environment throughout the overall research mandate of the CGIAR. This led to increased recognition of the importance of linking CIFOR's research to the work of the other International Agricultural Research Centers.

The publication of the results of the FAO 1990 Forest Resource Assessment provided a more sophisticated analysis of the forest situation in the tropics than had previously been available. The studies demonstrated more clearly than before that preoccupation with figures for aggregate tropical deforestation is much less important than improving understanding of the patterns and processes of change in forest extent and condition. The focus on aggregate deforestation rates carries with it the implicit judgement that forest areas should be maximised. With greatly increased demands on land in the tropics as a result of population growth and increases in per capita consumption, it is vital to develop a more objective vision of the needs of different societies for forest goods and services and the implication of these needs for the extent of forest, its location and type. These are all issues that require a great deal of research.

By the end of the year, we had almost completed recruitment of our core group of scientists based in Bogor and had an excellent team of professional and support staff from Indonesia. In addition, our temporary facilities in Bogor were fully functional and our internal and external electronic communications enabled us to interact efficiently with scientists throughout the world. Construction of our new Headquarters in Bogor was well under way. Relations with the Government of Indonesia remained excellent. At the end of the year CIFOR was poised for a very productive and exciting future.

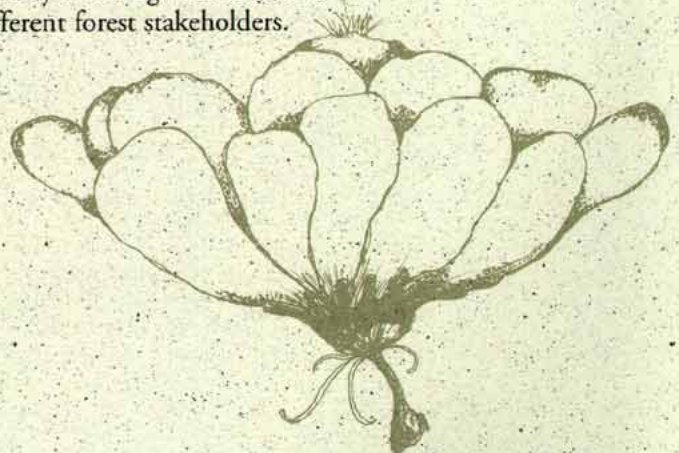


— SCIENCE, FORESTS AND SUSTAINABILITY

The need for an intensification of effort in understanding the forest and its relationships to people and the wider environment, has gained increasing prominence on the international agenda since the mid-1970s. With CIFOR's establishment, forest research has become accepted as an integral part of the mandate of the CGIAR network of International Agricultural Research Centres. Investments in agricultural research have reaped huge benefits for the world and its people. Forestry research, on the other hand, has lacked resources and research has rarely looked at forests in a holistic way.

The UNCED process and the various initiatives leading up to the Commission on Sustainable Development (CSD) debate on forests scheduled for April 1995 have developed a strong consensus that far-reaching changes are needed in the ways in which the world's forests are used. A new perception ("paradigm") of forest management is rapidly gaining currency – that, in any particular locality, the forest and the people who depend upon it should be considered as a single ecosystem. This means that the ultimate success of management will have to be judged by the maintenance of the potential of the forest to provide a continuous, but changing, stream of goods and services. This will require forest policies that are socially acceptable and provide for steadily improving sustainable livelihoods.

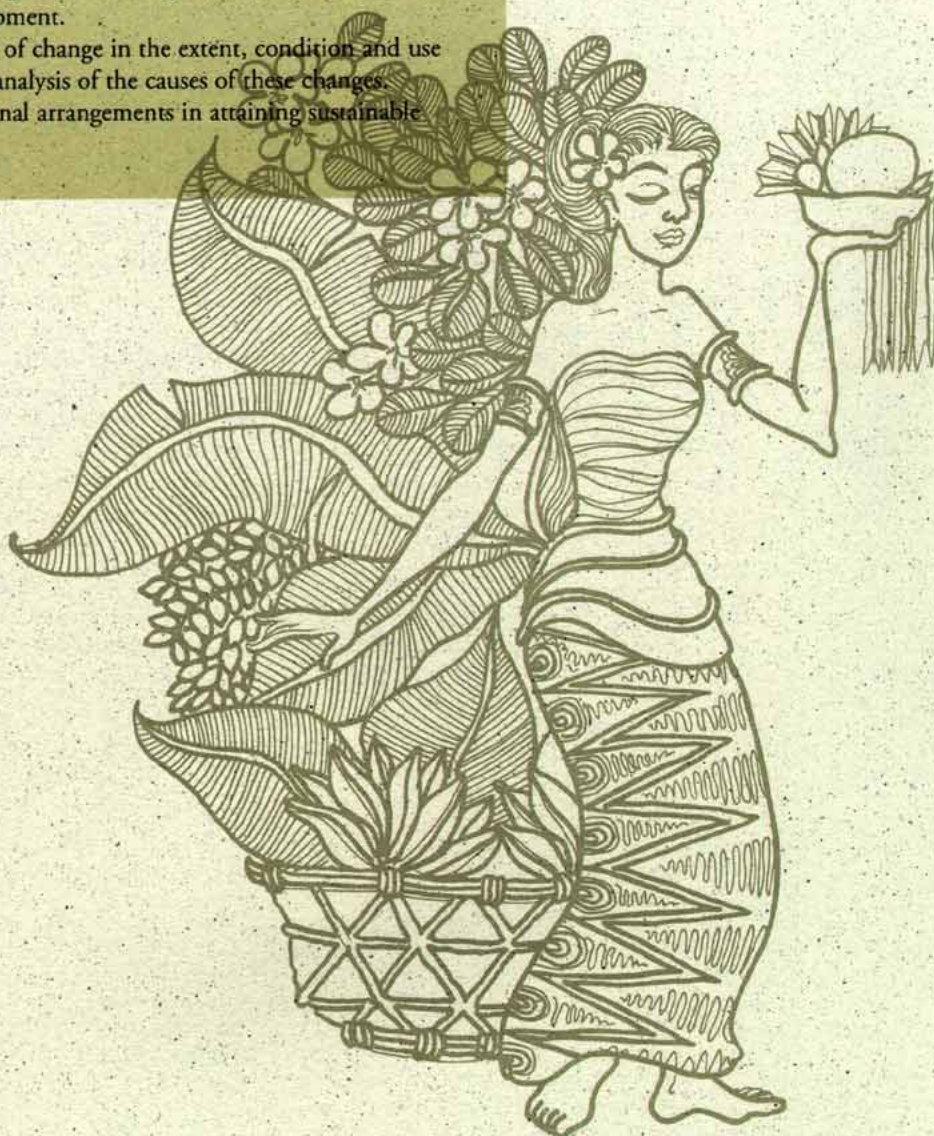
To address the problems of how to make and implement decisions on this "new" view of forestry, CIFOR and the Government of Indonesia convened a policy dialogue, "Science, Forests and Sustainability" in December 1994. The dialogue reached broad agreement on four long-term research priorities. These formed the subject of a brief statement entitled "Forest Research – A Way Forward to Sustainable Development", which was submitted to the CSD. This identified four major priority areas for forest research. However, the Dialogue revealed widely differing visions of this role of forest research amongst different forest stakeholders.



Some saw research as an instrument of industry and governments and as a threat to forest-dependent people. Others feared that research agendas are dominated by special interest groups in the north as a means to intrude into the sovereignty of tropical countries. A discussion of some of these more difficult issues was published independently by CIFOR as "A Vision for Forest Science in the Twenty-First Century".

Long-term Research Priorities for Forest Science Identified by Participants at the Dialogue

1. Integrated socio-economic and biophysical studies at a network of landscape-scale sites, to understand the relationship of human development to forests.
2. Examination of trends of supply and demand for forest goods and services, and their relationship to forest area and health; the development of strategies to optimise the balance between them, in pursuit of sustainable development.
3. Research into methods for assessing patterns of change in the extent, condition and use of all types of trees and forest ecosystems, and analysis of the causes of these changes.
4. Studies on the role of political and institutional arrangements in attaining sustainable development.



— CIFOR AND INDONESIA

Throughout 1994 CIFOR has continued to receive excellent support from the Government of Indonesia and specifically Minister of Forestry Ir. Djamaludin Suryohadikusumo and CIFOR Board Member Ir. Soedjadi Hartono. A broad range of national partners are also being reached through co-operative research efforts.

The Government of Indonesia is a major contributor to CIFOR's establishment and operation. It is funding the new CIFOR headquarters building and related facilities such as roads. In addition to this key contribution, a 100,000 hectare experimental forest area is being made available by the Government of Indonesia. This area will be used as a benchmark site as one focus for CIFOR's research.

CIFOR's research collaboration extends to other Ministries besides Forestry. We have had useful contact with the Minister of Environment; Ir. Sarwono Kusumaatmadja, Chairman of LIPI; Professor Dr. Samaun Samadikun; Chairman of the Indonesian Biodiversity Foundation and Ecolabelling Foundation, Professor Emil Salim; Chairman of the Indonesian Forestry Community, Mr. M. (Bob) Hassan; and the staff of several universities and NGOs. Valuable operational support has been provided by the Head of the Bureau for International Technical Cooperation, Widodo Gondowardojo, S.H.



CIFOR staff have visited East, West and South Kalimantan, most provinces of Sumatra, Yogyakarta and North Sulawesi. Contacts in these Provinces will lead to the initiation of operational field research with local partners. Co-operation with social science institutions and NGOs within Indonesia is well-advanced.

Permanent Headquarters

CIFOR's new headquarters facility is located on land provided by the Ministry of Forestry in a forest area near Darmaga about 7.5 kilometres outside Bogor and about 60 kilometres south of Jakarta. The Government of Indonesia has budgeted Rps 16.445 billion (about US \$ 7.5 million) for the development of a total headquarters complex. The complex will be completed by late 1996.

The traditional Javanese design for the headquarters complex is intended to complement the forest surroundings and to incorporate international standards, such as ease of use by the handicapped. The architectural team consists of the Indonesian firm of P.T. Ciria Jasa working in collaboration with John Evans and Associates from Cairns, Australia.

Phase 1 comprises offices for 90 people and appropriate support facilities including 3 meeting rooms, a conference room, library, reception and display areas and a computer network system. Phase 2 will involve the construction of additional office, training and laboratory space, a cafeteria, a small auditorium, a residence for the Director General and a guest house with limited recreational facilities. It will also include office space for ICRAF's Southeast Asia program.

Construction of Phase 1 began in September 1994, and is scheduled for completion and occupancy in September 1995. Phase 2 will begin in mid-1995.

CIFOR headquarters building under construction.



DONOR RELATIONS

The Bogor headquarters of CIFOR received a number of visits from representatives of donor countries and organisations during the year. Staff members were also able to establish personal contacts with many donors. The Director General had successful visits to France, Finland, Sweden, Holland the United Kingdom and the United States. Other staff visited Japan, Spain, France, Germany, the United Kingdom and Australia.

Complementary funding has enabled CIFOR to expand its efforts in specific fields of research in collaboration with specialised organisations in donor countries. Negotiations are under way for additional complementary funding to enable CIFOR to carry out many of the projects identified as important but which cannot be pursued within the core budget. There has been good progress in developing a long-term collaboration between UNEP and CIFOR. A contract for co-operative work on technology and incentives for sustainability of forest management in West Africa was signed with UNEP Executive Director, Elizabeth Dowdeswell, in June. This, and a complementary project funded by France, will greatly increase CIFOR's capacity to work in the forested regions of Africa. Complementary support from the European Union, Germany and Japan is enabling us to expand our work in Asia.

CIFOR AND FAO

The concept of sustainable forest management presents a challenge of historic dimensions to the forestry profession. We must demonstrate that we can broaden our thinking beyond the traditional view of sustained yield and manage forests as complex ecosystems whose diversity and integrity must be maintained, as well as manipulated for perpetual human benefit. Success at sustainably managing forest ecosystems will not come easily. It will require a more concerted, integrated and holistic approach to both science and practice than we have achieved to date. CIFOR and FAO can do much to foster such an approach, together with our common partners and particularly IUFRO.

Research plays a key role in understanding forest ecosystems and developing innovative technologies which protect their many values and also produce the array of products and services that people need. Research is also important to assess the social acceptability and economic viability of proposed solutions and to improve the policy and institutional framework for increased public participation in forest decision making and the sharing of costs and benefits. CIFOR can be a primary player in developing such science, technology and knowledge.

FAO serves as an important forum for policy dialogue and consensus-building on sustainable forest management, as a source of information and knowledge on forests and forestry technology world-wide, and as a provider of technical assistance. FAO can both provide information needed by scientists and help put science and research results into practice.

As I begin my term with FAO, I am anxious to help advance the concept of sustainable forest management and to promote its widespread implementation, especially through partnerships among the international community. CIFOR and FAO are natural partners; I look forward to our close and mutually beneficial collaboration.

David A. Harcharik
Assistant Director-General, Forestry Department, FAO

POLICY DEVELOPMENT

Many external forces affect *people-forests-government* relationships:

- **International** factors: trade policies and sanctions; international conventions; the activities of NGOs, donors and multi-laterals (e.g. loan conditionality and structural adjustment);
- **National** institutional arrangements (e.g. land tenure, land-use policies, agrarian reform); trade, taxation and exchange rates; agricultural policies (e.g. input subsidies, credit or price supports); transport and infrastructure policies; energy policies and pricing;
- **Local and community** social attitudes, cohesion and peer support/pressure affect forest use and its contribution to human well-being;

Current research focuses on the interactions between such policy variables, and their cumulative impact on individual/household behaviour. Local people are often the *defacto* forest managers, yet their behaviour and motivations, as they respond to (or ignore) local, national and international pressures, are little understood. These are

the people commonly seen clearing forests; why do they think it is beneficial to do so, and under what circumstances would they choose instead to conserve, manage, and/or regenerate, the forests?

The policies and practices within the commercial timber sector are also imperfect, and offer scope for significant gains in poverty alleviation and environmental conservation, as complex interactions occur between the formal and informal forestry sectors.

CIFOR has therefore developed research expertise in:

- the management of forests and woodlands by **local communities**;
- the nature of **local institutions and organisations** involved in management;
- the potential for improved **management techniques**, controllable by local user groups; and
- the **impacts of national and international policy** on the way households and forest industries interact with surrounding forests. The inter-sectoral impacts long regarded as "minor" may overwhelm decisions and plans within the forestry sector.

Policy analysts seek to understand how policy decisions are made and how these affect the behaviour of other decision makers, particularly individuals and households at the forest margin. Our task is to identify, explain and help implement general classes of policy reforms which

Changing land use in Lahu village in the highlands of Northern Thailand (left: 1994; right 1990).





contribute to more positive, sustainable and equitable relationships between government, people and forests, through collaborative research with stakeholders. The intended impact is replacement of existing perverse policies, laws or institutions by alternatives which enhance social well-being and environmental sustainability. CIFOR's partners have a key role in disseminating the new knowledge, and their understanding and insight into the behaviour of many stakeholders will be needed to encourage adoption of change.

Establishment and Administration

Much of the first full year was taken up with establishment and operational issues:

- defining the research agenda, in consultation with CIFOR's stakeholders;
- interviewing and selecting research staff for Bogor HQ;
- reviewing and selecting research projects and prospective partners; and
- developing and communicating transparent, efficient and equitable research prioritisation criteria.

Policies and Incentives For Sustainable Management

Policy Research Priorities - a global synthesis: Following regional meetings on "Priorities for Forestry and Agro-forestry Policy Research" in Bangkok, Nairobi and Costa Rica during 1992-93, a final meeting near Bogor in February 1994, synthesised findings and reviewed current policy

research world-wide. The differences between, and the complementarity of, activities of CIFOR, IFPRI and ICRAF particularly, are summarised in CIFOR Working Paper No. 5.

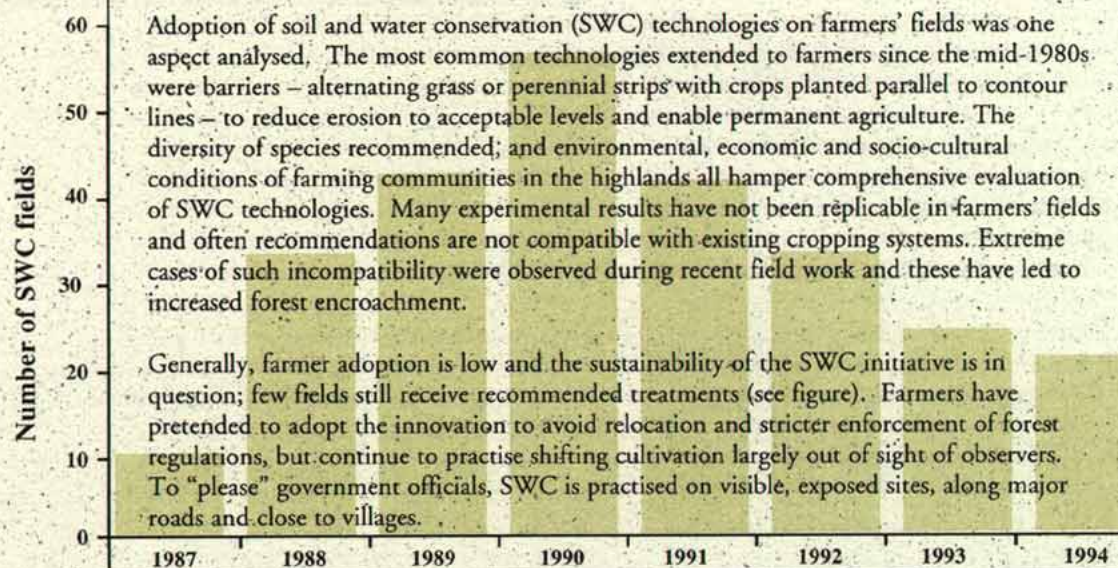
Detailed preparations began for collaboration on *Forest Margins in the Amazon*, with IFPRI and the GEF-funded "Global Alternatives to Slash & Burn" consortium led by ICRAF, in Acre-Rondonia in Brazil. The foci of research are household livelihood strategies, migration decisions, and impacts of national economic and infrastructure policies. CIFOR also co-operated in Amazonia with WRI, on developing sustainable land uses in conjunction with local NGOs. A study in Asia on *Environment and Population Interactions in Northern Thailand* investigated the role of government policies and actions (e.g. road construction) in encouraging migration.



Environment and Population Interactions in Northern Thailand

Policies, and particularly the strict enforcement of rules and regulations, determine access to natural resources and returns to resource use. Farm household research must capture how livelihood strategies are influenced, over time, by a household's physical location in the landscape, the agro-ecological conditions on individual farms and by social, political and economic forces.

The response of shifting cultivators to changing internal and external conditions was the focus of recent research in 5 villages in Mae Hong Son Province in Northern Thailand. The Thai Department of Land Development and Dr. Thomas Enters, from CIFOR, analysed land-use changes between 1982 and 1994, and examined farmer decision-making using household surveys based on a 1990/91 research project. Preliminary results indicate that a combination of opportunities (e.g. improved road access) and constraints (e.g. stricter enforcement of forest regulations) has led to farm intensification and more diverse livelihood strategies.



Why Are So Few Recommendations For Policy Reform Implemented?

CIFOR contributed to a workshop on *Policy Reform in Latin American Countries*, in June 1994, with the World Bank and USAID, to examine the content of previous donor-recommended policies, and the reasons for non-acceptance. The fundamental problem was misunderstanding of countries' priorities and domestic constraints. The proceedings have been published by IICA in Costa Rica, in Spanish and English.

Adoption of SWC practices on farmers' fields – the successful village.



Research on the *Impacts of Structural Adjustment on Forests and Forest Communities*, in Honduras, was completed and preliminary field work commenced in Bolivia, as part of a global study which will include African case studies in 1995.

CIFOR field researcher, Dania Escobar, conducts an interview in south-eastern Honduras.

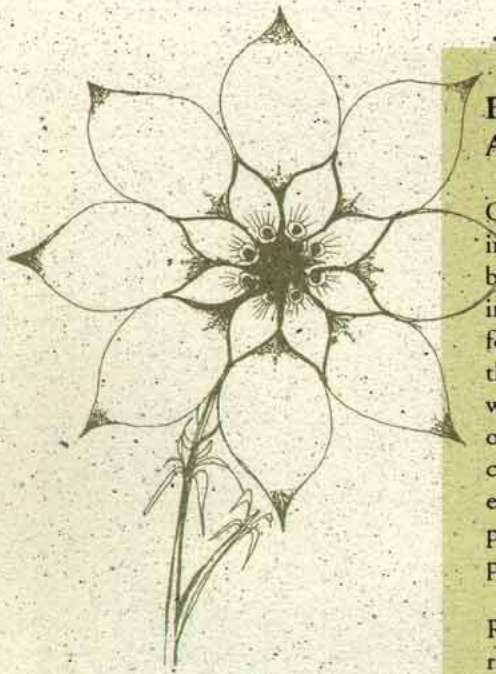


Structural Adjustment and Deforestation in Honduras

Honduras has one of the largest areas of broadleaved forest remaining in Central America. It also has a high rate of deforestation. The project on *Structural Adjustment, Livestock, and the Management of Broadleaf Forests in Honduras: the Case of Oláncho* examined how structural adjustment and privatisation policies in Honduras affect loss of broadleaved forest. Dr. William Sunderlin's research team sought to understand the links between livestock farming and deforestation, and the effect of the recent Law of Agrarian Modernization (LMA) on this relationship.

Among Honduras' 18 provinces, Oláncho has one of the highest rates of livestock production and also has one of the largest areas of broadleaved forest. A household survey obtained information on the assets and socio-economic status of livestock and non-livestock households, and on the views of heads of household on livelihoods and forest management. Key-informant interviews of government officials and forestry and livestock experts assessed knowledge of the livestock-forests link, to evaluate the effect of the LMA on both sectors and to seek policy recommendations. Recent national-level data were used to identify temporal changes in human migration patterns and in the location and quantity of livestock.

Preliminary research findings show an eastward and northward shift of the national cattle herd over time – toward the areas of remaining broadleaved forest. The effect of the LMA is mixed. On one hand, it increases the potential for conservation by requiring forest management plans and by annulling certain laws which induced deforestation. On the other hand, it has severely undermined the ability of the government to protect broadleaved forests, and it may have stimulated growth of the livestock sector.



On coastal sand dunes in Quang Tri Province, Central Viet Nam, new settlers are establishing viable livelihoods cultivating Casuarina equisetifolia.

Barriers to the Application of Forestry Research Results A IUFRO/FORSPA/CIFOR/FAO-RAPA Workshop

Over the last decade investment in forestry and agro-forestry research has substantially increased, bringing with it a steady outflow of research results. But these results have rarely been translated to perceptible changes in management of forests and trees. Forty-seven international participants attended this workshop in Bangkok to address the issue of "Why forestry research is less effective than it should be". The workshop was entitled "Barriers to the Application of Forestry Research Results". A diversity of perceptions of the problems was represented by the participants. Presentations and discussions dealt with a wide range of issues such as the motivation for undertaking research, the research process itself, the communication mechanisms between researchers and potential users, and the problems encountered by different user groups in applying research findings. Even though perceptions of the magnitude and importance of individual barriers varied, a consensus on problems in the research design stages finally emerged.

Research is initiated and primarily driven by interests of researchers and funding agencies rather than by the needs of prospective clients/users of research results. The supply-driven mode is particularly prominent in public-sector research. In the client-driven private sector, barriers to the application of research results are significantly lower. During the workshop supply-driven research, often attributable to a paternalistic approach to problem selection and definition which neglects the demands and needs of users, received considerable criticism. New strategies have to be developed to identify researchable issues, set research agendas, allocate financial resources and particularly to enable potential clients to make their voices and concerns heard.

The workshop report, by C.T.S. Nair (FORSPA), T. Enters (CIFOR) and B. Payne (IUFRO); is available as CIFOR Occasional Paper No. 5.

The Potential of (and impediments to) Local Management of Forests

Dramatic recent reforms of Indian forest policy have changed the relationship between forests and their traditional users. "India's Forest Management and Ecological Revival" was the title of a meeting to discuss research issues relating to these changes, held in New Delhi in February. The meeting is summarised in CIFOR Occasional Paper 3 and in a book of commissioned papers, edited by Uma Lele. In December, Dr N.C. Saxena, visited Bogor to prepare a monograph synthesising India's experiences with Joint Forest Management.

Miombo and related dryland forests of east-southern Africa play a key role in providing environmental and socio-economic benefits in rural areas. Intensive use has heavily modified the natural woodlands. Traditional systems of



woodland management have declined under centralised government authority particularly in more accessible and market-oriented areas. Existing legislation is inappropriate and ineffectual in responding to increased demands for land from expanding populations. A March 1994 Zimbabwe workshop on "Management and Utilisation of the Miombo Woodlands in Southern Africa" initiated the collaborative research program (Occasional Paper 2). A monograph synthesising the state of knowledge is under preparation.

Rehabilitation of Degraded Lands and Forests:

Many aspects of decision-making by households and groups about reforestation, whether on degraded lands or productive lands, are covered by the studies outlined above. The key issues about degraded lands are the technical obstacles to be overcome, and the likelihood of people choosing to plant trees on difficult sites. Research on socio-economic impediments has commenced in Indonesia, China and Viet Nam.



Villagers cutting acacia poles in a small woodlot on degraded land in southern Viet Nam.

Keys to Smallholder Forestation

During 1994, CIFOR analysed the "explosion" of farm forestry on degraded lands in parts of Viet Nam and southern China. Five barriers were identified; unless they are simultaneously overcome, widespread tree planting is unlikely to occur. Conversely, sustainable tree farming does exist whenever all five conditions are met.

1. Farmers must have secure long-term access to land on which to grow trees.
2. There must be a viable tree-production technology, and all the necessary inputs for that technology must be available: knowledge, fertiliser, credit, germplasm, etc.
3. Farmers must have reasonable confidence that they can protect their trees until maturity, from a variety of risks: fires, insect pests and diseases, theft, even expropriation.
4. There must be a market demand, reflected by attractive prices, and a market structure in which small producers are permitted to participate.
5. There must be relatively cheap physical access to that market (roads, rivers).

The current profitability and expansion of tree-farming systems in Central Viet Nam results from such a combination of factors. To enable tree farming to prosper in other countries, we must first assess which of the above constraints apply.



Jambi Province, Indonesia.

Protected and Peripheral Area Management

Preliminary field work began in Madagascar and Indonesia on an international research network which includes assessing the performance of Integrated Conservation and Development Projects. CIFOR is testing alternative models of participation by local people in resource management and alternative institutional structures to simultaneously achieve conservation and social-development goals.

Income Generation and Incentives for Forest Management among Forest Villagers

Opportunities for income generation, and the conditions under which these are compatible with conservation, are the focus of research which began in Indonesia. It explores innovative activities and institutional arrangements to increase forest villagers' income and institutional arrangements to secure property rights, resolve conflict and distribute benefits. Simple methodologies for rapid assessment of income needs and conservation-compatible opportunities, are being developed. Four international partner organisations are involved – BCN, WWF-I, ICRAF and ORSTOM – and numerous local NGOs and universities. A general framework for the above activities was explored at a workshop on "Local Organisations in Natural Resource Management" (with IFPRI, ODI, ISNAR and others) in October. It examined the potential for, and constraints on, local organisations to manage forests, irrigation, rangelands, and fisheries. Participants assessed and further developed methodologies for the co-operative analysis of local institutions.

Two recurring themes throughout the research in Amazonia, Southeast Asia, India, and southern Africa are:

- a) Alternative institutional frameworks for forest management, including devolution of decision making about forest use to local people, and development of resource-sharing schemes; and*
- b) the impacts of national and international economic policy decisions (including definition of property rights and changing access to markets for non-industrial forest products) on how local households interact with forests.*

Equitable Distribution of Benefits and Costs

Basic methodological research on valuation of forest benefits accruing to all parties concerned includes NTFPs for local subsistence or for markets, and contingent valuation techniques for external benefits (including eco-tourism). Further progress depends on measuring physical relationships e.g. watershed outputs, soil erosion losses, quantifying biodiversity or carbon sequestration. Detailed case studies are under way in Southeast Asia (in co-operation with the World Bank, TDRI and WWF-Philippines) to collect data and refine analytical techniques for forest valuation.

Dayak preparing bamboo shoots, Ella Ullu river, Bukit Baka/Bukit Raya National Park, West Kalimantan, Indonesia.



MANAGEMENT AND CONSERVATION OF NATURAL FORESTS

Research aims to:

- quantify the importance of environmental services and other benefits associated with low-impact harvesting and management practices contributing to the sustainable production of both timber and NTFPs from natural forests in the tropics;
- improve understanding of forest ecosystem management principles and how they can best be applied to improve the integrated management of forested landscapes in the tropics, including those in which non-forest land uses are also significant;
- improve understanding and application of silvicultural principles in tropical natural forests;
- develop technologies to assess, monitor and understand the role of biological diversity in forested lands, and develop strategies for managing forests to optimise biodiversity;
- acquire and analyse datasets on growth and yield in both managed and unmanaged natural forests in the tropics in order to derive robust growth and yield models for such forests; and
- contribute to an understanding of the special management and conservation needs of dry-zone tropical woodlands.

Low-Impact Forest Harvesting and Management

Reduced-Impact Logging (RIL) as a Carbon Offset

The first phase of research in Sabah, Malaysia, concluded in 1994 with the completion of controlled logging of a 450 ha parcel in Ulu Segama Forest Reserve. CIFOR scientist, Francis E. Putz, and Michelle A. Pinard compared the amount of damage to the residual forest trees and soil in this controlled logging area with a similar area subjected to conventional logging. Logging damage was reduced by about 50% when logging was planned and supervised, in comparison with conventional harvesting. This difference in logging damage is associated with a substantial difference in carbon retained in living biomass in the RIL area. Given the relatively low cost of this increased carbon sequestration due to implementation of reduced-impact logging guidelines, attention is being drawn to the project world-wide as a model for joint implementation of a forestry-based approach to carbon offsetting.

A second phase of the project is under consideration, which may include helicopter logging.



Pandanus moss forest, Gunung Tujuh National Park, Sumatra, Indonesia.



EMBRAPA experimental station at Belterra, Para State, Brazil. Enrichment planting at 18 years - *Cordia goeldiana* is the best species for planting.

Silviculture is a critical element for sustainable forest management in the tropics. Initial efforts are being dedicated to the development of regional (neotropical) and global syntheses of silvicultural research for natural forest management and to the identification of silvicultural research priorities for which CIFOR would have a comparative advantage with respect to humid tropical forests. A post-doctoral research fellow has been placed at CATIE in Costa Rica to initiate silvicultural research on young secondary forests, an extensive forest resource in the region that has developed because of recent changes in agricultural policies. He has identified several research sites in collaboration with private landowners and has collected initial field data for tree inventory and mapping. The primary objective of his research is to develop guidelines for property owners on simple silvicultural refinements that can be applied in such forests to improve timber production while simultaneously protecting biodiversity.

A project on *Sustainable Forest Management in West and Central Africa*, undertaken collaboratively with UNEP for Anglophone West Africa and with CIRAD-Forêt for Francophone West and Central Africa, is designed to compile comprehensive information on sustainable forest management in the humid lowland forests of the region. The Forest Research Institute of Ghana was identified as CIFOR's main partner institution in the project for Anglophone West Africa. A plan of work has been laid out for the project, including a series of workshops to address stakeholder, community management and multiple-resource issues. A preliminary report and annotated bibliography on research in Ghana and Nigeria has been prepared, and a project steering committee has been constituted and met in December 1994 to review progress and plan the remaining work in the Anglophone countries. For Francophone West and Central Africa, agreement was reached with CIRAD-Forêt to place a team of three scientists in Gabon to collect information and conduct workshops.

Testing Criteria and Indicators for Sustainable Management of Forests

With funding from BMZ/GTZ and the EU, CIFOR is undertaking a project to identify criteria and indicators which are objective, cost-effective and relevant for assessing the sustainable management of forests. Field trials will evaluate existing criteria and indicators under a variety of climatic and socio-economic conditions. During 1994 a comprehensive plan of action was developed which includes field tests in Germany (completed in November 1994), Indonesia, Côte d'Ivoire, and Brazil. Each test is carried out by a small team of international experts (a forester, an ecologist and a social scientist) complemented by two or more local experts; usually one forester with experience working under local conditions.

A problem identified during the test in Germany is that social indicators are not well-represented in the sets of criteria and indicators which have been selected for testing. CIFOR's social scientists are now collaborating in the development of social criteria and indicators which are specifically relevant to tropical forests and the socio-economic conditions typical of such tropical countries. These criteria and indicators will be used in the three remaining tests. A preliminary report for the test in Germany has been drafted and the International Project Advisory Panel met in December 1994 to review the results and to discuss strategies for the remaining tests.

REFORESTATION OF DEGRADED LANDS



Imperata grasslands dominate the landscape in many parts of Asia. This photo is in Mindanao, Philippines.

The major focus has been on the management of tree-planting systems to maintain or enhance the productivity of forest lands, particularly those which have been degraded or are of inherently low-fertility. Emphasis is given to research which will ultimately benefit small-scale forestry enterprises and conservation of forest resources, at the same time recognising that large-scale initiatives can create employment, drive economic growth and thus assist in poverty alleviation.

Successful reforestation of degraded lands requires the choice of species, provenances and genotypes which are adapted to local site conditions. Matching species to site is a complex task which requires an understanding of ecology, products and markets, and socio-economic conditions. CIFOR is adopting an interdisciplinary approach to develop procedures to assist correct species selection. In the tropics, tree planting is largely confined to sites which have low fertility status and which often have been eroded or compacted. Under these conditions, tree establishment is difficult and productivity may be low. Where fast-growing trees such as eucalyptus or pines are grown on short-rotations, soil conditions may deteriorate resulting in declining productivity in subsequent rotations. Sustainable forest production is dependent on the maintenance of soil fertility and structure. CIFOR is initiating research to study the processes of soil degradation under trees and will develop management options to make plantations more sustainable.

Research has concentrated on the following areas:

- Non-industrial techniques for reforestation of degraded lands;
- Matching tree species/genotype to biophysical site conditions and management systems;
- Techniques for characterising genetic variation and relating it to

physiological and morphological adaptations;

- Yield in second and subsequent rotations of tree plantations.

Imperata Grasslands

Results of a study, *Afforestation and Rehabilitation of Imperata Grasslands in Southeast Asia: Identification of Priorities for Research, Education, Training and Extension*, was published in collaboration with ACIAR. The study concluded that the most urgent problems stem from issues of land tenure and security, and hence land policy and planning. The incidence of fire was also a major factor influencing the success of plantings. A research agenda was suggested which recognises that both biophysical and socio-economic problems need to be addressed. CIFOR, in collaboration with ICRAF, ACIAR and ODA, planned an international workshop to examine options for innovations in the use of *Imperata* grasslands, including a review of options for smallholder, timber-based systems. The meeting, in Banjarmasin (Indonesia) in January 1995, will determine research priorities, prepare material for publication and develop policy recommendations. The work will be continued in a 3-year collaborative project, *Improving Smallholder Farming Systems in Imperata Areas of Southeast Asia – A Bio-economic Modelling Approach*, with collaborators in Indonesia and the Philippines. This is an input to the global project on *Alternatives to Slash and Burn Agriculture*.



Site preparation for *Acacia mangium* at P.T. Riau Andalan Pulp and Paper plantation, Sukamenanti, Riau-Province, Indonesia.

Molecular Genetics

Recent developments in biochemical and molecular marker techniques will enable more effective screening of germplasm for breeding and for conservation planning. These techniques need further development to optimise their use for tropical trees and ecosystems. They also need to be combined with more conventional studies on the genetic basis of morphological and physiological variation.

The use of DNA technologies to characterise genetic variation in trees is in its infancy and few laboratories in developing countries have access to the more complex technologies at this stage. This project is being conducted at the Oxford Forestry Institute to develop protocols for tropical tree species and to train developing country scientists in their use and application. Initial studies have involved a Mexican scientist using non-coding chloroplast DNA to investigate differences between Mexican pine species.

Establishment and Sustainability of Plantations on Degraded Lands

A number of inter-related research activities were initiated in 1994 which include:

Management of Soil, Water and Nutrients in Plantations: A multi-authored book is in preparation with the aim to improve understanding of the role of water and nutrients and their interactions in problems of tree growing and of sustaining forest production in tropical and sub-tropical environments. The book will emphasise a holistic approach to soil,

Improving Access to Information

Scientists at the University of Alberta have been developing a user-friendly, Windows-based computer package for analysis of genetic data. Specifically the package will enable (a) characterisation of single and multi-locus genetic structure in natural populations from analysis of isozymes, RFLPs or RAPDs; (b) characterisation of genetic structure of natural populations from analyses of quantitative traits; and (c) testing for the selective significance of isozymes, RFLPs, RAPDs or quantitative traits. Trial data for the programs comes from quantitative and bio-chemical studies on *Pterocarpus macrocarpus* and *Dalbergia cochinchinensis*. It is anticipated that the improved and simplified analysis methodology will be used to analyse innumerable datasets in existence around the world. The project will also provide training for scientists from tropical countries.

Dipterocarp Research

Dipterocarps form the most important family of tropical trees in Asia. Their use in the reforestation of logged-over rain forest is still limited and many research questions need to be resolved. A critical review of the most important research carried out to date will identify priority research activities and assess current research efforts. This will assist many organisations, including CIFOR, to develop research agendas for dipterocarps.

The preliminary findings were presented at an international forum, the Fifth Round Table Conference on Dipterocarps, in Thailand in November 1994. A monograph will be published during 1995.

Dipterocarps in Jambi Province, Indonesia.



Right : Logging dipterocarps in swamp forest in Sarawak, Malaysia.



Top left : Four-year old planting of *Acacia mangium* at P.T. Musi Hutan Persada plantation, Subanjeriji, South Sumatra, Indonesia.

Below : Hybrid eucalypts already more than 8 metres tall at two years of age on a degraded site in Guandong, China. Is this rate of growth sustainable?

water and nutrient management, and review critical issues in a multi-disciplinary context. It will particularly benefit those involved in research on productivity of tropical plantation forests, who may be working in national or international research centres in tropical and sub-tropical countries. It will also be of value to the rapidly expanding state and private plantation forestry sectors in developing countries. A workshop of main contributing authors will be held in Indonesia in early 1995 to review the drafts and finalise arrangements for publication.

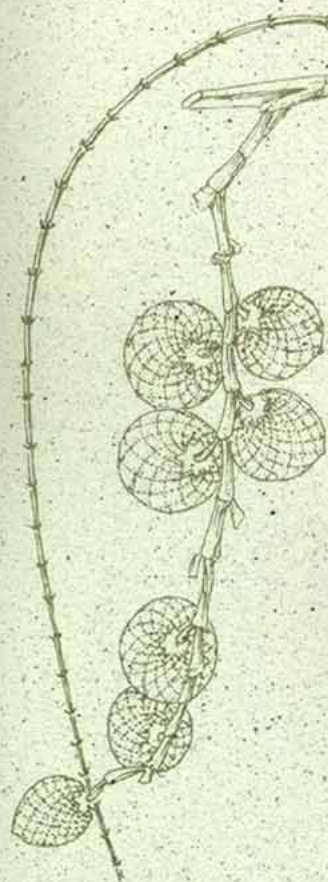
Rehabilitation of Degraded Forests: A concept proposal was developed with the Japanese Forestry and Forest Products Research Institute for work which will (a) monitor ecological changes to sites after timber harvesting and in tree plantations; and (b) assess the productivity of degraded secondary forest and of plantations established on degraded lands. The research is intended to form part of a major activity to monitor productivity and related soil and water processes in plantations of fast-growing trees on low-fertility sites under different management regimes.

Alternative Socio-economic Approaches to Reclaiming Degraded Lands: A proposal was developed with the Chinese Academy of Forestry, the Ford Foundation and IDRC to study the results of efforts to reclaim such areas. Rapid reforms of land tenure, market access and institutional structures in China have greatly facilitated reforestation of degraded lands by small farmers. Aspects of this reform will be researched by CIFOR's social scientists.

Much of the reforestation is with fast-growing trees such as Chinese fir and eucalyptus and the Chinese have recorded site deterioration and lowering of productivity of the plantations in the second and later rotations. CIFOR, as part of its work on the sustainability of fast-growing plantations on poor soils, is supporting research into the underlying processes which cause site deterioration and into the development of appropriate management strategies.

Sustainability of Plantations in the Tropics: It is essential to understand whether plantations are sustainable in their long-term role of alleviating deforestation, and providing industrial, social and environmental goods and services. The perennial nature of trees and their deep-rooting characteristics render most agricultural precedents irrelevant in considering this question. A project protocol has been developed to select model species in representative tropical and sub-tropical environmental situations to devise a set of core management treatments which can be applied and whose effects can be measured. The output will be a basis on which more sustainable management options can be proposed. Several locations in Asia, Africa and South/Central America are under consideration for this research.

PRODUCTS AND MARKETS



Dayak collecting fruits which have medicinal properties. Bukit Baka/Bukit Raya National Park, West Kalimantan, Indonesia.

The appointment of an acting director in mid-1994 allowed expanded contacts with potential collaborators and national research partners in Brazil, Chile, Costa Rica, Kenya, Cameroon, Sri Lanka, India, China and Indonesia. Activities have been focused on non-timber forest products (NTFPs) and related issues. Research aims to value the role of NTFPs in the life of the rural poor, the market and forest economy, as well as in the sustainable management of the forests.

Visits to various institutions and field sites enhanced the opportunity for future collaboration with local researchers. Two trips to Latin America led to interaction with representatives from many institutions and NGOs such as EMBRAPA, IBAMA, INPA, PESACRE, FUNTAC, CIAT and CATIE. A trip to China included visits to RISF-CAF and RICPUFP-CAF. One field trip to Sri Lanka established contact with researchers from the University of Peradeniya, while

Forging Links with Key Collaborators

Workshop on Extractivism and Potentialities of Multiple Use Forest Reserves in Africa – Naro Moro, Kenya (8-13 May 1994)

National Meeting on Indonesian Bamboo Research Strategy – Serpong, Indonesia (21-22 June 1994)

Consulta de Expertos sobre Productos Forestales No Madereros para America Latina y el Caribe – Santiago, Chile (4-8 July 1994)

INBAR Research Advisory Group Meeting – Beijing, China (1-5 September 1994)

International Conference on Forest Product Certification System. A Case Study of Indonesian Scheme – Puncak, Indonesia (14-17 September 1994)

Research Priorities in the Brazilian Amazon – Rio Branco, Brazil (17 October 1994)

Non-timber Tree Products Market Research Workshop – Annapolis, USA (12-14 December 1994)


potential research sites within Indonesia itself were evaluated by travel to Sumatra and Kalimantan.

One major achievement has been the development of a conceptual framework for CIFOR's research on NTFPs. This paper, "Global Patterns and Trends of NTFPs", involves the formulation of a strategy to provide a common framework for the analysis and understanding of the many dispersed studies on NTFPs. It is being developed in collaboration with the Oxford Forestry Institute. A number of other short-term studies have been initiated, many resulting from the contacts established through visits to the institutions mentioned above. The results of these studies are seen as building blocks for the *Global Patterns and Trends of NTFP* research.

The short-term collaborative activities that were initiated in 1994 include the following:

Bamboo in Indonesia: A Survey of Research. In collaboration with the Research and Development Centre of Applied Physics-LIPI, the Research and Development Centre of Biology-LIPI and the Environmental Bamboo Foundation, a 2-day National Meeting on an Indonesian Bamboo Research Strategy was convened to provide a forum for reporting the progress, results and development of bamboo research in Indonesia in the past ten years. In addition, the meeting was a means to foster closer relationships among





bamboo researchers in Indonesia for future collaboration. It brought together 65 participants from research institutes, universities, private companies and non-governmental organisations.

Shift from Planned to Market Economy of Bamboo in China (with RISF-CAF). China has undergone rapid economic change in recent years. CIFOR, together with the Research Institute of Subtropical Forestry (Chinese Academy of Forestry), is documenting one component of these economic changes by focusing on the production, processing and marketing of bamboo in Zhejiang, China. The project examines the importance of bamboo in the economy of the province, where more than 70,000 people are directly employed in the bamboo sector. The impacts of the transition from a planned to a market economy are also being studied.

Valuation of Non-wood Forest Products in Sri Lanka (with the University of Peradeniya and IUCN). The true economic value of NTFPs to local communities which use the forest for subsistence and commercial needs is not currently known. The University of Peradeniya, IUCN and CIFOR initiated a project to analyse the existing datasets on NTFP usage in Sri Lanka, to explore different appraisal techniques for valuing forest products, to provide information about valuation of NTFPs to policy makers and to build a network of people working on issues of valuation of NTFPs to contribute to policy analysis. Field work was conducted from August to October 1994 and analysis of the results is currently under way.

Household Strategies for NTFPs in Indonesia (with ICRAF). This research by CIFOR, in collaboration with ICRAF, aims to advance understanding of the opportunities for income generation among forest villagers and the strategies adopted under different environmental and socio-economic conditions. The first proposals were developed at the end of 1994 to be completed in 1996.

Marketing of NTFPs in West Africa (with HTA). This activity tries to characterise the marketing of NTFPs in Cameroon. Amongst the various issues to be examined are the channels through which NTFPs flow from the farmer to the final consumer, the quantity of NTFPs marketed, marketing costs and margins of market intermediaries, policies and actions needed to improve the functioning of the markets.

Non-timber Forest Products in East and Southern Africa. IUCN-EARO has been commissioned by CIFOR to establish and enhance a network of key institutions and individuals in eastern and southern Africa involved in research and pilot activities related to non-timber forest products. IUCN-EARO will also identify and elaborate key issues and opportunities for further research and exploration and to facilitate the development of project concepts for co-operative research by national and regional institutions.

NTFP Database Survey

Many databases on NTFPs exist but may not be known to potential users. CIFOR will conduct a survey on NTFP databases, to assess their complementarity and to establish linkages and networks. Initiated late in 1994, this activity will continue into 1995 and is expected to be completed in early 1996.





Trends in Uses of Medicinal Plants.

CATIE and CIFOR will analyse the trends in the uses of medicinal plants in Central America, focusing mainly on Costa Rica. The project intends to study the present use and trends related to three main factors: type of population (indigenous, criolla or afro-caribbean), age and access to Western medicine and large markets in urban areas.

Publication on Uses of Chilean Palm (with University of Chile). The Chilean palm has been heavily exploited in the last few centuries bringing its former large populations to an endangered situation. The best patches are now located in protected areas or in large estates that are being exploited with improved management or under plantation conditions. CIFOR will document the present situation and the potentially beneficial links between conservation and management.

Publication on Chemical Uses of NTFP.

A joint activity with the Research Institute of Chemical Processing and Utilization of Forest Products (Chinese Academy of Forestry), this publication concentrates on the chemical uses of NTFPs in China. It will describe the various products and industrial production and marketing aspects of these products, as well as examining policies towards chemical uses of NTFPs.

The above activities will lay the foundation for more research opportunities and better collaboration with national research partners and institutions in coming years.



*Dayak cleaning damar stone,
Ella Ullu river, Bukit Baka/Bukit
Raya National Park, West
Kalimantan, Indonesia.*

— FOREST ECOSYSTEM MANAGEMENT INITIATIVE

Forest Ecosystem Management (FEM) is concerned with developing improved management methods that focus on the ecological relationships of a species within an ecosystem, rather than in isolation from its system determinants. Until now, the holistic nature of forest ecosystem dynamics, in particular the functional linkages between people and forests, has not received adequate recognition. FEM will use recently developed systems technology to generate testable, holistic models based on ecosystem dynamics that will focus on key interactive biophysical and socio-economic elements of forest performance.

The outcome will be a generalisable tool for generating improved, cost-efficient management options that can be applied via simple, decision-support systems by forest managers, planners and policy makers. CIFOR's international perspective places it in a unique position to undertake this complex, global task. The challenge is to develop both appropriate modelling parameters and also to obtain data from representative tropical forest eco-regions. Four initial key global sites have been identified: in Africa (Cameroon), Indomalesia (Sumatra, Kalimantan) and Latin America (Rondonia).

FEM is a CGIAR global eco-regional initiative that seeks input from national research systems and other centres, and in particular within-country NARS. Initial contact with NARS representatives has laid the groundwork for selection of sites. Although new data are to be acquired, FEM will, as far as possible, build on existing data and expertise in co-operation with in-country partners. FEM will utilise the multi-disciplinary research skills within CIFOR to address problems that demand multi-disciplinary input.

Key elements of FEM are concerned with:

- Identification of management objectives and global partners
- Establishment of global benchmark sites
- Development of a generic method of data collection and analysis
- Survey of benchmark sites and establishment of spatially referenced database
- Use of GIS to facilitate building of forest management models using biophysical and socio-economic data
- Field-testing of models
- Communication and transfer of results and technology

Rattan collectors crossing Ella Ullu river, Bukit Baka/Bukit Raya National Park, West Kalimantan, Indonesia.



CIFOR IN AFRICA

CIFOR activities in Africa are carried out in close collaboration with a number of international and national institutions. These key links have allowed research to be undertaken in both Anglophone and Francophone countries of Africa. Work is presently centred on the Congo Basin in West Africa and the Miombo Woodlands of southern and eastern Africa.

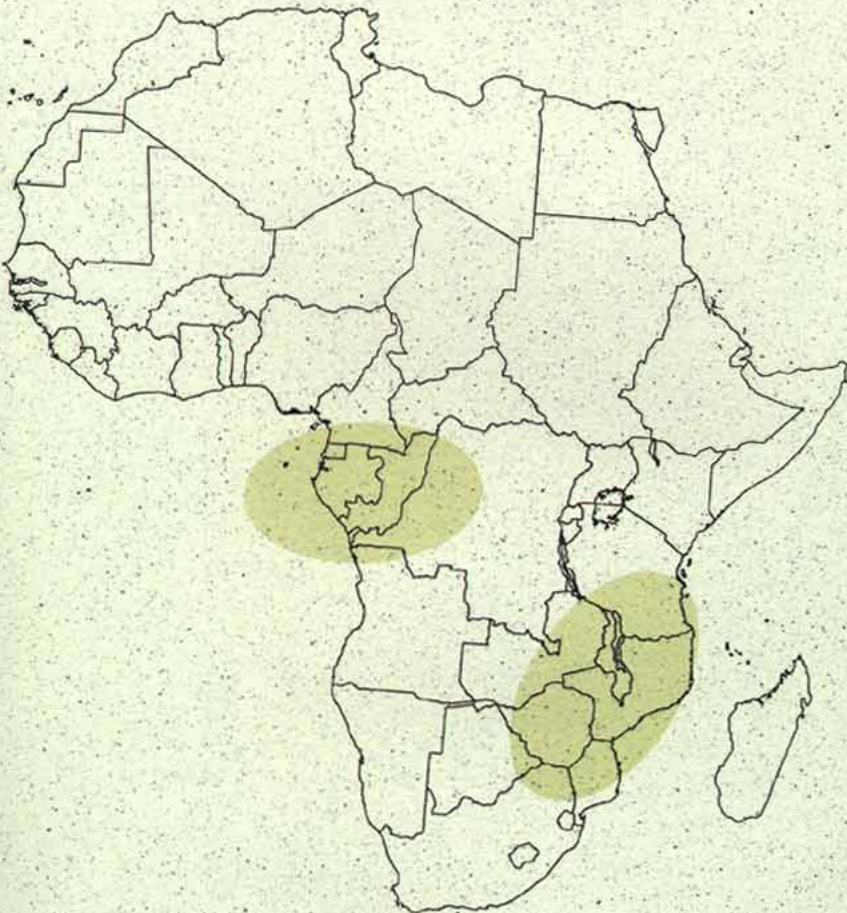
A contract has been signed with UNEP to assess and synthesise sustainable forest management practices in Anglophone West Africa, while CIRAD-Forêt co-sponsors a parallel project in Francophone Central and West Africa. The Forest Research Institute of Ghana is the main partner institution, although a number of other research agencies and forest departments are also involved.

Traditional systems of woodland management have been studied in the Miombo Woodlands of southern Africa with the involvement of scientists primarily from the University of Zimbabwe, the Zimbabwe Forest Research Centre and the Malawi Forest Research Institute. This interdisciplinary study examines the interactions of socio-economic and demographic change, woodland ecology and commercialisation of non-timber forest produce.

As part of an international research network, Integrated Conservation and Development Projects are being studied along with alternative models for participation by local people in natural resource management. Preparatory work is under way in Madagascar with the University of Antananarivo, ANGAP and DEF.

An Africa-wide review of forest policies and their implementation is being conducted in conjunction with the FAO, AfDB and researchers in 22 countries of the region.

Fruit crushing using traditional techniques at Centre National de Semences Forestières, Burkina Faso.





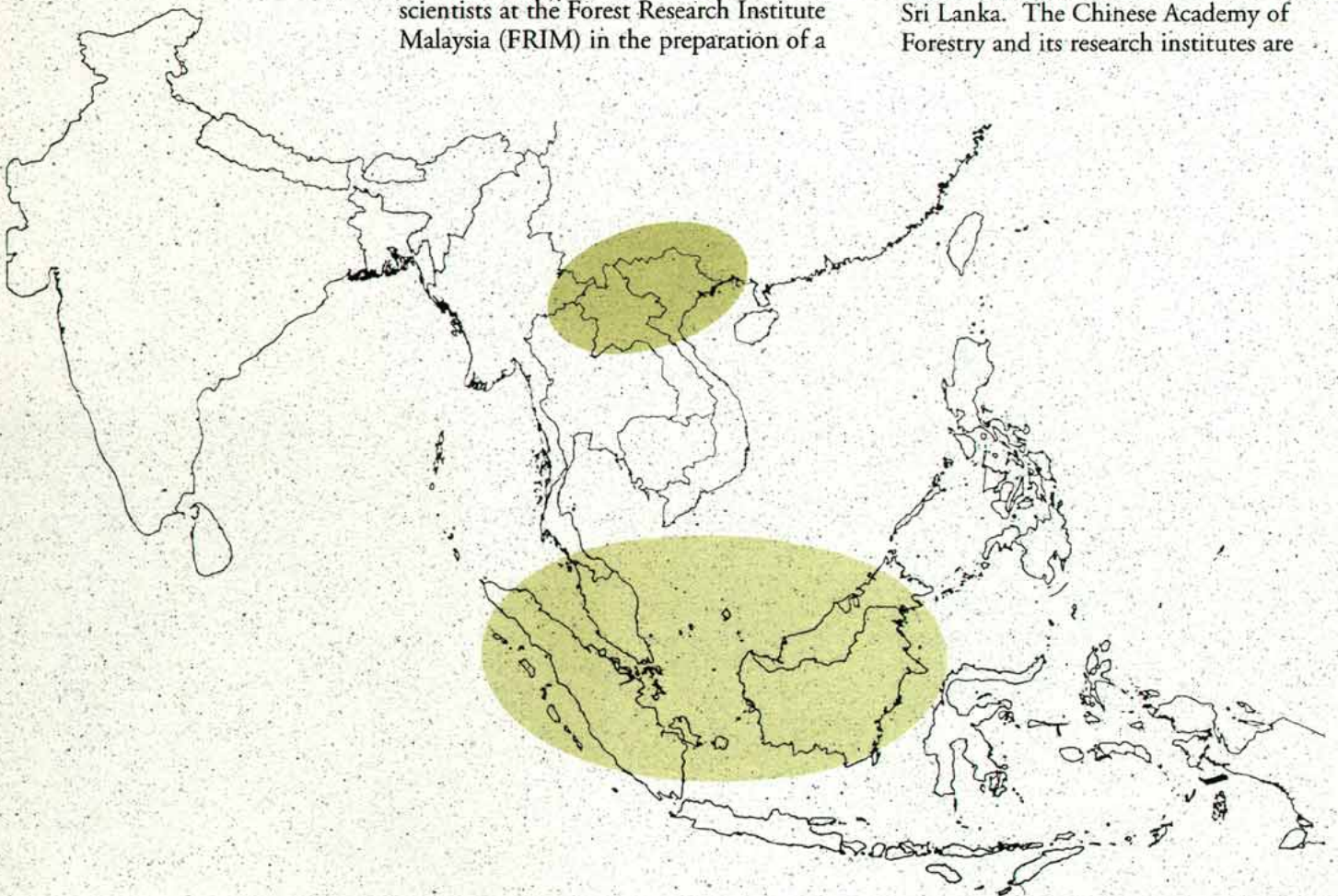
CIFOR IN ASIA

CIFOR's base in Bogor, Indonesia, has allowed rapid growth of interactions with several Asian countries and their NARS. At present, CIFOR's most extensive work and planning have been in the humid tropical lowlands of Indonesia and Malaysia, especially in East Kalimantan, West Lampung and Jambi Provinces of Indonesia. Some additional work has been initiated in the uplands of mainland Southeast Asia and China.

The universities and research institutes within Indonesia have collaborated in the conduct and planning of research within the country. The University of Indonesia and WWF-Indonesia are participating with CIFOR's *Income Generation and Incentives for Forest Conservation Project* which will begin in January 1995. There has been active collaboration with scientists at the Forest Research Institute Malaysia (FRIM) in the preparation of a

book reviewing the state of knowledge on Dipterocarps and identification of priorities and needs for future research. Scientists at FRIM are also working with CIFOR in genetic studies of natural forests using advanced biochemical and molecular techniques and in surveying fungal pathogens in tropical acacias in plantations.

The Thai Department of Land Development joined CIFOR staff in the study of *Environment and Population Interactions in Northern Thailand* with the aim of increasing the understanding of connections between biophysical and socio-economic factors in the conservation of forests. Staff of IUCN and the University of Peradeniya in Sri Lanka have taken part in field work to assess the uses, marketing and importance of NTFPs in Sri Lanka. The Chinese Academy of Forestry and its research institutes are



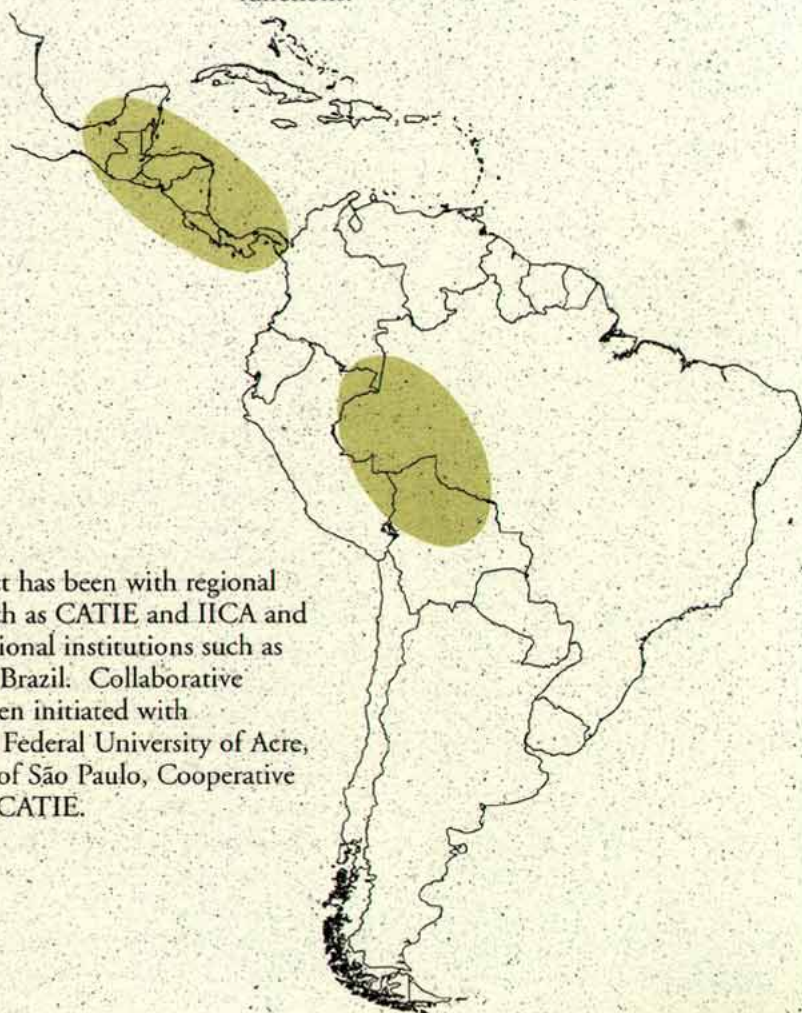
CIFOR IN LATIN AMERICA

investigating bamboo production in Zhejiang Province, in collaboration with CIFOR and INBAR. Planning is well advanced for a joint activity with the Chinese Academy of Forestry to research socio-economic and biophysical aspects of reforestation of degraded lands in southern China.

As part of a series of international comparisons (jointly with World Bank staff), partners in Thailand and the Philippines are engaged in collection and analysis of data to test and refine techniques for comprehensive valuation of the socio-economic benefits of retaining natural forests in a variety of contexts.

International collaborators have maintained close contact with CIFOR's work in Asia. ICRAF, ORSTOM, the World Bank, FORSPA and IUFRO have co-operatively staged workshops and joined in research activities and planning. CIFOR is seeking to support the CGIAR eco-regional initiative by developing research in collaboration with ICRAF, IRRI and potentially other CGIAR centres at the eco-regional sites in Jambi, West Sumatra and East Kalimantan Provinces.

During 1994, CIFOR staff visited South and Central America to initiate research collaboration with regional and national research institutions. A number of proposals are currently in the planning stages. Our interactions with scientists in national systems and with other IARCs active in the region suggest that CIFOR's impact could be maximised by initially focusing our efforts in two areas. The first of these would be in the western Amazon states of Acre and Rondonia in Brazil, and adjoining areas of Bolivia and Peru. The second would take in the countries of Central America. However, some potentially valuable partners in CIFOR's global research agenda are located outside these areas, notably in southern Brazil for plantation silviculture, and in Guyana for forest ecosystem functions.



Primary contact has been with regional institutions such as CATIE and IICA and with major national institutions such as EMBRAPA in Brazil. Collaborative research has been initiated with BOLFOR, the Federal University of Acre, the University of São Paulo, Cooperative of Xapuri and CATIE.

RESEARCH SUPPORT AND INFORMATION SERVICES

Staffing

With the appointment of a Librarian, GIS Specialist and Director in 1994, the ability to provide support for CIFOR's research activities was greatly expanded. A consultant Computer Systems Specialist was contracted from CGNet to set up the computer facilities, including the local area network (LAN), the E-Mail connections, and the GIS facilities. A part-time Editor was appointed to take charge of the increasing load of publications. Towards the end of the year, steps were taken to fill the positions of Statistician, Computer Systems Specialist, Systems Modeller and Scientist (Impact Assessment).

GIS

The Biodiversity Map Library of the World Conservation Monitoring Centre is installed at CIFOR. A wide range of users have been able to benefit from the GIS services provided by CIFOR. Some of the agencies which have been able to take advantage of the facilities include the Indonesian Directorate of Forest Protection and Nature Conservation (PHPA), ICRAF, the University of Indonesia and WWF.

Training and other support to NARS is a key element of CIFOR's mandate. Planning is complete to sponsor a meeting of the heads of forestry research of the Asia Pacific Region to consider the directions of research. Training courses for librarians in the use of the TREE-CD abstracting system and a training workshop for forestry editors are both fully subscribed.

Publications

The quarterly newsletter, *CIFOR News*, is the primary means for disseminating information about CIFOR's activities. To celebrate CIFOR's first year of operation, a Special Anniversary edition was issued in April. *CIFOR News* now is produced in

French (in co-operation CIRAD-Forêt) and Spanish (with IICA, Costa Rica), as well as in English, and has a world-wide distribution of over 3000.

The *CIFOR Working Papers* and *Occasional Papers* series were launched in September 1994. The *Working Papers* are used to circulate working drafts of papers for peer review and comment, while *Occasional Papers* are a vehicle for CIFOR staff and associates to publish papers that cannot be accommodated in scientific journals or for the republication of journal papers. Four *Working Papers* and three *Occasional Papers* were completed in 1994.

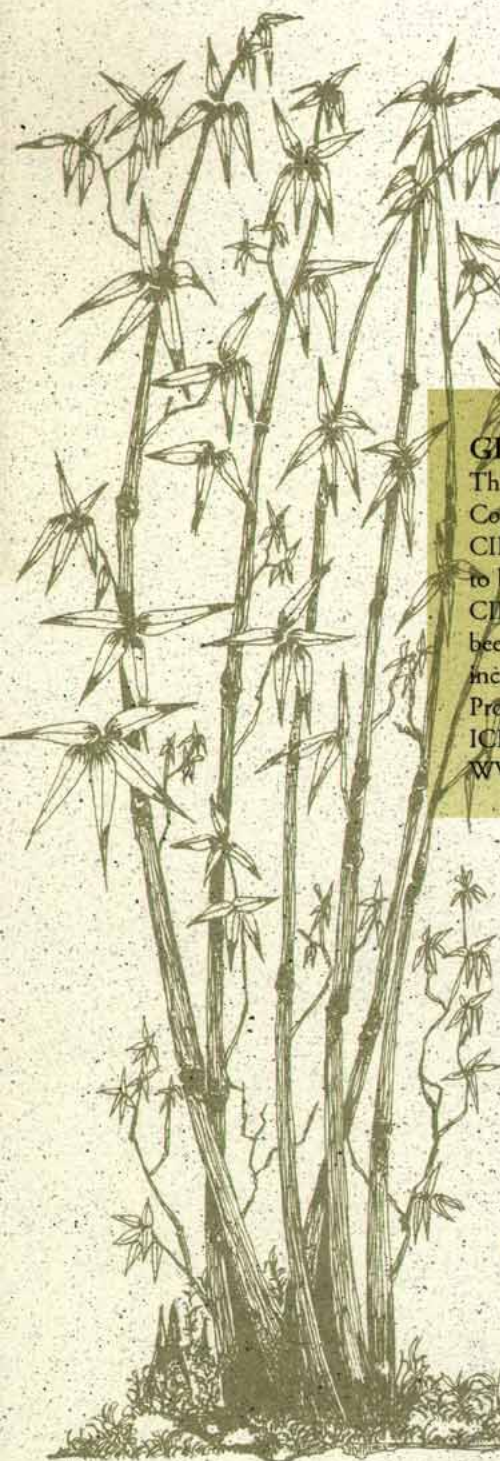
The 1993 *Annual Report*, which was CIFOR's first, was published in 1994 in English and Indonesian.

Database Management and Dissemination

A database of CIFOR alumni has been established to develop and maintain an overview of researchers who have received CIFOR sponsorship for training courses, workshops, seminars or conferences, as well as in relation to research activities. A wide range of expertise is represented. In this way CIFOR is able to monitor its capacity building activities. This will enable us to carry out analyses at various levels, such as regions, countries, institutions, individuals or research areas, to support the establishment of long-term relationships between CIFOR and associated scientists and institutions.

The CIFOR mailing list database was further developed and improved. It now totals over 3000 addresses that selectively receive *CIFOR News* and/or other CIFOR publications.

During 1994 a number of relevant external databases were received and integrated into the general CIFOR Database System, including bibliographic, text and numeric databases. This system allows researchers to access and use



ADMINISTRATION AND FINANCE

The basic objective of Administration and Finance in 1994 was to establish and strengthen systems to support the operations of CIFOR while ensuring adequate internal control. Many new staff joined in 1994 or assumed new responsibilities. A number of consultants were engaged over the year to help meet the workload and provide training.

Systems were installed or refined in the areas of purchasing, visa requisition and communications. Basic equipment and vehicles were also acquired. The temporary office facilities provided by the Ministry of Forestry at Gunung Batu were expanded and upgraded during 1994, and three small guesthouses established to accommodate newly arrived staff and visitors.

The Human Resources section was active in identifying and recruiting suitable national and international staff. A review of the Policy manuals was initiated and medical plans for the nationally hired employees further developed. An initial Performance Appraisal System was developed with staff participation and applied in December.

Finance

The SunAccount financial system was installed in May and components became operational over the year. The financial tables that follow show CIFOR's financial position at 31 December and summary of operations for 1994. Full copies of the audited financial statements are available from the Office of Administration and Finance.



*Orchid (Vanda tricolor), Cibodas,
West Java, Indonesia.*

STATEMENT OF FINANCIAL POSITION

AS AT 31 DECEMBER (US.\$000)

	<u>1994</u>	<u>1993</u>
ASSETS		
Current Assets		
Cash on hand and in banks	6,594	5,203
Accounts receivable:		
Donors	628	474
Employees	71	-
Others	192	109
Prepaid expenses	<u>427</u>	<u>201</u>
Total current assets	<u>7,912</u>	<u>5,987</u>
Fixed Assets		
Property, plant and equipment	1,100	490
Less: Accumulated depreciation	229	15
Total fixed assets - net	<u>871</u>	<u>475</u>
TOTAL ASSETS	<u>8,783</u>	<u>6,462</u>
LIABILITIES AND NET ASSETS		
Current Liabilities		
Accounts payable:		
Donors	954	309
Others	28	-
Accruals and provisions	<u>655</u>	<u>358</u>
Total current liabilities	<u>1,637</u>	<u>667</u>
Net Assets		
Capital invested in fixed assets	871	475
Capital fund	2,132	2,528
Operating fund	<u>4,143</u>	<u>2,792</u>
Total net assets	<u>7,146</u>	<u>5,795</u>
TOTAL LIABILITIES AND NET ASSETS	<u>8,783</u>	<u>6,462</u>



STATEMENT OF ACTIVITIES AND OPERATING FUND

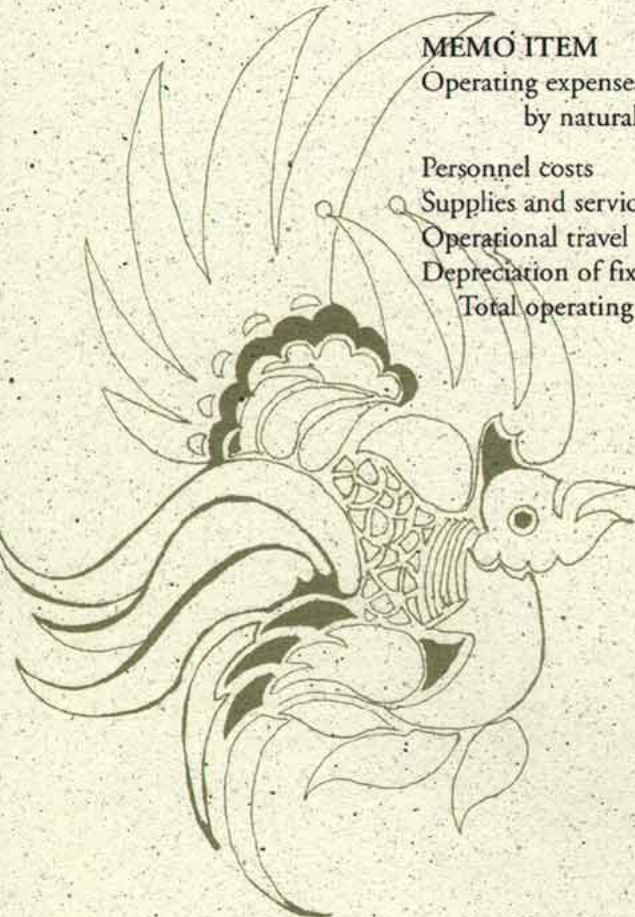
YEAR ENDED 31 DECEMBER 1994 AND FROM 5 MARCH 1993
TO 31 DECEMBER 1993 (US \$ 000)

	1994				1993
	Core		Complementary	Total	
	Unrestricted	Restricted			
Revenue					
Grants	5,767	30	281	6,078	5,058
<u>Other revenues</u>	<u>88</u>	<u>-</u>	<u>-</u>	<u>88</u>	<u>59</u>
Total revenue	<u>5,855</u>	<u>30</u>	<u>281</u>	<u>6,166</u>	<u>5,117</u>
Operating expenses					
Research programs	2,227	25	65	2,317	1,648
Research support	808	-	216	1,024	378
General administration	1,469	5	-	1,474	675
Total operating expenses	<u>4,504</u>	<u>30</u>	<u>281</u>	<u>4,815</u>	<u>2,701</u>
Excess of revenue over expenditure	<u>1,351</u>	<u>-</u>	<u>-</u>	<u>1,351</u>	<u>2,416</u>
Operating fund - beginning	2,792	-	-	2,792	3,379
Allocation to capital fund	-	-	-	-	(3,003)
Excess of revenue over expenditure	1,351	-	-	1,351	2,416
Operating fund - ending	<u>4,143</u>	<u>-</u>	<u>-</u>	<u>4,143</u>	<u>2,792</u>

MEMO ITEM

Operating expenses –
by natural classification:

Personnel costs	1,903	-	1	1,904	595
Supplies and services	1,784	30	235	2,049	1,846
Operational travel	595	-	45	640	241
Depreciation of fixed assets	222	-	-	222	19
Total operating expenses	<u>4,504</u>	<u>30</u>	<u>281</u>	<u>4,815</u>	<u>2,701</u>



GRANT REVENUE

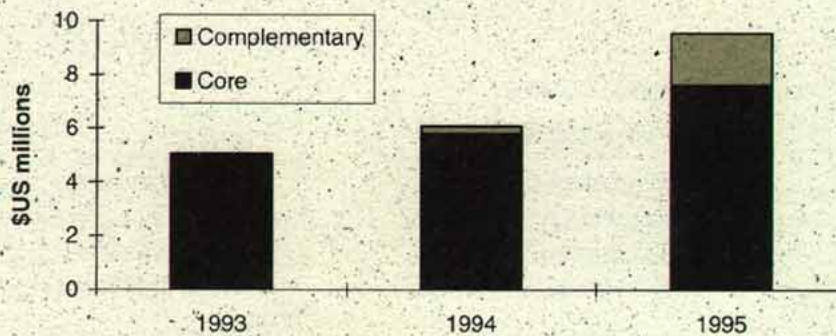
YEAR ENDED 31 DECEMBER 1994 AND FROM 5 MARCH 1993
TO 31 DECEMBER 1993 (US \$ 000)

<u>Donors</u>	<u>1994</u>	<u>1993</u>
Core Unrestricted		
Australia	309	281
Austria	70	50
Canada	217	195
European Union	303	282
Finland	206	242
France	76	47
Germany	183	292
Indonesia *	75	400
Japan	1,822	1,682
Netherlands	589	539
Norway	191	217
Spain	25	-
Sweden	177	184
Switzerland	168	173
United Kingdom	-	74
USAID	250	400
World Bank	<u>1,106</u>	<u>-</u>
Sub total	<u>5,767</u>	<u>5,058</u>
Core Restricted		
Overseas Development Admin. (UK)	5	-
UN Environment Programme	<u>25</u>	<u>-</u>
Sub total	<u>30</u>	<u>0</u>
Total Core	<u>5,797</u>	<u>5,058</u>
Complementary		
BMZ/GTZ (Germany)	65	-
Overseas Development Admin. (UK)	<u>216</u>	<u>-</u>
Total Complementary	<u>281</u>	<u>0</u>
Total Grants	<u>6,078</u>	<u>5,058</u>

* Additional to the above grants received, Indonesia directly funded construction of Phase 1 of CIFOR's new Headquarters building at Darmaga, Bogor in the amount of USD 2.2 million.

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* Projected funding for 1995



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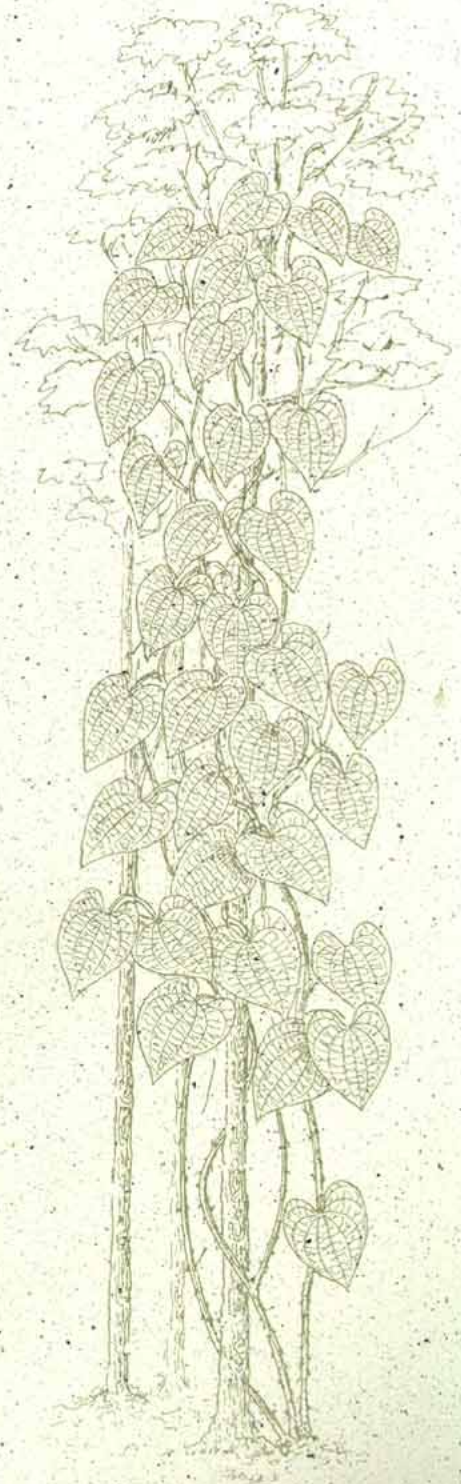
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APPENDIX 1: CIFOR PUBLICATIONS 1994

CIFOR Annual Report 1993

CIFOR News

no. 3-5, 1994;

Special anniversary edition 1994.

CIFOR Occasional Papers

No. 1, Sept. 1994 - Sayer, J.A. Forestry research within the Consultative Group on International Agricultural Research.

No. 2, Sept. 1994 - Dewees, Peter A. Social and economical aspects of Miombo woodland management in Southern Africa: options and opportunities for research.

No. 3, Sept. 1994 - Lele, Uma, Mitra, Kinsuk and Kaul, O.N. Environment, development and poverty: a report of the international workshop on India's forest management and ecological revival.

CIFOR Working Papers

No. 1, Sept. 1994 - Sayer, J.A., Palmer, J.R. Overview on forest research in Africa.

No. 2, Sept. 1994 - Sayer, J.A., Ng, F.S.P., Palmer, J.R. The role of international research agencies in strengthening forest research in Africa.

No. 3, Sept. 1994 - Gillison, Andrew N., Carpenter, G. A generic plant functional attribute set and grammar for vegetation description and analysis.

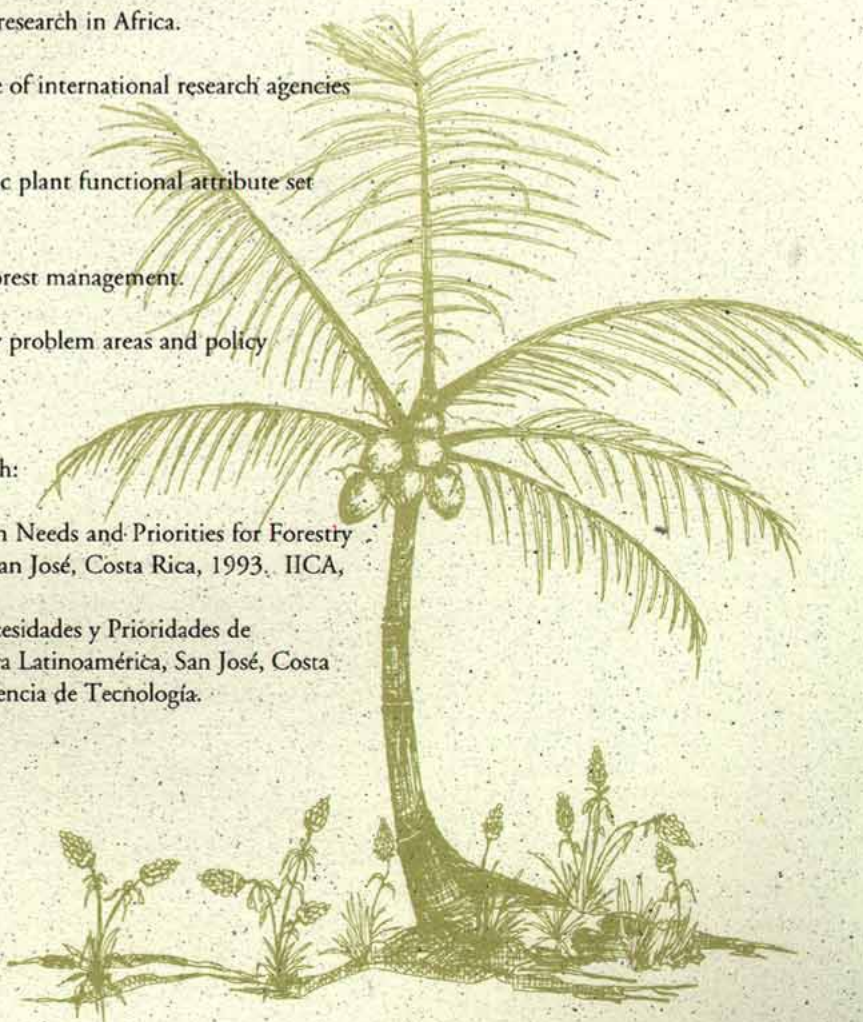
No. 4, Sept. 1994 - Putz, Francis E. Approaches to sustainable forest management.

No. 5, Oct. 1994 - A review of tropical forestry and agro-forestry problem areas and policy research needs and the planned response of the CGIAR system.

Published by IICA in San Jose, Costa Rica in English and Spanish:

Mariclos Alfaro et al., (eds) Report of the Regional Workshop on Needs and Priorities for Forestry and Agro-forestry Policy Research in Latin America, San José, Costa Rica, 1993. IICA, Technology, Generation and Transfer Program.

Mariclos Alfaro et al., (eds) Informe del Taller Regional sobre Necesidades y Prioridades de Investigación en Políticas Forestales y Agroforestales para Latinoamérica, San José, Costa Rica, 1994. IICA, Programa de Generación y Transferencia de Tecnología.



APPENDIX 2: CONFERENCE PAPERS DELIVERED BY CIFOR STAFF IN 1994

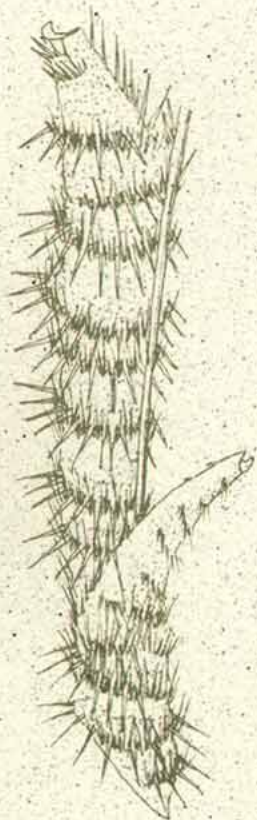
- Boyle, T.J.B.; Gillison, A.; Sayer, J.A. CIFOR and biodiversity. Paper presented at the IUFRO Symposium on Measuring and Monitoring Biodiversity in Tropical and Temperate Forests, 1994, Chiang Mai, Thailand.
- Boyle, T.J.B. (4th au); Soonhuat, P.; Piewuang, C.; Liengsiri, C. The use of quantitative genetic variation in the design of conservation programmes. Paper presented at the IUFRO Symposium on Measuring and Monitoring Biodiversity in Tropical and Temperate Forests, 1994, Chiang Mai, Thailand.
- Cossalter, C. 1993. CIFOR, a new centre in the CGIAR system: its raison d'être and main goals. Paper presented at Second Project Advisory Committee meeting of the UNDP/FAO Regional Project on improved productivity of man-made forests through application of technological advances in tree breeding and propagation. Manila, Philippines 26-29 October, 1993.
- Cossalter, C. CIFOR research activities related to tropical acacias. Paper presented at the Third Meeting of the Consultative Group for Research and Development of Acacias (COGREDA), Taipei, 28-29 June 1994. Bogor, CIFOR.
- Cossalter, C. Forest Seed Orchard - Basic Principles and Main Strategic Considerations. Paper presented at the training course on Seed Production Area/Seed Orchard Establishment and Management organised by the ASEAN Tree Seed Centre Project, Palembang, 21-25 November 1994. Bogor, CIFOR.
- Enters, T. Now you see it, now you don't: the effects of the ecocrisis theory on research. Paper presented at the IUFRO, FORSPA, CIFOR, FAO/RAPA Workshop on the Barriers to the Application of Forestry Research Results, 24-28 October 1994, Bangkok, Thailand.
- Ruiz Pérez, M. Non-timber forest products in Latin America: an overview. Paper presented at a Workshop on Extractivism and Multiple Use Forest Reserves in Africa. IUCN. Naro Moru National Park, Kenya, May 1994.
- Sayer, J.A. Forest product certification and sustainable forest management. Discussion paper presented at the seminar on Eco-labelling, the Indonesian Eco-labelling Working Group, Forest Stewardship Council (FSC), Center for International Forestry Research (CIFOR), Pacet-Puncak, West-Java, Indonesia, September 1994.
- Sayer, J.A. IUCN guidelines for sustainable use of wild species. A comment on the application of these guidelines to Forestry. Paper presented at IUCN workshop on sustainable use of wild species, Buenos Aires, Argentina, January 1994.
- Sayer, J.A. The role of research in sustainable forest management. Paper presented at the seminar on: Indonesian tropical forest in the 21st century, PT Intern Timber Corporation on Indonesia, Jakarta, Indonesia, June 1994.
- Wollenberg, Eva. Strengthening local institutions through property, policy, livelihoods and collaboration: A conceptual framework for community forestry research at the Centre for International Forestry Research. Paper presented at the Seminar on the Development of Social Forestry and Sustainable Forest Management, Faculty of Forestry, Gadjah Mada University and Perum Perhutani, Yogyakarta, Indonesia, August 29 - September 2, 1994.



APPENDIX 3: PUBLICATIONS BY CIFOR STAFF IN 1994

- Boyle, T.J.B.; Boyle, C.E.B. *Biodiversity, temperate ecosystems and global change*. Heidelberg, Springer Verlag.
- Byron, N.; Griffin, D. 1994. *Social forestry in Nepal: economic appraisal of resource management*. In: James, David. *The application of economic techniques in environmental impact assessment*. Dordrecht, The Netherlands: Kluwer Academic. pp. 183-216.
- Cossalter, C. 1994. *Current trends of reforestation in the tropical countries of Asia and the Pacific*. In: Suzuki, Kazuo; Sakurai, Shobu; Ishii, Katsuaki. (eds). *Proceedings of Yogyakarta Workshop, September 20-23, 1993, Yogyakarta, Indonesia*. Tokyo, Japan: BIO-REFOR. pp. 37-42.
- Cossalter, C.; Thomson, L.; Vercoe, T. 1993. *GLOBAL. Report to CIFOR, IBPGR and ICRAF on the CGIAR's International Research Program on Forest Genetic Resources*. Rome, IPGRI.
- Cossalter, C. *IRAN. Consultant's report on Tree Improvement and seed Procurement. Project IRA/89/015 "Caspian Tree Seed Production and Improvement Centre"*. Rome, FAO.
- C. Cossalter (2nd author); C.K. Lai; N. Menzies. *Review mission report on CAF-IDRC Farm Forestry Program*. Beijing, CAE.
- Dykstra, D.P. *Teaching ecologically benign logging methods in the professional and technical-level forestry schools of the Asia-Pacific region*. In: *Forestry education: new trends and prospects*. FAO Forestry Paper No. 123. Rome, FAO. pp. 164-180.
- Dykstra, D.P. *FAO Model code of forest harvesting practice*. FAO Working Paper FO: Misc 94/6. Rome, FAO.
- Moad, A.S.; Whitmore, J.L. *Tropical forest management in the Asia-Pacific region*. *Journal of Sustainable Forestry*, 1 (4): 25-63.
- Ng, F.S.P. (2nd author); Salleh, M.N. *Research for sustainable forest management*. In: *Readings in sustainable forest management*. FAO Forestry Paper No. 122. Rome, FAO. pp. 185-192.
- Pinard, M. *The reduced-impact logging project*. *ITTO Tropical Forest Update*, 4 (3): 11-12.
- Pinard, M.; Putz, F.E. *Vine infestation of remnant trees in logged forests in Sabah*. *Journal of Tropical Forest Science* 6: 302-309.
- Prabhu, R. *Assessing criteria for sustainable forestry*. *ITTO Tropical Forest Update*, 4 (5): 6-8.
- Putz, F.E. *Towards a sustainable forest: how can forest be managed in a way that satisfies criteria of sustainability*. *ITTO Tropical Forest Update* 4 (5): 7-9. Reprinted in *Asian Timber*, September 1994, and *International Society of Tropical Foresters Newsletter*, December 1994. Reprinted with a different title as *CIFOR Working Paper No. 4*.
- Putz, F. E.; Susilo, A. *Figs and fire*. *Biotropica* 26: 468-469.
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- Sayer, J.A.; Ruiz-Perez, M. *Making the most of forests*. *IUCN Bulletin*, 3: pp. 13-15.
- Wollenberg, E. *Selecting methods of time allocation research*. In: Feldstein, H. and Jiggins, J. (eds). *Tools for the field*. Hartford, CT, Kumarian Press. pp. 172-178.



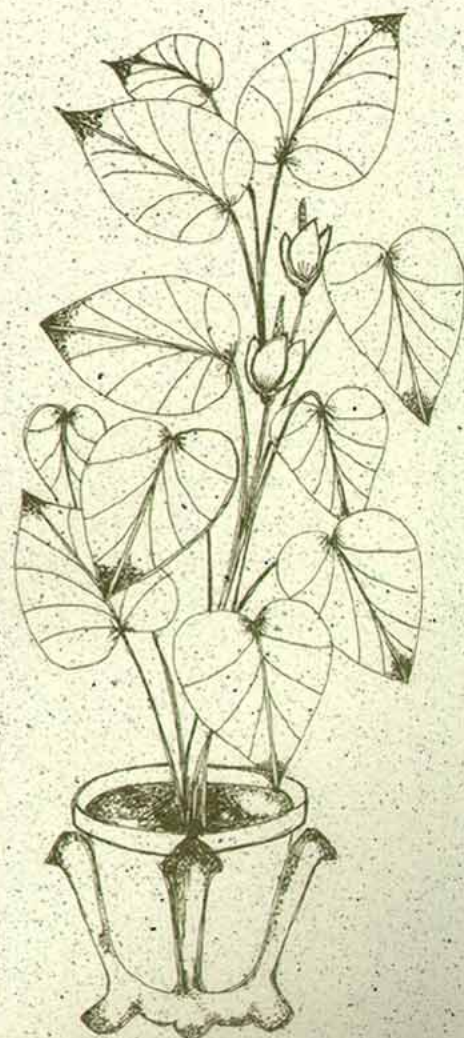


APPENDIX 4: MEETINGS DURING 1994 WHICH CIFOR SPONSORED OR CO-SPONSORED, AND WITH SIGNIFICANT NARS PARTICIPATION

- Policy Research Priorities – a Global Synthesis (Summary workshop of regional meetings held between October 1992 and July to set global and regional agendas for forestry research) – US-AID/FAO/SPDC/IFPRI/IICA/CIFOR (Bogor, Indonesia. February)
- India's Forest Management and Ecological Revival – University of Florida/TERI/CIFOR (New Delhi, India. February)
- Strategies for Development and Conservation of Forest Resources in Amazonia – WRI/CIFOR (Santa Cruz, Bolivia. March)
- Social and Economic Research in Miombo Woodland Management in Southern Africa – CIFOR (Masvingo, Zimbabwe. March)
- Policy Reform for the Conservation and Management of Forests in Latin America – WB/AID/IICA/CIFOR (Washington DC, USA. June)
- Indonesian Bamboo Research Strategy – EBF/LIPI/CIFOR (Serpong, Indonesia. June)
- Promising Approaches to Natural Forest Management in the Tropics – CIFOR (Guadalajara, Mexico. August)
- Measuring and Monitoring Biodiversity in Tropical and Temperate Forests – IUFRO/RFD/USFS/CFS/EU/CIDA(AFTSC, SADC)/SPDC/FAO-RAPA/IPGRI/CIFOR (Chiang Mai, Thailand. August/September)
- Forest Product Certification System – LEI/FSC/CIFOR (Bogor, Indonesia. September)
- Local Organizations for Natural Resource Management – IFPRI/ODI/CIFOR (Washington DC, USA. October)
- Barriers to the Application of Forestry Research Results – IUFRO/FORSPA/FAO-RAPA/CIFOR (Bangkok, Thailand. October)
- Research Priorities in the Brazilian Amazon – UFAC/USP/CIFOR (Rio Branco, Brazil. October)
- Fifth Roundtable Conference on Dipterocarps – CIFOR (Chiang Mai, Thailand. November)
- Non-Timber Tree Product Market Research – IFPRI/ICRAF/WRI/CIFOR (Annapolis, USA. December)
- International Project Advisory Panel on Testing Criteria and Indicators for Sustainable Management of Forests – GTZ/EU/CIFOR (Bogor, Indonesia. December)
- Support to Implementation of Enhanced Management and Conservation of Forests – UNEP/CIFOR (Bali, Indonesia. December)
- Science, Forests and Sustainability: A Policy Dialogue – CIFOR (Bali, Indonesia. December)

APPENDIX 5: ACRONYMS

ACIAR	Australian Centre for International Agricultural Research, Australia
AfDB	African Development Bank, Côte d'Ivoire
AFTSC	ASEAN Forest Tree Seed Centre
AIFM	ASEAN Institute of Forest Management, Malaysia
ANGAP	Association Nationale pour la Gestion des Aires Protégées, Madagascar
ASEAN	Association of Southeast Asian Nations
BCN	Biodiversity Conservation Network
BMZ	Bundesministerium für Wirtschaftliche Zusammenarbeit, Federal Republic of Germany
BOLFOR	Proyecto de Manejo Forestal Sostenible (Bolivia Forestal)
CATIE	Centro Agronomico Tropical de Investigación y Enseñanza, Costa Rica
CD-ROM	compact disk - read only memory
CDS-ISIS	Computerised Documentation System/Integrated Set of Information Systems (UNESCO), France
CFS	Canadian Forest Service
CGIAR	Consultative Group on International Agricultural Research, Washington DC, USA
CGNet	a computer-based messaging system operated for the CGIAR
CIAT	Centro Internacional de Agricultura Tropical, Colombia
CIDA	Canadian International Development Agency
CIIFAD	Cornell International Institute for Food, Agriculture and Development, New York, USA
CIFOR	Center for International Forestry Research, Indonesia
CIRAD	Centre de Coopération International en Recherche Agronomique pour le Développement, France
CIRAD-Forêt	Forestry division of CIRAD
CSD	Commission on Sustainable Development
CSIR	Council for Scientific and Industrial Research, South Africa
CSIRO	Commonwealth Scientific and Industrial Research Organization, Australia
DEF	Département des Eaux et Forêts, Madagascar
DNA	deoxyribonucleic acid
EARO	East Africa Regional Office of IUCN, Nairobi, Kenya
EBF	Environmental Bamboo Foundation, Indonesia
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuaria, Brazil
EU	European Union
FAO	Food and Agriculture Organization of the United Nations, Rome, Italy
FORSPA	Forestry Research Support Programme for Asia and the Pacific, Thailand
FRIM	Forestry Research Institute Malaysia
FUNTAC	Fundação de Tecnologia do Acre, Brazil
GEF	Global Environmental Facility, USA (World Bank, UNDP and UNEP)
GIS	geographic information system
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit, Federal Republic of Germany
IARC	International Agricultural Research Center
IBAMA	Instituto Brasileiro de Meio Ambiente e Recursos Naturais Renováveis, Brazil
ICLARM	International Center for Living Aquatic Resource Management, Philippines
ICRAF	International Centre for Research in Agroforestry, Nairobi
IDRC	International Development and Research Centre, Canada



IFPRI	International Food Policy Research Institute, Washington DC, USA
IIAP	Instituto de Investigaciones de la Amazonia Peruana, Peru
IICA	Instituto Interamericano de Cooperacion para la Agricultura, Costa Rica
IITA	International Institute for Tropical Agriculture, Nigeria
INBAR	International Network for Bamboo and Rattan, India
INPA	Instituto Nacional de Pesquisas Amazonica, Brazil
IPGRI	International Plant Genetic Resources Institute, Italy
IPHAE	Instituto para Hombre, Agricultura y Ecologia Riberalta, Bolivia
IRRI	International Rice Research Institute, Philippines
ISNAR	International Service for National Agricultural Research, The Netherlands
ITE	Institute of Terrestrial Ecology, UK
IUCN	The World Conservation Union (formerly the International Union for Conservation of Nature and Natural Resources), Switzerland
IUFRO	International Union of Forest Research Organizations, Austria
KEFRI	Kenya Forestry Research Institute
LIPI	Lembaga Ilmu Pengetahuan Indonesia, Indonesian Institute of Science
LMA	Law of Agrarian Modernization, Honduras
MARC	machine-readable cataloguing
NARS	National Agricultural Research Service/System(s)
NGO	non-governmental organisation
NTFP	non-timber forest product
ODA	Overseas Development Administration, UK
ODI	Overseas Development Institute, UK
ORSTOM	Office de la Recherche Scientifique et Technique Outre-Mer, France
PESACRE	Grupo de Pesquisa e Extensao em Sistemas Agroflorestais do Acre, Brazil
PFA	plant functional attribute
PHPA	Perlindungan Hutan dan Pelestarian Alam, Forest Protection and Forest Conservation, Ministry of Forestry, Indonesia
RAPD	random amplified polymorphic DNA
RAPA	FAO Regional Office for Asia and the Pacific, Bangkok
RFD	Royal Forest Department, Thailand
RFLP	restriction fragment length polymorphism
RICPUFP-CAF	Research Institute of Chemical Processing and Utilization of Forest Products - Chinese Academy of Forestry
RIL	reduced-impact logging
RISF-CAF	Research Institute of Subtropical Forestry - Chinese Academy of Forestry
SADC	Southern Africa Development Community, Malawi
SPDC	Special Programme for Developing Countries (IUFRO), Austria
SWC	soil and water conservation
TDRI	Thailand Development Research Institute
TERI	Tata Energy Research Institute, New Delhi, India
UFAC	Universidade Federal do Acre, Brazil
UNCED	United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, 1-12 June 1992
UNDP	United Nations Development Programme, New York, USA
UNEP	United Nations Environment Programme, Kenya
UNESCO	United Nations Educational, Scientific and Cultural Organization, France
USAID	United States Agency for International Development, Washington DC, USA
US(DA)FS	United States (Department of Agriculture) Forest Service
USP	Universidade de São Paulo, Brazil
WB	World Bank, Washington DC, USA
WRI	World Resources Institute, Washington DC, USA
WWF-I	Worldwide Fund for Nature - Indonesia

CGIAR

The CGIAR System

The Consultative Group on International Agricultural Research (CGIAR) is an informal association of public and private sector donors that supports a network of sixteen international agricultural research centres, CIFOR being the newest of these centres. The Group was established in 1971. The CGIAR centres are part of a global agricultural research system which endeavour to apply international scientific capacity to solution of the problems of the world's disadvantaged people.

The CGIAR Mission

Through international research and related activities, and in partnership with national research systems, to contribute to sustainable improvements in the productivity of agriculture, forestry, and fisheries in developing countries in ways that enhance nutrition and well-being, especially among low-income people.

Acknowledgements

Text edited by Yvonne Byron

Design by Patrick Virolle,
Reflet-Artwork for Business
Switzerland

Printed by SMT Grafika Desa
Putera, Indonesia

Illustrations by Iskak Syamsudin,
Evi Sopian and Baby Ahnan

Cover photos by Alain Compost

Additional photos by: B. Bourquein,
N. Byron, A. Compost, C. Cossalter,
T. Enters, A. Gillison, C. Sabogal, J. Sayer,
W. Sunderlin, J. Turnbull, P. Virolle



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