In the eight years since it was established, CIFOR has grown into a credible international forest research organisation that is concerned with forests in the tropical region and the well-being of the people who depend on them.

CIFOR has especially distinguished itself in two areas. First, by recognising the cross-sectoral nature of forest issues, CIFOR has built a programme of multidisciplinary research that considers biophysical as well as socioeconomic aspects of sustainable forest management and is highly relevant to policy development. Second, CIFOR has contributed significantly to international dialogues on forest policy by helping to shape the debate and providing crucial analyses of complex, politically sensitive issues.

In accordance with its founding objective to be a ‘centre without walls’, CIFOR has built an impressively large network of research partners worldwide, thereby facilitating the flow of knowledge and ideas. This collaborative style of operation enables CIFOR to mobilise the rich combined experience of diverse scientists in addressing complex issues. It also makes it possible for CIFOR to contribute more effectively to capacity building in many countries, and increases the likelihood that the results of CIFOR’s research will be widely adopted to benefit the targeted clients.

I am pleased with CIFOR’s recent expansion into new areas of research, such as climate change and forest fires, and with its attention to the range of forest types, including developing countries with limited forest resources where millions of people depend on them for their subsistence. The centre’s primary focus is forests in the humid/sub-humid tropics, where tracts of tropical forest are the most extensive and development needs are great. But CIFOR also examines problems of forests and local communities in areas with long dry seasons. Research in the miombo woodlands of southern Africa and in areas of the Philippines and India, for example, will provide a much better understanding of how drier forests can be managed to help reduce poverty and promote sustainable livelihoods in developing countries.

As you read this Annual Report that highlights some recent programme developments, I think you will come away impressed by CIFOR’s contributions toward achieving healthier tropical forests for the benefit of the millions of people who depend on them.

This report is also a capstone of Jeffrey Sayer’s eight years as the founding Director General of CIFOR. As such, it reminds us of how much we owe him for his outstanding leadership in making CIFOR the highly respected institute it is today. As he leaves his present position in mid-2001 to pursue other interests, on behalf of the Board of Trustees, I would like to thank him immensely for the fine job he has done.

Jagmohan S. Maini
Chair, Board of Trustees of CIFOR
"The provision of timely, reliable and accurate information on forests and forest ecosystems is essential for public understanding and informed decision making and should be ensured."

—from Forest Principles, Earth Summit, 1992

This map of Earth's forest cover 8,000 years ago was developed for World Resources Institute (WRI) by the World Conservation Monitoring Centre. It represents the first detailed attempt to show what the world's original forest cover looked like before humans began transforming it.
This WRI map showing current forest cover was based on the best available data, but is far from complete. Some areas depicted as forested are heavily degraded by logging and other activities, while others are single-species plantations. (See page 64 for map credits.)
CIFOR’s Vision
CIFOR is a global knowledge organisation committed to enhancing the benefits of forests for all people.

CIFOR
at a Glance

The ‘Earth Summit’ and other environmental forums heightened recognition of the need for scientific knowledge about the environmental, social and economic consequences of forest loss. CIFOR was founded in 1993 to help address that concern.

Basic facts about CIFOR:
- The 16th research centre affiliated with the Consultative Group on International Agricultural Research (CGIAR)
- Headquarters in Bogor, Indonesia, with regional offices in Brazil, Cameroon and Zimbabwe
- Total staff of 150, including 45 internationally recruited scientists in physical and social sciences
- Supported by institutional and targeted funds from donors, with an annual budget of $13 million in 2000
- Conducts research in 30 tropical and sub-tropical countries
- Collaborates with national forestry institutions, universities, research institutes, conservation groups, donor and development agencies, policy making bodies, NGOs and other CGIAR centres

CIFOR’s Institutional Values

All who work for or with CIFOR endeavour to foster an institutional culture that:
- is driven by a commitment to eradicating poverty and protecting the environment
- is impact-oriented and committed to the equitable provision of knowledge as an international public good
- emphasises scientific partnership based on mutual respect and sharing of credit
- stimulates intellectual growth by promoting creativity, a spirit of inquiry and constant questioning of conventional wisdom
- fosters professionalism and excellence by promoting adherence to the highest scientific and ethical standards
- respects the intellectual property rights of others
- honours hard work and draws the best from each one of us
- fosters a team spirit while defending independence of thought
- emphasises understanding of local realities but brings to bear a global perspective for the benefit of communities that depend on forests
- avoids discrimination or harassment on the grounds of race, religion, sex, nationality, ethnic origin, age, political affiliation, sexual orientation, marital status or hierarchical status
- strives to realise the benefits of diversity
- values accountability, honesty, transparency and fair sharing of information
- expects discretion and demands respect for others in the conduct of all activities
- respects laws, customs and cultural values wherever we work
- permits the staff to exercise their personal rights of citizenship while protecting the non-political nature of CIFOR
- expects exemplary citizenship by the staff in the communities in which we work and live
A Conceptual Framework to Bring High-Priority Problems to the Forefront

CIFOR recently developed a Conceptual Framework to aid the process of deciding what forest-related problems the center can and should address. CIFOR’s mission is to provide a scientific underpinning to efforts aimed at preventing environmental degradation and ending poverty among forest-dependent people.

The Framework begins by identifying a group of problems that hinder progress in these two areas and make it difficult to achieve sound forest management and use. The problems fall into four general categories:

- Growing conflict and competition related to increased demand for land and other forest resources
- Inequitable distribution of costs and benefits in forest and land use
- Failure to adopt ‘best practices’ for improved forest management
- Lack of effective institutions needed to bring about positive change

The Framework identifies the underlying causes of these problems, which are rooted in the ways that people use and manage forests and forest resources. This suggests that to achieve the greatest impact, it must identify researchable problems most likely to produce results that will enable people to act in ways that support environmental protection and sustainable forest use.

Like any organization, CIFOR has limited resources and must establish priorities. ‘Besides helping identify those areas where CIFOR can and should focus its efforts, the Framework is useful in determining problem areas that are beyond our present mandate and capacity’, says Director of Research Kenneth MacDicken.

Products of CIFOR’s Research

- Insight into the causes and processes of forest loss and degradation
- Analysis of forestry issues to aid development of global and national policies
- Information to expand economic benefits of forest products development
- Innovative approaches to increase stakeholder participation in forest management
- Tools, strategies and ‘best practices’ for improved forest management
- Capacity building for national scientists
- Methods to make tropical plantations sustainable and locally beneficial
- Knowledge to assist biodiversity conservation
- Support for integrated approaches to natural resource management
- Scientific information to implement better forest management
A Broader View of Forests

At the dawn of a new millennium, society recognises more than ever before the importance of the world’s tropical forests and woodlands and the need to conserve them for both present and future benefits. Yet, wide-scale deforestation continues. According to the FAO’s State of the World’s Forests 1997, developing countries lost 13.7 million hectares of natural forest annually from 1990 to 1995. Millions more hectares are degraded and have lost their productive capacity.

The Center for International Forestry Research (CIFOR) works to find ways of managing forests and woodlands in tropical and sub-tropical areas to ensure their survival. But forest protection entails more than just saving trees. Forests are complex biological systems that provide society with a wide range of essential products—timber, fuelwood, food, medicine and raw materials. They also provide environmental services such as protection of watersheds and soils and carbon storage to mitigate climate change. Tropical forests alone house more than half of all the world’s plant and animal species, which are threatened by a host of pressures associated with human activities.

For millions of poor people in developing countries, forests and woodlands are a cherished home as well as a critical source of goods for subsistence and income. The World Bank notes in its Development Report 2000/2001 that people are often poor because they are powerless to influence the social and economic factors that determine their well-being. They are also powerless because they are poor. To escape poverty, forest-dependent people must be empowered so they can achieve greater security of forest access and benefits.

Satisfying this broad range of human and ecological demands requires new approaches to the stewardship of our forests, and a different kind of research. All of CIFOR’s work supports a vision of forest management based on two key premises: First, forests must be managed to fulfill a range of environmental, social, economic and cultural functions rather than serving only single interests, such as logging or conservation, as in the past. Second, the needs and interests of forest-dependent communities and other stakeholders must be taken into account in any land-use planning and decisions about forest management and conservation.

The Nature of CIFOR’s Research

Reflecting the complexity of forest management today, CIFOR’s research is:

- multidisciplinary, addressing social, technical and economic dimensions of forest use and conservation
- collaborative, based on partnerships to achieve wide impact
- decentralised, for greater relevance and responsiveness to local conditions
- multiscale, to consider different aspects of forest issues at local, national, regional and international levels
- policy relevant, for lasting results
CIFOR's Problem-Oriented Research Agenda

The Problem: Forests are ecosystems that provide society with many different products and services. Yet most tropical forests are not managed in ways that take into account the complex interactions within the ecological system and among the goods and services demanded by various stakeholders.

Toward Solutions: CIFOR actively promotes the development and adoption of integrated approaches to forest management. The Sustainable Forest Management Programme works to develop information, tools and practices to help policymakers and forest managers better understand the costs and benefits to various stakeholders of different management options.

The Problem: Local communities have generally been excluded from decisions about forest management and land use in favour of more powerful interests. As a result, millions of poor people in developing countries lack access to the forests they depend on for daily needs.

Toward Solutions: Techniques being designed by the Local People, Devolution and Adaptive Co-Management of Forests Programme offer a means for diverse stakeholders to negotiate the use of surrounding forests for mutual benefits.

The Problem: The need for agricultural land to feed the world’s growing population and steady demand for building materials, pulp and paper, and other wood products is intensifying the loss of increasingly scarce natural forests in tropical countries.

Toward Solutions: The Plantations Programme produces knowledge needed to make planted forests an economically viable and socially acceptable alternative source of wood in tropical regions.

The Problem: Many people recognise the need to preserve the biological diversity that tropical forests harbour. How can that be reconciled with human development needs and society’s reluctance to put areas of the world off limits to human use?

Toward Solutions: The Biodiversity Conservation Programme seeks strategies for integrating conservation and sustainable use of genetic and other biological resources into broad-based management of forests.

The Problem: Forest products are often important for rural livelihoods. There is a critical need for knowledge about strategies that promote development of forest products while averting unsustainable use of the resources.

Toward Solutions: The Forest Products and People Programme investigates forest product use and trade in relation to conservation and development, as the basis for developing sound NTFP policies and guiding investment decisions.

The Problem: Policies made by governments and international institutions in non-forest sectors can inadvertently but dramatically contribute to forest loss and degradation. Yet these indirect causes are often overlooked, and their connection with deforestation is not well understood.

Toward Solutions: The Underlying Causes of Deforestation, Forest Degradation and Changes in Human Welfare Programme analyses extra-sectoral factors that affect forest conditions and the livelihoods of forest-dependent people, to help guide policy reform.
In 1993 you were given the mandate of establishing a new kind of research institute, a ‘centre without walls’. Have you succeeded?

Compared with the way most scientific research centres work, our research networks are more dispersed and closer to our partners in tropical developing countries. We are collaborating with a more diverse array of partners than anybody else working on forest issues. But to those who were looking for a ‘centre without walls’ in the sense of a virtual research centre—totally dependent on the Internet and with no infrastructure—we may be a disappointment. We soon realised we had to have a critical intellectual mass somewhere to drive the collaborative partnerships. Our headquarters in Bogor has enabled us to have that.

What are CIFOR’s greatest strengths?

For certain, our greatest strength is our excellent staff and the network of partners in collaborating research organisations. They all work together as a team and are highly motivated. They all communicate well with each other and show a strong willingness to learn and to challenge each others’ ideas. What’s more, they share a vision of the kinds of outcomes we are seeking in improved management and protection of forests in tropical countries. We have also been very fortunate to have a Board of Trustees that is highly committed, diverse and supportive of new approaches to research management.

You say the staff shares CIFOR’s vision of tropical forests. What is that vision?

It begins with the recognition that tropical forests have multiple functions that must be balanced and managed to improve the lives of poor people in the tropics while protecting the many important environmental services that forests provide. CIFOR also believes there is no single solution to the complex problems of tropical forests, and that solutions must be tailored to the unique conditions of each forest type. This differs from the conventional approach to forest management in the past, which was state dominated and operated by command and control. CIFOR wants to see how a redistribution of control away from the centre and toward the people in the forest can best be done—to improve the capacity of local communities so they can come up with their own solutions, but with checks and balances to ensure that forest protection is far from exemplary. Has this and the country’s economic and politica}
and have not felt inhibited. Inadequate human, technical and financial resources of many of Indonesia’s institutions, including those concerned with forests, has limited our ability to apply the results of our work. The reality is that if you want to solve difficult problems, you are probably going to have to work in difficult places, to develop solutions suited to local conditions. There are no simple technical solutions to the problems of tropical forests. Technical choices have to be made to suit local economic and social contexts, and I think our location in Indonesia has helped us greatly to remain in contact with reality.

Now that tropical forests have been the focus of increased research attention over the past decade, do you see much progress in tackling some of the problems you’ve discussed?

Not as much as I would have hoped. People are investing large amounts of money to address the symptoms of forest misuse without having the scientific capacity to understand the real underlying problems. Investments in forest research are inadequate, the quality and relevance of much of the research is poor, and in many countries the national capacity to do forest research is getting worse, not better.

Many people are disappointed that the enormous amount of money ploughed into technical assistance projects for conventional forestry and forest conservation in the past decade has produced so few results. I think much of the blame for that lies in past patterns of international development assistance. Donors have often responded to forestry problems by sending in teams of experts armed with ready-made solutions rather than providing support to help national scientists strengthen their ability to solve the problems themselves. Most assistance has reflected the rich countries’ views of what was good for poor countries’ forests. The time, energy and limited resources of national institutions have been wasted in responding to donors’ ever changing agendas. This has been counter-productive in building national capacity. CIFOR’s close partnerships with collaborators in many developing countries are helping to build some scientific capacity. But our efforts are very modest in relation to the huge need.

What lies ahead for CIFOR?

I am certain the world needs CIFOR and the kind of work it does, but what organisational changes may lie ahead—in regard to CIFOR’s position in both the CGIAR system and the international arena—is unclear. As the forestry community shifts from ‘one size fits all’ solutions to recognising the need for locally generated solutions, CIFOR could play a pivotal role, especially with its research on more people-centered management strategies. But the scientific basis for forest management has to be increased globally by an order of magnitude. CIFOR is well positioned to help this happen and I would like to see us greatly expand our presence in Africa and South America in order to respond to the needs of these regions.

What advice would you give your successor?

My message is quite simple: the success of CIFOR depends on recruiting the best possible scientists and support staff, creating the conditions that enable them to work collegially and with a shared vision of what CIFOR is trying to achieve, and then managing with minimal interference to let good things happen. It’s essential to make sure the staff is diverse and mutually tolerant in representing a wide range of views about forests and what they mean to different people.

I would urge my successor to avoid the bureaucratisation that stifles initiative and enterprise at many international institutions as they mature. In our research programme we are critical of command-and-control approaches to forestry, and that should apply as well in managing CIFOR as an institution. CIFOR should be a challenging but enjoyable place to work—a place the world’s best and most committed scientists are eager to come to.

What do you plan to do next?

I’ll continue doing what I’ve done for the past 30 years: seek opportunities to bring about practical improvements in the conservation of important forests. But I hope I can become more directly involved, for long periods, in helping to protect some very special forests—to really learn about them and what needs to be done. I’m especially interested in forests as part of island and mountain ecosystems, so I hope to spend some time in eastern Indonesia and the Himalayas. And because I enjoy writing, I want to spend some time writing about approaches to address some difficult forest conservation problems.
Forests as Global Resources
Forests as Global Resources

Forest issues are central to many of the international agreements born out of the 1992 U.N. Conference on the Environment and Development—the ‘Earth Summit’. CIFOR supports these initiatives by providing scientific information and policy analysis.

Climate Change, Carbon and Forests: Exploring the Connections

The Conference of the Parties to the U.N. Framework Convention on Climate Change recognises forestry and land use change as important sinks or sources of greenhouse gas emissions. Among the activities that may reduce emissions are afforestation and reforestation, low-impact logging, forest conservation and improved forest management.

In 2000, CIFOR scientists and their research partners provided information on forest carbon issues to the Convention’s Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA). They also contributed significantly to the Intergovernmental Panel on Climate Change’s Special Report on Land Use, Land Use Change and Forestry, which is the most authoritative publication so far on the topic.

A major topic of consideration at the sixth session of the Conference of the Parties to the climate change agreement (COP-6), held in November in The Hague, was whether forestry and land use change projects should be eligible under a measure of the Kyoto Protocol known as the Clean Development Mechanism. It would allow developed countries that are party to the climate change convention to purchase carbon ‘credits’ from selected projects in developing countries.

In February, CIFOR and the University of Maryland held a workshop in Bellagio, Italy, to consider the opportunities and risks that local communities could face under projects proposed under the Kyoto Protocol. Following their weeklong discussions, the two dozen participants from 12 countries prepared two policy briefs urging negotiators to shape the Clean Development Mechanism so that it would increase economic opportunities for local communities and not harm the livelihoods of people in areas where the projects would be implemented. The briefs were widely circulated at SBSTTA and COP-6 meetings.

CIFOR scientists also participated in several presentations at COP-6 on land use change and forestry. All the public sessions drew standing room-only audiences, with Ministers and other key negotiators among the attendees. CIFOR distributed policy briefs on carbon leakage and local livelihoods. Although COP-6 failed to reach agreement on what, if any, forestry activities should be included in the Clean Development Mechanism, the forum provided an important opportunity to disseminate science-based information on the issues discussed at the meetings.
An Influential Voice in Strategies for Biodiversity Conservation

The work of CIFOR’s Biodiversity Conservation Programme is linked closely with issues of the Convention on Biological Diversity (CBD) and the deliberations of its implementing body, the Conference of the Parties. The Convention, with 180 signatories so far, is shaping the international agenda on action to conserve and promote sustainable use of the earth’s plants, animals and microorganisms and their habitats.

CIFOR has played a central role in Convention-related efforts to develop criteria and indicators for assessing the changing status of biodiversity in a given area and to ensure the conservation of forest-based biodiversity.

In 2000, CIFOR continued to provide expert advice to the Convention’s Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) and to officials of the Global Environment Facility (GEF), a financial mechanism designed to support countries’ efforts to implement biodiversity conservation and other environmental programmes.

In many tropical countries, natural forests are an important source of timber needed for revenue and national development. Recognising that such forests are not likely to be set aside for conservation, CIFOR and others have been urging the Secretariat of the GEF to expand the measure’s provisions to encompass biodiversity conservation in production forests as well as in protected areas. Thanks to a convincing report prepared by CIFOR and the International Union of Forest Research Organisations, GEF policy makers are considering the possibility.

CIFOR is also working with GEF officials to develop policies and innovative approaches for conservation and sustainable use of forest biodiversity. Among the issues of interest are how to enlist the support of the private sector in biodiversity conservation in production forests and to integrate biodiversity protection with timber certification programmes.

Making Loggers Willing Partners in Wildlife Conservation

Logging is one of the biggest threats to wildlife, both directly and indirectly. Logging and the roads it opens into the forest make animals more easily accessible to hunters, who kill ‘bushmeat’ for their own consumption and to sell in urban markets. As species are wiped out, habitats change permanently, affecting the larger forest ecosystem.

In the Congo Basin, a series of pilot activities involving private logging companies and conservation NGOs has been under way to seek ways of reducing the threat that logging poses to the region’s wildlife. The forests of the Congo Basin are the second largest block of tropical rainforest on Earth. Gorillas, chimpanzees, elephants, mandrills, black colobus monkeys and sun-tailed guenons are among the prized species that live there. Yet, only about 10 percent of the region’s forests are designated as Protected Areas, while timber concessions are extensive.

In November, CIFOR co-sponsored a workshop at the Lopé Reserve in Gabon to review the findings of the pilot activities. The 40 participants came from the logging industry, government, the donor community and NGOs.

They learned that so far, the results are promising. Loggers and the private companies they work for have shown they are willing to support wildlife protection so long as timber extraction remains economically profitable. The companies want assurances, however, that hunting regulations or other policies on wildlife management are applied equally to all timber concessions so no one has an unfair advantage. Other measures found to be helpful include posting ‘ecoguards’ at timber concession boundaries, employing a code of conduct with sanctions and incentives to modify employee behaviour and providing logging companies with alternative sources of protein.

Robert Nasi, who heads CIFOR’s Biodiversity Conservation Programme, and Caroline Tutin of Centre International de Recherches Médicales de Franceville organised the workshop under the auspices of Association pour le Développement de l’Information Environnementale in the Congo. Nasi says such a meeting—at which many different groups found common ground—would not have been possible five years ago. He attributes the turnaround to changing attitudes on the part of both industry and the conservation movement.

There is growing concern among private companies about the possibility of consumer boycotts for unsustainably harvested timber and other products, he explains. ‘At the same time, NGOs are increasingly taking the position that if conservation programmes are to succeed, they must be developed and implemented with the support of private companies and local people whose livelihoods depend on the outcome.’

The Wildlife Conservation Society and the Inter-African Forest Industry Association are also partners in the initiative, which has been funded by Conservation International, the U.S. Forest Service, World Wild Fund for Nature, Fonds Français pour l’Environnement Mondial, the World Bank Institute and the Bushmeat Crisis Task Force.
Policy Research Challenges  
the World Bank’s Way of Doing Business

Given the vast scope of its lending and development activities, the World Bank has a considerable influence on environmental conditions around the world. In an effort to insure that its policies do not promote deforestation in the developing countries where it operates, the Bank adopted a strategy in 1991 spelling out its commitment to averting forest damage and loss. Early in 2000, the Bank acknowledged that the policy did not succeed as planned. The admission came after an extensive internal review of the Bank’s implementation of its 1991 forest policy.

During their analysis, the reviewers from the Bank’s Operations Evaluation Department (OED) sought insight from scientists in CIFOR’s Underlying Causes of Deforestation Programme, which investigates the impacts on forests from extra-sectoral influences such as macroeconomic policies, agricultural patterns and land tenure policies, and infrastructure development.

Subsequently, the OED report concluded that the Bank had not adequately considered how its lending activities in non-forestry sectors may have contributed indirectly to deforestation.

The OED review also took a critical look at the Bank’s use of conditionality to achieve forestry reform. The analysis was based on case studies in several countries, including Indonesia and Cameroon. Again CIFOR was consulted, because of its extensive research in those countries, and the centre’s findings were widely cited in the panel’s reports.

In April, CIFOR and the U.K.’s Department for International Development drew on the findings of the OED review to stimulate a wide-ranging dialogue in Indonesia on proposed reforms of the country’s management of its forests, which are disappearing by an estimated 1.3 million hectares per year. The heavily attended forum at CIFOR attracted representatives of the Ministry of Forestry, the private sector, environmental organisations, donors and local NGOs.

Two authors of the OED review were among the panelists. In their remarks, they said the Bank had missed an opportunity to exercise its influence in seeking forestry reforms in Indonesia, which is one of the World Bank’s largest borrowers.

Government officials said systemic problems in Indonesia’s forestry sector have undermined repeated attempts to achieve reforms. They contended that the Bank’s forest protection policy was unworkable in Indonesia because it was at odds with the country’s laws and ‘national realities’.

Although the participants represented a broad range of different interests, they concurred that fundamental changes in Indonesia’s forest management policies are needed and discussed a number of proposed remedies. The highly successful event provided a strong foundation for open and ongoing dialogue on the issue of forestry reform in Indonesia.

The sixth session of the parties to the Biodiversity Convention is expected to focus heavily on issues of biological diversity in forests. At the urging of CIFOR and the Convention’s Secretariat, an Ad Hoc Working Group on Forest Biodiversity was formed and is now preparing information for the upcoming session. CIFOR and the Secretariat are also developing a joint work programme on issues of forest biodiversity. Expertise will come from CIFOR’s research programmes on issues such as:

- The effects of uncontrolled fires on forest diversity and how damage from such fires can be reduced
- Strategies for sustainable harvesting of non-timber forest resources
- How forest stakeholders can play a role in the assessment of forest conditions and help address threats to biodiversity
- Aspects of biodiversity relevant to climate change

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- How forest stakeholders can play a role in the assessment of forest conditions and help address threats to biodiversity
- Aspects of biodiversity relevant to climate change
Among the recommendations emanating from the Earth Summit nearly a decade ago was an appeal to help developing countries fund activities for environmental protection and sustainable development. Unfortunately, the response has been slow.

‘Mobilising financial resources for sustainable forest management has been one of the most critical and politically sensitive issues that emerged from the June 1992 Earth Summit’, says Mafa Chipeta, CIFOR’s Deputy Director General. ‘Financing SFM will undoubtedly be a priority issue in the international forest community for a long time’.

In 2000, CIFOR coordinated the planning of the third in a series of government-led international workshops on the issue. Chipeta headed the Steering Committee, assisted by Mahendra Joshi from the Secretariat of the U.N. International Forum on Forests. The U.N. Food and Agriculture Organisation, the U.N. Development Programme and the World Bank contributed to the planning. Seventy people from 40 countries attended the workshop, which was held in January 2001 in Oslo, Norway. The results of the meeting will be highly useful to international bodies deliberating sustainable forest management, such as the recently established United Nations Forum on Forests.

The conferees concluded that lack of adequate funding is generally not the main constraint to investment in sustainable forest management in developing countries. Instead, a lack of enabling conditions is one of the biggest obstacles. To ‘sell’ sustainable forestry to public and private investors, they agreed, the potential for economic gain must be emphasised along with ecological and social benefits. Among the initiatives they suggested would help improve the present situation are:

- Linking investment in sustainable forest management in developing countries more closely with poverty and other pressing concerns
- Promoting fairer trade and prices, to remove any unfair burdens assumed by responsible suppliers of products from sustainably managed forests
- Reducing levels of actual and perceived risk to private investors
- Decreasing disincentives that raise operational costs and reduce returns, such as overregulation, poor infrastructure and undeveloped markets

CIFOR is using its Web site as a centralised source of information about issues discussed at the workshop, which was funded by the governments of Norway and the United Kingdom with additional support from Brazil, Denmark, Malaysia and South Africa. Chipeta says the broad geographical range of that support reflects the widespread interest in the subject. ‘The world community wants to see effective partnerships in this area’, he observes. ‘The developments in Oslo will take us a step closer to workable mechanisms for achieving that’.

Seeking Ways to Finance Sustainable Forest Management in Developing Countries
Streamlining Access to Global Forest Information

Currently, there is no easy way to sort through the voluminous amount of existing forest-related data to find the information best suited to a particular need. To address this problem, CIFOR has teamed up with the International Union of Forest Research Organisations (IUFRO), the U.N. Food and Agriculture Organisation (FAO) and others to develop a uniform system for accessing and sharing forest information worldwide. Called the Global Forest Information Service, it will provide a gateway through the World Wide Web to a vast storehouse of information from many national and international forestry organisations.

The wide range of forest-related data compiled and catalogued by various institutions is commonly available in digital format, but there is little standardisation in the framework and descriptions by which the data are stored. The new service will overcome that inconsistency by introducing ‘metadata’ standards for describing available resources. (Metadata are data about data.) With little modification or by using conversion tables, even institutions with existing metadata catalogues will be able to make those catalogues compatible with the system’s framework. This standardisation along with connectivity to the Web will enable users to access the different data sources through a unified search interface.

Michael Hails, CIFOR’s Director of Information Services, is deputy coordinator of a task force that is developing the system in consultation with experts from a number of forestry organisations. Most of the technical work is being conducted at IUFRO’s Secretariat in Vienna and at FAO in Rome.

One of the key aims of the new resource is capacity building, especially helping national forest research institutions in developing countries to organise their information and make it more easily available. Even though the service is still under development, IUFRO recently launched a project to train forest information specialists in Africa in metadata and Internet resource skills. Computer facilities have been set up at five regional sites to support training and serve as hubs for the new Global Forest Information Service, which is being developed with support from the European Commission.

POLEX: Fast and Effective Policy Alerts

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<td>Asia and South Pacific</td>
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*Includes people in developing countries not included in the previous categories.

Big impact does not always require a big investment. Twice a month, CIFOR’s electronic mailing list known as POLEX (for Forest Policy Expert list service) notifies researchers, policy makers, forest managers and others around the world about important forest-related findings and reports. In less than four years, the subscriber list has swelled to more than 3,000—and keeps growing. An Indonesian POLEX is also available, and early in 2001 CIFOR introduced a Spanish-language version.

Each POLEX message describes recent work by CIFOR, its partners or other institutions, with information on how to contact the authors and obtain the full reports. Staff scientist David Kaimowitz writes the snappy summaries in a style that often questions the conventional wisdom and makes readers take notice. He covers a broad range of forest topics and geographical regions, but gives particular attention to analyses and research results from developing countries.

How effective is POLEX? In October, the U.N. Food and Agriculture Organisation announced the availability of its Global Forest Products Outlook Study Working Paper 3 by posting information on four forest-related listservs. The FAO got 255 requests for copies. That number doubled after the report was described in a November POLEX message that drew an additional 256 requests. Similarly, after a POLEX item summarised a paper on conservation financing prepared by the Inter-American Development Bank, the Bank’s senior forest officer, Kari Keipi, received 600 requests for copies. In a recent 10-week period, more than two-dozen POLEX recipients in 16 countries sent unsolicited comments saying they found the service highly useful and the material it describes relevant to their work.
Research on National and Regional Forestry Issues
Until the end of the last decade, the government of Indonesia pushed to make the country the world's top producer of plywood, at the expense of Indonesia's world renowned tropical forests. In 2000, an in-depth report by CIFOR policy analyst Chris Barr revealed another move with serious implications: Pulp and paper companies are scrambling to obtain access to large areas of natural forest to feed an expansion of mills in Indonesia over the past decade.

The report, which Barr prepared jointly for CIFOR and the World Wide Fund for Nature's Macroeconomic Programme, shows that a handful of Indonesian conglomerates expanded the country's pulp and paper mill capacity by 700 percent since the late 1980s. Financed by $12 billion in direct capital loans and international bond offerings, the growth elevated Indonesia to one of the world's top 10 pulp and paper producers.

The companies were willing to take on the huge debt and gamble with their investors' money, Barr concluded, because several factors made their own financial risk relatively low. Many of the domestic loans came from banks that were controlled by the conglomerates themselves and subject to little oversight. The government subsidised the mill growth directly by giving companies cheap access to natural forests, allocations from the country's Reforestation Fund and low-interest loans from state banks. And international banks failed to adequately consider where the companies would be able to get the volume of timber needed to keep the mills running near capacity for the long term.

To secure backing, the pulp and paper producers had said they would obtain their raw material from sustainably managed plantations. Yet so far, Barr found, only 8 percent of the wood consumed by the mills has come from plantations; the rest is mixed hardwood timber from natural forests—as much as 40 percent of it thought to come from undocumented and presumably illegal sources. He estimated that more than 800,000 hectares of natural forest have been cleared since 1988 to supply Indonesia's pulp mills. During that period, their combined production capacity grew from 600,000 tonnes to more than 5 million tonnes a year.

Although pulp producers are beginning to bring extensive plantation online, Barr says Indonesia's largest mills are unlikely to obtain more than about half of their fibre supply from their plantations through at least 2007. In the meantime, as the mill companies exhaust available wood supplies near their base in Sumatra, they may look farther afield to the forests of Kalimantan and Irian Jaya (Papua) for raw material.

Raising the financial stakes even higher for mill investors are Indonesia's economic crisis and growing conflicts between the pulp companies and local communities over issues of forest access and environmental concerns. A US$600 million Indorayon pulp mill in North Sumatra, for example, has been shut down for more than a year because of community opposition. Some of the largest mills and pulpwod plantations were placed in receivership under the Indonesian Bank Restructuring Agency because of their heavy debt loads. Barr says there have been indications that the agency may write off a substantial portion of the outstanding debts, thereby providing yet another capital subsidy.

The report suggests a number of measures that government agencies and financial institutions could implement to put Indonesia's pulp and paper industries on a more sustainable track, such as:

- Declaring a temporary moratorium on further expansion of pulp and paper facilities
- Eliminating wood supply subsidies for the pulp and paper industries
- Applying stricter due diligence by financial institutions investing in major pulp and paper projects.

Many countries have inadequate resources to tackle forestry problems. CIFOR and its vast network of partners provide a wide range of technical, policy and training support.
Building Stronger Community for Forest Research in Indonesia

Indonesia has renowned forests, meritorious research and the offices of two major international forest research institutions—CIFOR and the South East Asia office of the International Centre for Research in Agroforestry. Why, then, has the country not been able to better leverage those advantages to link Indonesian research with best practices in forestry?

In May, Indonesia’s Forest Research and Development Agency (FORDA) and CIFOR hosted a gathering of national forestry experts from the government, universities and research institutes in the country to discuss the issue and propose initiatives to improve the situation. The attendees identified poor coordination and communication as a major factor hampering the Indonesian forest research community’s potential impact. The range of forestry research now being done in Indonesia at the basic, applied and strategic levels is broad. Equally vast in scope is the nature of forest-related problems that must be addressed at various levels: technical, social, economic, policy and institutional. This widely dispersed agenda, it was agreed, has made it difficult to establish priorities for forestry research and seek increased donor support.

The participants concluded that forestry research in Indonesia should be more closely linked with national policy making and the adoption of results in the field. FORDA agreed to lead efforts to move the forestry research community in that direction. Agreeing to meet regularly, the group also pledged to improve information sharing and to expand the markets for research proposals and outputs.

Another area of focus will be increased opportunities for scientific collaboration. CIFOR and ICRAF agreed to provide continued support for scientific collaboration.

Pulp Mill Study Generates Wide Interest

CIFOR scientist Chris Barr’s report ‘Profits on Paper: The Political Economy of Fiber, Finance and Debt in Indonesia’s Pulp and Paper Industries’ was announced in a POLEX message and widely reported on by the media, including Bloomberg’s international financial news service. As a result, CIFOR had more than 400 requests for the paper, many from outside the centre’s usual constituencies—the financial sector. One recipient wrote: ‘A not-for-profit organisation is doing the work that Wall Street is supposed to do’.

A number of reader’s sent comments saying the report was much needed and long overdue. From a paper industry specialist in Singapore: ‘I have taken a long time to understand the value of the indirect industry subsidies, the internal functions of the credit flows through central company banks, the shifting status of forest and plantation areas and lastly, the investment debt trap...I was hugely impressed by [your] presentation of the information, some of which has taken me years to realise’.

In December, CIFOR hosted a forum to discuss the research findings with a wide range of forest stakeholder’s. Among those attending were high-level officials from Indonesia’s Bank Restructuring Agency and the Forestry, Environment and Financial Ministries, including the Director General and two other key officials of the Ministry of Industry and Trade. Others came from the Indonesian Pulp and Paper Producers’ Association, banks and securities firms, the international donor community, civil society organisations and environmental groups.

Notably, a spokesman for Asia Pulp & Paper, whose situation was analysed in the report, attended the meeting and said the company was taking steps to ensure that ample wood supplies would be available for its mills.

The meeting ended with considerable agreement that Indonesia needs to develop more coherent policies on how the country’s pulp mills can secure adequate raw material from sustainably managed plantations. Also needed: mechanisms by which financial institutions and government regulatory agencies can evaluate pulp and paper companies’ plantation development efforts.
The dramatic news coverage of major forest fires in Indonesia in 1997-98 attracted world attention. But the problem has a much longer history, extending over centuries. In the past two decades alone, large-scale fires also occurred in 1982/1983, 1987, 1991 and 1994—El Niño years. Awareness and concern have risen along with estimates of the damage. About 9.7 million hectares of forest and land in Indonesia was burnt in the 1997-98 fires, affecting some 75 million people and causing economic losses thought to exceed US$ 9 billion. Some scientists have said that carbon emissions from the burning of peat during the fires were so high they made Indonesia one of the largest polluters in the world.

A team of scientists from CIFOR, the International Centre for Research in Agroforestry (ICRAF) and the U.S. Forest Service (USFS) is continuing to analyse the fires and their impacts, as the basis for developing policies and specific regulations to combat the problem. Drawing on new findings as well as results from other research, the project is revealing a more comprehensive picture of where the fires are occurring, who is setting them and why, and what factors affect the nature of the fires in different areas.

The innovative and multidisciplinary methodology combines remote sensing and GIS with in-depth participatory field investigations. Satellite imagery compiled by a number of fire research projects in the region provides information about the location, extent and type of land burnt. But the CIFOR-ICRAF-USFS team is also probing the underlying causes by exploring the social dimensions of the fires. They have been interviewing many villagers and using ‘participatory mapping’ techniques at eight sites in Sumatra and Kalimantan that were heavily affected.

The results to date show that the causes of the fires are varied and complex, precluding simple or universal remedies. Conflicts over land ownership and use are a big factor in the problem. Different customs in using fire for agriculture also play a role. The major fires have been abundant in areas where vast expanses of land are being converted for plantations. Sometimes the underlying peat in coastal swamp forests burns for months after plantation companies have used fire to clear the land. But plantation companies are not the only perpetrators of the fires. Many local people, including transmigrants from other islands who have settled in the area for better
economic opportunities, also use fire to clear land for cash crops, especially lucrative export commodities. According to CIFOR scientist Graham Applegate, that is the situation in Lampung, where people have been illegally cutting down trees in the region’s National Park to clear land for growing coffee.

Benefit use of fire to clear land for agricultural has been practiced for centuries. But the researchers found evidence that fire is also being used now as a weapon. Some communities have deliberately set fires to retaliate against plantations companies and other outsiders who have taken over land traditionally used for farming and other activities without consulting or compensating local people. In some instances, especially in drought conditions, the fires have spread beyond the originally targeted areas. The problem is compounded when the fires spread to open-access areas or other land where the local communities have little vested interest in fighting the fires or lack adequate resources to do so.

The research indicates that cultural customs also are a factor. In some areas of Kalimantan, for example, indigenous Dayaks have traditionally limited their use of fire for land clearing during drought-prone El Niño years. But transmigrant settlers from Java and other regions of Indonesia do not always exercise such caution.

Regional Focus: Southern Africa

Building a Model for Sustainable Use of the Miombo Woodlands

Since 1998 CIFOR has been working with national researchers in five African countries—Malawi, Mozambique, Tanzania, Zambia and Zimbabwe—in a project to promote more sustainable use of the region’s vast miombo woodlands. The woodlands are the most extensive type of vegetation in the savanna-like areas of southern Africa, and an estimated 40 million people depend on them for a variety of needs.

The miombo woodlands are being degraded rapidly from growing human demand. Population growth in the region is high and economic reforms in some of the countries has made life harder for local people, who cope in part by extracting forest resources for personal use and to sell for cash.

The project on sustainable use of the woodlands, which is supported by the European Union, involves three areas of focus: institutional arrangements best suited for sound management of the forest; how various policies in the region affect the miombo-dependent communities and the condition of the woodlands; and the impact of industrial harvesting on the woodlands’ vegetation and soil. Godwin Kowero of CIFOR’s regional office in Harare, Zimbabwe, is coordinating the scientific team of 30 researchers from 10 institutions in the region. In October 2000, they met in Arusha, Tanzania, to discuss their latest findings.

In their policy analyses, the researchers concluded that many people rely heavily on the miombo woodlands for resources because of an imbalance of power—rooted in colonial government control—that has not changed significantly despite a trend in southern Africa toward greater local control of forests and other natural resources. Poor smallholder farmers remain confined to small plots, which are shrinking over time. As a result, they lack the resources needed to take advantage of other economic opportunities that would enable them to reduce their dependency on the woodlands. Post-independence governments have aggravated the situation by controlling the means of production, distribution and marketing as well as pricing.
To curb deforestation, the national governments will have to introduce measures that close the wide gap between smallholder farmers and estate and commercial farmers, the researchers say. In the meantime, they suggest that agroforestry may be a good strategy to provide farmers in smallholder areas with more economic options.

In line with the trend of decentralisation, many countries in southern Africa now have been implementing systems of governance for community management of natural resources. But these institutions vary widely in terms of how much local, participatory control over resources they actually provide—and how successful they have been. Based on a large body of case studies, the researchers say community-based management is likely to work best under the following conditions:

- There are high-value resources to control, such as treasured wildlife that may attract tourists.
- Local governing bodies have real power.
- Capacity Building for Miombo Woodlands Management

For the core team of 30 national scientists involved in the Management of the Miombo Woodlands project, investigating real-life conditions is a means to increase their competency in the field. In April and May, two dozen researchers from the countries in southern Africa where the project is being implemented completed training to strengthen their analytical skills.

In their present research, the national scientists are working to determine how various policies—sectoral, extra-sectoral and macroeconomic—have had a bearing on the management and conditions of the miombo woodlands. Building on earlier training in data analysis, they completed two workshops in 2000 that provided practical experience in using a variety of modeling techniques for multi-model analysis. For the exercises they used extensive data from Zimbabwe, Tanzania, Malawi and Mozambique.

The research teams from the various countries will continue modifying and validating the various models they have created. For guidance and consultation, they communicate regularly by e-mail with the two scientists-trainers, R. Sumaila of the University of British Columbia and E. Nhantumbo of the Department of Forestry and Eduardo Mondlane University in Mozambique (now with the IUCN in Maputo).

- Control is truly community-based, with power vested to local residents through some kind of corporate entity.

The savanna landscape of southern Africa’s miombo woodlands is an important pastureland for farmers as well as a source of fuelwood and other products. But a team of scientists from CIFOR and other institutions warns that new grazing policies in semiarid regions may not be economically justified and may pose additional ecological threats to the resilience of the grazing systems.

The new policies, routed in what natural resource specialists call ‘new rangeland science’, differ from past ideas about recommended herd sizes based on ecological carrying capacity. The new approach, predicated on a non-equilibrium concept of rangeland dynamics, contends that pastoralists should not adhere to a single conservative stocking rate but adopt an ‘opportunistic’ strategy in which the number of animals is allowed to fluctuate widely in response to climatic variation. Doing so, proponents argue, will yield greater economic return.

In addition, it is proposed that mechanisms must be put in place to track the ecological variability of the system—to buy up livestock in times of drought and to supply livestock after droughts.

A team of scientists from CIFOR, the University of Zimbabwe’s Institute of Environment Studies, the Shanduko Centre for Agrarian and Environment Research and the University of Alberta in Canada challenged the new policies in a recent study. Using data from field surveys and the literature, they constructed a 15-year simulation model to compare the economics of four cattle management scenarios ranging from the ‘old rangeland science’ to the newly favoured scenario.

Noting that there is ‘remarkably little new empirical research on ‘new rangeland science’, the scientists say policy makers in southern Africa not to uncritically adopt the approach as the foundation for land use and land reform policies. Doing so, they say, may promote patterns of natural resource use ‘that are both unsustainably and ecologically disfiguring and irreversible’.

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- There are high-value resources to control, such as treasured wildlife that may attract tourists.
- Local governing bodies have real power.
The bamboo industry in China has grown fourfold in only 15 years, bringing considerable social and economic changes. Since 1994, CIFOR and scientists from several forest research institutions in China have been conducting the most in-depth study ever done of bamboo production in China and how it supports rural development. The results have proven so useful that Chinese officials have consulted the scientists repeatedly on policy questions and technical aspects of bamboo production.

The project had been scheduled to end in 2000. But growing concern about the environmental effects of the rapid bamboo expansion led instead to the launch of an additional phase of research to examine that issue. A new national partner in China, the Department of Science and Technology of Zhejiang Province, has joined the project, which aims to determine what policy interventions will allow continued economic development from bamboo without destroying the environment. The findings have widespread implications because as many as 5.6 million Chinese depend on the bamboo sector for full- or part-time work.

The newest phase of the project builds on research that began in China’s Anji County in the 1990s as part of broader research to better understand bamboo production, processing and marketing under different conditions. About a third of the mountainous county, which is in Zhejiang Province, is covered in bamboo, and almost two-thirds of all households grow at least some bamboo along with other crops.

Bamboo is often viewed as a secondary product, or ‘poor man’s timber’. So the scientists were surprised to find that bamboo production in Anji County was booming—by as much as 50 percent in places, making some farmers relatively rich. The research linked the dynamic situation with a spate of policy changes China had been introducing since 1978, involving land reform, trade liberalization and free-market measures. Farmers were given greater control over what and how much to produce, while new investment and export policies stimulated both domestic and international demand for bamboo products.

Comparing the situation with conditions in areas where the levels of policy reform and socioeconomic development varied, the research team learned that a significant factor determining how much local people benefited from bamboo production was what kinds of products they produced. In general, farmers in China had traditionally produced raw bamboo (culms) for the pulp and paper industries, with processing left to the state. Under the reforms, many areas diversified into higher value products such as bamboo shoots, which brought some households unusually high incomes.

The strong demand for bamboo and bamboo products undoubtedly will continue. Recent government restrictions on the logging of natural forests in China have given rise to expanded markets for
Regional Focus: Latin America

Improving Forest Practices in the Brazilian Amazon

The Brazilian Agricultural Research Corporation (EMBRAPA) and CIFOR are engaged in a project to introduce good forest management practices, including reduced-impact logging, in an area of the Brazilian Amazon. The project nearing a milestone in June 2000 when the two participating timber companies passed the preliminary requirements for certification as a sustainably managed operation. The full certification, awarded by the Forest Stewardship Council, is expected in 2001.

Timber harvesting is the main economic activity in Amazonian Brazil. It is estimated that some 2,500 timber companies of all sizes operate in the region, reducing natural forests by as much as 1.5 million hectares a year. Current logging practices in the region are generally destructive to the surrounding forest, and Brazil has few examples of good operational management of tropical forests. The EMBRAPA-CIFOR project was launched to develop such guidelines for medium to large-scale timber enterprises.

EMBRAPA and CIFOR, working with other institutions as well as private timber companies, plan to produce two sets of tools to support sustainable forest production: first, silvicultural tools, such as guidelines for timber harvesting, pre- and post-silvicultural treatments to enhance natural regeneration, and methods for monitoring growth and yield; and second, managerial tools, to aid economic planning of sustainable timber enterprises and for monitoring and controlling overall forest operations. The economic, ecological and sociocultural impacts of the various components will be evaluated in comparison with conventional methods of forest exploitation.

In the present phase of the project, two Brazilian timber enterprises, Juruá Florestal Ltda. and Cikel Brasil Verde S.A., have been implementing reduced-impact logging techniques developed for use in the Amazon. The methods are panel board, flooring and other bamboo-derived building materials.

To take advantage of the boom, people in some areas have been cutting down natural forests and other vegetation to plant bamboo. Because most of China’s forests are on hillsides, erosion has increased. The monoculture nature of intensive bamboo production has also raised mounting concerns about potential biodiversity loss, the increased use of fertilizers and other ecological risks. The latest phase of research will examine environmental issues such as these and potentially helpful policy reforms.

Findings from this project and other studies in China are providing new insight into the extensive reforms in China since 1978 and their impact on the country’s forests. To explore the issue further, CIFOR is co-sponsoring a major symposium on the topic to be held in June 2001 in Dujiangyan, Sichuan Province.

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now being validated by the partner enterprises, and the project is developing a check-list system for evaluating compliance with the techniques. The two companies significantly expanded their use of reduced-impact harvesting in the past year. Juruá Florestal’s RIL operations grew to nearly 1,000 hectares, while Cikel Brasil Verde introduced RIL techniques in 5,000 hectares of forest.

Meanwhile, EMBRAPA, CIFOR, and several partner institutions are providing the participating enterprises with technical assistance and on-the-job training in reduced-impact logging and other silvicultural practices.

Also continuing is the development of monitoring and auditing instruments, based on criteria and indicators, that can be used by forest enterprises and government agencies to guide sustainable forest management. A working set of C&I developed and field tested over the past two years was further refined in 2000 and is ready for validation in 2001.

Municipal Governments and Forest Management in Nicaragua

The trend of decentralisation in the past decade is driven in part by the desire to give local communities greater control over government and resources. It has also gained favour because some central governments see it as a way to share the burden of providing services. Regardless of the motives, many state, provincial, and local governments around the world have become more powerful and taken on more responsibilities, including control over forest management.

How are they faring? After three years of research in Nicaragua, scientists from CIFOR and the Nitlapan Institute of Central American University found the results are mixed. They looked at forest-related activities in 21 municipalities where local governments have assumed greater control over forests. In each case, the team brought together representatives from public and private organisations to discuss what was happening to the area’s forests.

The study sites represented a wide range of forest conditions. The initial six were rural municipalities that form the buffer zone of the Bosawas Biosphere Reserve; 10 more were in Leon, Chinandega and Rio San Juan. Leon and Chinandega are largely deforested and municipal governments that focus most heavily on reforestation, forest fire control, and protection of coastal mangrove areas and forest remnants surrounding the region’s volcanoes. In contrast, Rio San Juan still has large areas of humid tropical broadleaf forests, so municipal governments are more concerned with logging. In 2000, the work expanded to the pine forests of Nueva Segovia.

Nitlapan recently completed a summary report on the major results of the studies. It shows there is now better
cooperation and coordination between the municipal governments and the country’s Ministries of Agriculture and Environment—but much more remains to be done to increase the benefits of local control.

About half of the municipalities studied now have environmental commissions, many have passed ordinances on forests and tree nurseries are common, as are municipal reforestation and fire-fighting brigades. A number of local authorities have their own environment or forestry personnel. In general, the larger, wealthier municipalities have advanced more rapidly, as have those where civil societies organisations participate more in local government.

On the other hand, most of the municipalities in the study continued to focus more on urban problems. Some have been directly implicated in illegal forestry activities; others have shown little or no interest in environmental issues.

The World Bank and others are financing a number of projects in the region designed to strengthen governance by rural municipalities and increase forest protection. The research findings by Nitilapan and CIFOR have been helpful in shaping these projects, and are also of much interest to the Nicaraguan Ministry of Environment and Natural Resources.

The Value of Plant Diversity

The World Health Organisation says that as many as 80 percent of all the people around the world depend on medicinal plants as the main source of their primary health care, especially in developing countries where most plant diversity is concentrated. Yet little of this valuable ethnomedical knowledge has been documented. Many species are at risk of extinction even before their benefits are fully known.

In Peru, where half of all the land is covered by rainforests, the government is eager to cash in on the country’s botanical wealth by producing more plant-based medicines for world markets. CIFOR’s Wil de Jong and two colleagues from the Agricultural University La Molina warn in a recent study, which was published as a book-length report, that the government’s strategy to do that could hurt many of the country’s poorest people and threaten the long-term availability of some key plants. Aggressive marketing of plant-based medicines for international sales could drive up domestic drug costs, for example, making it difficult for local people to obtain traditional medicines.

Drug manufacturers in Lima have traditionally relied on a highly informal system of acquiring the plants they need for production. They put out orders to traders in towns around the country, who would mobilise local people to collect the plants from the forest. Now, in an effort to guarantee higher standards of quality and a steady supply of raw material, the government has introduced regulations to control production. Any plants sold to Lima factories or foreign buyers must come from certified, well-managed natural populations of plants. And all plant-based medicines sold to the public must be registered, which requires, among other things, evidence that reliable studies were done to determine the drugs’ effectiveness.

The main uses were for medicines, food, handicrafts, hunting, construction and other domestic needs. Medicinal plants were found to be especially valued. Two appreciated for their healing properties were Psychotria colorata (Wild. ex R. & S.) Müll. Arg. (Rubiaceae) and Dalbergia montana L. (Fabaceae), locally known as ‘perpetua’ and ‘serónica’, respectively. They are widely used by local women to treat diseases of the reproductive system.

An illustrated manual of local plants used for medicine and food will eventually be produced, targeted to farmers and extension agents.

The work is being conducted by a community of small-scale farmers in the Bragantina Region of Brazil, one of the oldest colonised areas in the Amazonian Brazil. Preliminary results reported in 2000 provided data on 192 useful species found in secondary forest stands from six months to 150 years old. The main uses were for medicines, food, handicrafts, hunting, construction and other domestic uses. Medicinal plants were found to be especially valued. Two appreciated for their healing properties were Psychotria colorata (Wild. ex R. & S.) Müll. Arg. (Rubiaceae) and Dalbergia montana L. (Fabaceae), locally known as ‘perpetua’ and ‘serónica’.

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RESEARCH ON NATIONAL AND REGIONAL FORESTRY ISSUES 25
From Poverty to Power: Improving Livelihoods and Local Governance
Over the past two decades, governments, development agencies and conservation NGOs have encouraged the marketing and sale of forest products as a strategy to boost income for poor people in the tropics. Forest product development is also widely advocated as an ecologically benign use of the forest—an assumption that may not always be true.

A considerable amount of research has been done to better understand forest product use and commercialisation, yet much of it case based and the methods of analysis are highly variable. As a result, the conclusions often have little wider relevance, and may even produce conflicting results.

Now, CIFOR and 60 research partners in 27 countries are engaged in a major project to develop a more systematic technique for analysing diverse cases of forest product development to better determine the factors that correlate with the outcome of development efforts. The scientists are testing and refining the new methodology by comparing dozens of case studies in Asia, Africa and Latin America.

According to project leader Brian Belcher, the aim is to ultimately provide more reliable information about the kinds of conditions and types of forest products that are most favourable for investment. ‘Forest products are important because many people use them, especially the poor. But increasing the value of forest products, as development programmes usually aim for, isn’t always the answer’, he explains. ‘Some forest products are mainly of marginal value. People may have other opportunities that make more sense economically’.

‘We want to provide guidance on what kinds of cases are most amenable to development interventions, as well as to flag the kind of cases that may not be good investments’, adds Belcher, the team leader of CIFOR’s Forest Products and People Programme. He is managing the Asian component of the project while CIFOR scientists Ousseynou Ndoye and Patricia Shanley coordinate the African and Latin American case studies.

In the past year, the research partners met in Indonesia, Cameroon and Brazil to discuss their various cases and learn the methods for uniform data collection and analysis. The individual cases—which include products as diverse as rattan, butterflies, honey, Brazil nuts and medicinal plants—were selected because they have commercial value and have already been studied in fairly good detail, so there is existing data that can be drawn on for the study.

The researchers are recording information about the products using a standardised set of characteristics that describe aspects of the entire development process—from production and processing to marketing and trade. Is the forest product cultivated or grown in the wild? Highly processed or sold in natural form? Traded mainly locally or regionally? Subject to heavy or little regulation?

The scientists are using a variety of analytic techniques to compare the different case studies. From this, they can detect development patterns and characteristics that appear to influence the results of commercialisation efforts—insight that should help make investment and policy interventions more effective.
Conducting research in the tropics, scientists collect vast amounts of information. But seldom do they return to their study sites to share the results of what they learned with local people who might directly benefit. This can leave communities disenchanted and lead to ‘research fatigue’.

CIFOR scientists who are studying the marketing of forest products in Cameroon want to break from that practice. So, they teamed up with Tropenbos Cameroon and organized a seminar in April 2000 for local farmers, traders and representatives of rural NGOs near Yaoundé to explain the findings of their market research. About 45 people attended.

The CIFOR team collects data at local markets about six times a year. They explained in the workshop how the farmers and traders can use such information to improve their own practices, increase their profits and boost household incomes. The topics covered product specialization, reliance on close versus distant markets, and issues of storing, processing and adding value to forest products.

The participants also got a lesson on the consequences of unsustainable harvesting. Nicole Chaungueu of Tropenbos used as an example the case of Garcinia lucida, the bark of which is heavily traded in Cameroon because it is used to ferment palm wine. Demonstrating the danger of overexploitation, Chaungueu showed photos of sites where half of all Garcinia lucida trees are dead. She then explained how the bark could be extracted without killing the trees.

The participants said they were pleased by what they learned at the seminar and asked CIFOR to organize more like it. Most felt the information they acquired would help them better market their own forest products in the future. In a multiplier effect, the attendees also presented the seminar information to other farmers and traders in their home villages and markets.
What Future for the Rattan Gardens of Indonesia?

Haji Sulaiman lives in an area of South Kalimantan, Indonesia, where villages have cultivated rattan for a century or more. As in a lot of the local households, rattan production offered him and his family a good living. Heavy demand from Japan made the manufacture of rattan mats (lampit) an important home industry, and Sulaiman even invented a machine that cuts holes in split rattan, which earned him a major government award.

In 1987, encouraged by the local government, he borrowed money to expand production. By 1991, however, he was bankrupt and his lampit business was closed, while the debt remains to be paid off.

His situation reflects the dramatically uneven status of rattan production in Kalimantan, and Indonesia overall, over the past two decades. Once a critical source of livelihood for many small farmers, rattan ‘gardens’ have have been undermined by very low prices. The lampit industry, for which Indonesia was once the main supplier, has virtually collapsed.

A consortium of researchers from CIFOR and several partner organisations has been studying the dynamics that made the once thriving rattan gardens now a marginal economic activity in many areas. A combination of factors is involved.

Beginning in the 1980s, the government introduced a series of policies that banned the export of rattan and restricted foreign investment in rattan manufacturing, ostensibly to protect the resource and promote a domestic processing industry. The ban sharply decreased prices and demand; raw material prices have changed little in nominal terms since 1987, and have decreased in real terms. Local rattan producers lost, while the artificially low prices gave domestic processors essentially a subsidy for the cost of raw material.

Meanwhile, many rattan gardens have been displaced by plantations and other land uses, farmers are shifting to different activities and widespread forest fires have destroyed large areas of rattan.

The scientists are working to determine what policies and conditions might reverse the clock and once again make rattan gardens an attractive means of livelihood, especially in villages where the people have few income alternatives. Could a revival of the industry be supported, and if so, how? Or are rattan gardens basically outdated and uneconomic in today’s changing environment?

Ecological benefits are cited among the arguments in favour of restoring rattan gardens, which usually exist within larger forest ecosystems. ‘Rattan gardens are of high importance for biodiversity compared with oil palm or rubber plantations’, explains CIFOR researcher Rita Mustikasari, who is conducting rattan studies in several...
Many national governments in Asia have been devolving authority to local communities for the past two decades in an attempt to improve forest management and empower forest users to help them improve their quality of life. Judging the effectiveness of these efforts is difficult because of different expectations, aims and interpretations. CIFOR’s Adaptive Co-Management Programme has been seeking more reliable answers through case studies of devolution at three dozen study sites in India, China and the Philippines. The researchers have evaluated devolution policies in terms of local forest users’ demands and aspirations. Is there greater access to forest resources? Do local people derive increased forest benefits to help meet their basic needs? Who makes most of the decisions about forest use? Despite local differences, the scientists found some common patterns across the three countries.

Contrary to the fears of detractors, devolution has resulted in increased forest cover and quality. It has also legitimised local control over some forest-related decisions. But at most sites in the three countries, devolution policies have fallen short of meeting the interests of local inhabitants. Even where their forest rights have been expanded, access and benefits have been limited mainly to subsistence needs, with commercial rights—especially to timber—restricted. In nearly all the cases, forest departments have retained control through management decisions, local organisations, and taxes and regulations. The results show that, in general, devolution policies changed the manner in which central governments control forest management, rather than achieving a genuine shift in authority to local forest users’, notes David Edmunds, co-author of an upcoming book on the findings.

Under devolution, forest departments have become more skillful in engaging local communities in forest management, Edmunds explains. Such participation has been promoted not with the aim of empowering communities, however, but to meet the forest departments’ own interests. Under joint forest management arrangements in India, for example, much of the ‘degraded’ forest land the state has claimed for regeneration has come at the expense of reduced grazing lands, ecological services and species valued by local people. ‘The labour of forest protection has often been shifted to forest users while government officials retain the right to make key decisions over what species to grow, when to harvest, where to sell and how to manage any profits’, Edmunds says.

The researchers believe some of the most important benefits from devolution have been indirect. As local forest users have gained visibility and legitimacy of access to forests, considerable assistance has come from NGOs, universities and government programmes in the form of legal literacy, community organising skills, small enterprise development, agroforestry techniques and other training to help livelihoods and strengthen civil society.

The study urges policy changes in a number of areas to improve the benefits of devolution for local communities. Among the recommended measures are these:

- Devise clearer and less restrictive property rights at the local level.
- Create opportunities for pluralistic decision making and provide disadvantaged forest user groups with the means to influence policy.

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Does Devolution Translate into Greater Local Benefits?

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- Devise clearer and less restrictive property rights at the local level.
- Create opportunities for pluralistic decision making and provide disadvantaged forest user groups with the means to influence policy.
• Include provisions for building local capacity in areas such technical skills, marketing, organisational development, communication, legal literacy and political mobilisation.

• Shift the focus of state and NGO interventions away from technical and managerial aspects of forestry and toward relevant political processes.

‘Twenty years ago devolution policies were promoted as “win-win” situations for both forestry departments and local users’, says Edmunds. ‘We now know that while devolution allows for some joint benefits, tradeoffs are also inevitable’.

A case study from the Brazilian Amazon shows how rural communities, when presented with reliable scientific knowledge, are often willing—and even eager—to modify their use of forest resources to ensure sustained benefits.

In eastern Amazonia, the range of species logged over the past three decades has increased from 20 to more than 300. Many are important sources of food, fibre and medicines used locally. Currently, the 15 most highly valued medicinal oil and game-attracting species in the study area are being cut down by the timber industry.

As part of her long-term research on the management of non-timber forest products in a frontier area along the Capim River, CIFOR scientist Patricia Shanley helped local communities understand what the loss of certain species would mean in terms of health care and nutrition.

The area’s inhabitants saw logging as a main source of much-needed cash. But they lacked adequate information to weigh the costs and benefits of selling wood instead of conserving the trees for non-timber benefits. Shanley’s work pointed to many ‘hidden’ benefits that were not fully recognised.

One bacuri tree (Platonia insignis), for example, can annually produce enough of its delicious fruit—which is used for ice cream, juices and jams—to generate the equivalent of US$1.00. In contrast, a single logged tree often brings as little as US$2. The piuqua (Caryocar villosum) attracts hundreds of kilograms of game during the tree’s flowering season, providing local families with a major source of protein. And oil from the copaiba tree (Copaifera spp.), which sells for about US$1.5 a litre, is used to prevent infection in wounds.

Armed with such information, local forest owners strengthened their negotiations with timber harvesters, decided to preserve a higher proportion of fruit and game-attracting trees, and showed greater interest in processing fruits and medicinal plants for personal use and income.

Shanley says the informational materials developed to convey forest values have been requested by researchers and conservation programmes in other areas of the Brazilian Amazon and in Ecuador, Greece, Mexico, Peru, Sri Lanka, Indonesia and Malaysia. In February 2000, she was invited to describe the work at a workshop, sponsored by the International Service for National Agricultural Research (ISNAR) in The Hague, which highlighted innovative methods for improving the ability of local communities to manage resources.
In Zimbabwe, the Challenge of Governing Common-Property Resources

Since the 1980s, Zimbabwe has had in place a system for local control of natural resources—especially shared resources such as grazing areas, wood for building and crafts, and other forest products. But it has not worked as planned, and local people are disaffected.

Scientists from CIFOR, the University of Zimbabwe’s Institute of Environmental Studies and the UK’s Centre for Ecology and Hydrology are collaborating in a three-year project to develop a more effective approach. Their work in two micro-catchment areas of southern Zimbabwe’s Chivi District produced significant results in 2000. Thanks to a series of researcher-initiated workshops, government officials and villagers found common ground and agreed to governance changes that were mutually acceptable.

‘The development has paved the way for a radical shift of authority, away from the existing command-and-control mode and toward a governing system based largely on community input’, says CIFOR scientist Bruce Campbell, a member of the research team.

Under the decentralisation plan it introduced more than a decade ago, the government of Zimbabwe made District Councils responsible for governing natural resources. The councils regulated resource use through a system of bylaws. But the regulations had been developed by the state without local participation, and did not reflect the communities’ interests. Moreover, the rules were not well enforced.

‘Essentially, there was a mismatch’, Campbell says. The most effective local systems for natural resource management were based on traditional systems. However, the District Councils had the legal mandate to manage the local resources, but were basically ineffective.

To help the community address the imbalance, the scientists organised several community meetings for village representatives and District Council officials. Using a social science methodology known as ‘scenario building’, the researchers urged the...
different parties to envision how they wanted local resource management to work, and to propose possible changes in the existing legislative framework that would improve the present situation.

According to Campbell, the local people were highly enthusiastic about the workshops. ‘Most of the village representatives had never had a chance to express their views and discuss such issues before with district authorities’, he says.

In a final session, several groups presented the District Council with possible scenarios for the management of various resources and in relation to governance. To the surprise of many, the Council was highly amenable to proposed changes in the management structure. Under the new arrangement, its role would be to mainly support and coordinate community initiatives and provide arbitration when necessary.

‘Our research activities made a breakthrough’, Campbell says. Pleased with the outcome of the process, the District Council wants to expand the pilot project to other villages.

Local Governance and the Legacy of Colonial Rule

Does decentralisation of natural resource management really give previously marginalised groups greater access to power and resources, as proponents contend? Or is it, in effect, a means of achieving the aims of national elites more effectively and at a lower cost?

CIFOR research partner Alois Mandondo says Zimbabwe’s experience offers useful lessons. She traced the country’s recent decentralisation efforts back to the policies of indirect rule under the colonial regime. The national government made native chiefs and headmen responsible for enforcing certain environmental regulations. The rules did not reflect local interests, however, but furthered the colonial government’s objectives—often at the expense of the native populations. Farmers, for example, were forced to cease commercial logging, reduce their cattle herds and provide free labour for soil conservation activities.

In ‘Forging (Un)democratic Resource Governance Systems from the Relic of Zimbabwe’s Colonial Past’, Mandondo argues that little has changed. Local authorities still serve largely at the whim of national leaders and are more account able to party bosses than to local constituencies.

In 1988 district governments were given the authority to enact land use and conservation laws; most simply adopted the model bylaws prepared by the national government. ‘Communities have had few opportunities to participate in creating the new rules, even though the government expects them to cooperate with the council representatives who enforce the rules’, says Mandondo, who is based at the University of Zimbabwe.

In 1998 village headmen were charged, as in the past, with enforcing environmental and conservation regulations. This was supposed to increase local control, according to Mandondo. In practice, she concludes, ‘there has been little progress in allowing communities to set their own rules, generate revenue from local natural resources and democratically elect their own representatives’.

Under CAMPFIRE projects, for example, local communities are supposed to receive at least 50 percent of the revenues from wildlife safaris. But the District Councils have been reluctant to allow the communities to control those funds.
The Bigger Picture: Integrated and Sustainable Forest Management
How does sustainable forest management move from fuzzy concept to reality? CIFOR has been helping to answer that question through its pioneering work on ‘criteria and indicators’, or C&I. The C&I Toolbox, launched in 1999, provided the first practical and comprehensive set of materials to aid the development of C&I for forest assessment.

Demand for the kit has been strong. The release of a more user-friendly version of its key software package, CIMAT II, in October 2000 will make the materials for C&I development even more accessible. CIMAT is shorthand for the Criteria and Indicators Modification and Adaptation Tool. It consists of a CD-ROM with a design ‘template’ and step-by-step instructions for creating sets of C&I tailored to a particular forest. Within two months of its release, CIMAT II had already been distributed to users in 26 countries.

C&I are benchmark policies, biophysical conditions and management practices that provide a foundation for determining whether a given forest is likely to survive for the long term under its current use. C&I make it possible to quantify changes over time, ‘flagging’ actual or potential problems in need of attention. A decline in water quality or decreased populations of targeted species, for example, may signal serious ecological damage.

CIMAT was developed for a variety of users—certification bodies, government officials, forest managers, donors, project managers, scientists, citizens and anyone else interested in sustainable forest management. CIFOR’s Programme on Adaptive Co-Management is using a simplified version of C&I in many of the methods being developed to strengthen local participation in forest management.

English-and Indonesian-language editions of CIMAT II are available, and editions in other languages are scheduled. An especially innovative feature of the software is its ability to produce customised sets of C&I suitable for different kinds of forests. A user can begin with any of several sets of C&I developed in recent years by various organisations, including a ‘generic’ set from CIFOR, modify it in accordance with local conditions and priorities.

Among those keenly interested in CIFOR’s C&I products, for example, is the African Timber Organisation. The group’s member countries met in December to review progress and map out further steps in the ATO’s efforts to produce a set of C&I that can guide sustainable management of forests in Africa and possibly provide the basis of a Pan-African certification system.

Ravi Prabhu and other CIFOR specialists in the development of C&I are also working with other organisations and a number of national governments to develop and test sets of C&I appropriate for a variety of forest types.
Seeking Wide Acceptance of Tropical Plantations for Multiple Benefits

Large-scale plantations have expanded rapidly in Southeast Asia over the past 15 years, as logging and deforestation have depleted natural forests that were once the region’s sole source of wood for industry. A number of challenges must be overcome, however, to make plantation forests in the tropics viable and attractive to investors.

Some of the constraints stem from biophysical problems such as nutrient-poor soils and the need to restore degraded land to productivity. CIFOR’s Plantations Programme conducts a wide range of research to tackle technical problems such as these. Equally important, it is addressing social and environmental factors associated with the expansion of plantations, such as conflicts between companies and local communities over access to land.

One component of research is seeking ways of making tropical plantations mutually acceptable to various stakeholders—to companies, which need the steady supply of wood; to local communities, whose residents want access to land and forest resources needed for their livelihood; and to governments and conservation groups seeking an alternative to the continuing loss of natural forests.

In Riau, Sumatra, CIFOR and Bogor Agricultural University are working with a large plantation company, PT Riau Andalan Pulp & Paper, to explore management options that would simultaneously meet timber production goals, provide local economic benefits and protect local wildlife, which includes threatened populations of elephants and several primate species.

Plantations in Indonesia are required to set aside 15 percent of their concessions as conservation areas or corridors. Yet this allows for very limited conservation of biodiversity. Adding to the problem, local people—displaced by the plantations and denied company jobs—are cutting down trees in the conservation areas and corridors, degrading wildlife habitats.

System dynamics modelling and other tools have suggested alternative ways for the company to plan and manage the corridors to reduce illegal logging while allowing local people to collect firewood, medicinal plants and other products for their livelihood. The studies have also demonstrated that conservation efforts could be strengthened at low marginal cost to the company.

In another stream of plantations research, CIFOR is continuing its work to develop effective criteria and indicators for assessing the sustainability of plantations. These efforts are modelled on the centre’s widely influential C&I for natural and community-managed forests. In 2000, a three-year C&I development and testing project at plantations in India and Indonesia ended, and the results of both case studies were published by the end of the year.

The programme also made headway in 2000 in a project that aims to ultimately help maximise the production of round wood by smallholders—known in the industry as ‘outgrower’ schemes. Because the competition for land in Southeast Asia and other tropical regions is intense, there is growing interest in establishing smaller scale plantations on marginal agricultural land. Through a series of case studies in Indonesia, Malaysia and the Philippines, CIFOR and several research partners have been investigating the kind of conditions and partnerships that are needed to increase support for this approach. A report on the preliminary findings of the work was under preparation at the year’s end.
Wanted: More Holistic Research to Solve Natural Resource Problems

As society and the scientific community increasingly recognise the need to balance improved agricultural production and environmental conservation, there is growing demand for more integrated approaches to natural resource management. CIFOR has been a leader in efforts to better define integrated natural resource management (INRM) and to encourage the integration of INRM approaches into the CGIAR’s research programmes.

In August 2000, representatives from most of the CGIAR centres and several partner institutions met at the International Center for Living Aquatic Resource Management in Penang, Malaysia, to consider ways of bringing the CGIAR’s research agenda more in line with INRM approaches. The workshop followed one held in September 1999 in the Netherlands. Both were organised by CIFOR Director General Jeffrey Sayer and sponsored by the CGIAR’s Center Directors Committee.

The earlier workshop—the first system-wide CGIAR meeting on INRM—produced a statement known as the ‘Bilderberg Consensus’. In it, the participants agreed that the approach is highly suited to combining the CGIAR’s important crop improvement efforts with broader research on agro-ecological systems.

INRM works much like modern ‘systems thinking’. It involves looking at the interactions between all the natural resources within a given landscape—land, water, biological and atmospheric resources—instead of trying to address a specific problem isolated from its broader context. Moreover, INRM is more responsive to social and cultural perspectives than traditional research approaches.

In Penang, the conference made several important conceptual breakthroughs. Among these, they developed a clearer definition of INRM research approaches and produced a framework suggesting how the impacts of INRM-based research could be assessed. The participants also examined several case studies from Asia, Africa and Latin America that illustrated how several CGIAR centres are already employing INRM methods to successfully address real-life problems.

Meanwhile, the scientists who manage the CGIAR’s genetic resources programmes have been thinking about what integrated resource management approaches mean for the nature of their work on germplasm improvement and conservation. In June 2000, several

Integrated Resource Management and Research: What Is It?

Representatives of the CGIAR centres who met in Penang, Malaysia in August 2000 defined integrated natural resource management as ‘a conscious process of incorporating multiple aspects of natural resource use into a system of sustainable management to meet explicit production goals of farmers and other users (e.g., profitability, risk reduction) as well as goals of the wider community (sustainability)’.

A report published by CIFOR in October, INRM Research in the CGIAR 2000, describes the main developments at the meeting. Among the areas of focus, the participants identified the following features of INRM-based research:

- Follows systems and process-oriented (instead of empirical) methods
- Works at multiple scales and involves multiple stakeholders
- Addresses the inevitable tradeoffs of different resource management options
- Employs new tools and methodologies for implementation and assessment
- Is amenable to scaling up
- Leads to measurable impacts
dozen geneticists and natural resource specialists met at CIFOR to discuss the implications. John Poulsen of CIFOR’s Biodiversity Conservation Programme headed the planning process for the meeting, which was organised under the CGIAR’s System-wide Genetic Resources Programme.

The genetics specialists are exploring the issue in part because the parties to the Convention on Biological Diversity, at their fifth meeting, endorsed an ecosystem approach to biodiversity conservation and sustainable use. To play a role in implementing the global biodiversity agreement, the CGIAR centres will, therefore, have to pursue integrated and ecosystem approaches to resource management.

At their meeting at CIFOR, the group made inroads in defining the interrelationship between genetic resource issues and other areas of natural resource management. Within the CGIAR, more and more people are endorsing the idea that integrated management of genetic resources and of natural resources overall should be linked, with INRM providing the context for integrated gene management. The CGIAR Task Force on Integrated Natural Resources Management will meet in Cali, Colombia, at the International Center for Tropical Agriculture in 2001 for related discussions on this issue.

FLORES: Out of the Lab and into the Field

New tools and techniques are needed to aid the complex decision making and planning processes that are inherent in more integrated approaches to natural resource management. In 2000, CIFOR’s development of one such tool, a computer-based modelling system known as FLORES, moved from the research laboratory to the field.

FLORES, for Forest Land Oriented Resource Envisioning System, enables users to simulate the scenarios that are likely to occur as a result of different options for managing natural resources. As part of field studies in Zimbabwe, researchers were introduced to the system, which can be modified in accordance with local conditions and priorities. They practiced applying it to real-life natural resource problems. Several participants constructed similar models for use in their own work. One researcher, for example, linked it with efforts by the World Wide Fund for Nature to build a model of fuelwood resources and alternative sources of domestic energy.

The fieldwork provided an opportunity to test a new component of FLORES that is designed to aid adoption of the tool by people with little or no experience in modelling. Called the FLORES Adaptation and Calibration, or FLAC, it is a support package that instructs users in the concepts behind FLORES, which is based on systems thinking, and how to customise it for individual situations and requirements.

These advances followed a number of modifications made by the design team in 2000. Most of the computer-based work on FLORES is being done at the University of Edinburgh by Mandy Haggit and Jasper Taylor. Laxman Joshi of the International Centre for Research in Agroforestry is heading field- and computer-based testing, while a coalition of researchers and development organisations is also aiding the development of FLORES. The UK’s Department for International Development has been a key funder of the work.

Initially, the design team had sought to build the ‘best representation’ of a decision-making tool—rooted in a much more comprehensive picture of relationships between people and the landscape around them. The testing indicated, however, that resource managers favoured a more pragmatic and less detailed approach that enabled them to focus more directly on critical aspects of a particular resource problem. Based on that and other findings, Robert Muetszfeldt and his colleagues adapted the Simile modelling package on which FLORES is based and improved the user interface.

FLORES-type models are also being developed in other locations, including Cameroon, Central America and Bulungan Research Forest in Indonesia. The team in Zimbabwe has been working with villagers and resource managers in the Mafungautsi area to make sure the content of the model reflects the thinking of local people.
New Techniques Put to the Test: Bulungan Research Forest in Borneo
In 1996 the Indonesian government demarcated 300,000 hectares of forest as a long-term experimental site for developing and testing practices needed to implement sustainable forest management. The Indonesian government hopes the work will produce management approaches suitable for use in its national forests. Similarly, the International Tropical Timber Organisation thinks the research results could be widely applicable to forests in other countries, and has provided considerable financial support.

Located in East Kalimantan on the island of Borneo, Bulungan Research Forest encompasses a number of indigenous groups and a wide range of forest types and human activities. This makes it an excellent setting for individual studies as well as a ‘laboratory’ in which to develop techniques and ‘best practices’ for integrated forest management. CIFOR is collaborating with many institutions in a broad range of studies at Bulungan. A sample follows.
Reducing Damage to Forests Caused by Sanctioned Logging

Indonesia, like many countries, uses its forests to provide timber for local industry and export. Research has shown that timber can be harvested in ways that considerably reduce damage to other forest resources as well as future yields. Experiments on reduced-impact logging (RIL) have been a core research project at Bulungan.

The goal is to provide an idea of harvesting techniques in natural forests that reduce environmental impacts, including damage to soil, trees and animals, to help sustain ecological functions, explains Kuswata Kartawinata, the Director of Bulungan Research Forest.

The techniques and results of reduced-impact logging vary according to local conditions. The experiments at Bulungan are being conducted to determine appropriate approaches for natural forests in Indonesia. Specifically, the experiments are investigating the effects on local vegetation and other forest conditions of harvesting using RIL techniques compared with the impacts of conventional logging methods.

CIFOR recently expanded the RIL studies, adding four more permanent experimental plots in 2000, for a total of 28. Plino Sut, a forest ecologist at CIRAD-Forêts in France, has been supervising the experiments, which are being conducted in cooperation with a state-operated timber enterprise, PT INHUTANI II, at a site near the district capital of Malinau.

Extensive ecological data—on tree varieties, species diversity and composition, and soil conditions—was collected as a foundation for studies of how forest dynamics may be affected by logging done at different intensities and with various treatments. Preliminary results demonstrated that RIL significantly reduced damage to the forest stand; in comparison with conventional harvesting techniques, RIL methods damaged 38 percent fewer remaining trees. The main benefit of RIL was significantly reduced impacts from skidding (hauling logs to centralised locations). Based on the findings, guidelines for RIL field operations in Bulungan have been developed.

Two other components of the RIL research got underway in 2000, one to monitor tree growth and survival in forest blocks that were first logged two years ago, and the other to determine logging impacts on the young trees that will provide future harvests.

Related cost-benefit analysis of RIL over conventional logging methods continued at the Malinau site, done by Harriatno Dwiprabowo, Stephane Grulos, Sist and Kartawinata. Previously, the researchers reported encouraging results from the studies so far, which showed that the RIL approach increased the productivity of felling and skidding by 23 percent or more compared with conventional harvesting.

In one of the most significant developments in the project, the results of the initial RIL experiments led INHUTANI II foresters who participated in the studies to change their attitudes about the effectiveness of the approach. Of their own accord, they decided to adopt RIL methods in harvesting three additional blocks. ‘The approach is no longer regarded as an experimental tool for forest scientists’, says Kartawinata, ‘but as a method for increasing logging efficiency’.

Training in RIL: Putting It All Into Practice

Training is crucial for reduced-impact logging to be implemented effectively. CIFOR co-sponsored a number of related training programmes in recent months. In two courses funded by the Tropical Forest Foundation, ITTO and CIFOR, 27 people from timber companies, research centres and training institutions learned the use of computer-assisted contour mapping to plan field operations. The software programme, known as ROADEN, can be combined with data from various sources to produce maps that resemble AutoCAD presentations. The second course covered road design and how it can be done to minimise environmental damage and also reduce field costs for logging companies.

A dozen staff members of the Berau Forest Management Project (an INHUTANI I and European Union project in East Kalimantan) visited the experimental site at the Malinau concession to learn more about RIL and conduct comparative studies of the technique. The Ministry of Forestry’s Center for Forestry Training, the Indonesia Australia Specialised Training Project and PT. INHUTANI II also held RIL field training at the Malinau site for 33 participants from state timber enterprises and forest concessions, several agencies within the Indonesian Ministry of Forestry and universities in Kalimantan.

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‘Mapping’ and Community Negotiations

Research in the villages of Bulungan Forest is providing a foundation for CIFOR’s broader work to develop effective methods for community forest management. Once fully developed, these techniques will provide a framework for different groups to negotiate their varied interests in a forest and jointly devise management strategies for mutual benefits.

These studies are based heavily on ‘participatory action research’, a social science approach that responds to real problems of the target beneficiaries and engages them in the research process. ‘Community mapping’ is one way of bringing local issues to the front. As such, it is being used as an entry point for much of the research being done at Bulungan and other sites by CIFOR’s Adaptive Collaborative Management of Forests Programme.

At Bulungan, the researchers are using community mapping to explore ways of helping communities resolve land disputes and other conflicts. ‘Mapping has drawn immense interest from all stakeholders and proved to be an excellent base for looking at issues related to conflict and negotiation’, says Lini Wollenberg, a community forestry specialist who is coordinating the research at Bulungan on multi-stakeholder relations. But mapping is more than just a tool for conflict resolution, she explains. It also provides an underpinning—a baseline of spatial information about a community—useful for broader deliberations among stakeholders.

Like official maps, community-generated maps illustrate the locations of local settlements, resources, infrastructure and land use. But community maps often point to boundary disputes with the government and outside interests, such as timber concessions and plantation companies, over access rights and land claims. Lacking secure land tenure and a voice in decision making, local people have had little recourse to challenge the situation. The studies at Bulungan show there are conflicts at various levels. Villages have grievances with outside groups over water quality, compensation for land, levels of government assistance, and the loss of hunting grounds and forest products. Among villages, conflicts tend to be mainly political, while internal village conflicts stem from unfair advantages by local elites and lack of transparent decision making.

Differences in the traditions and patterns of settlement among the area’s ethnic groups also pose tensions, and have to be taken into account in selecting those who will participate in local planning.

Field Work Opportunities for Young Scientists and Other Partners

Bulungan Research Forest provides many opportunities for field research by forest try students and other partners. The results of this work support CIFOR’s larger research programme. A number of faculty members from Mulawarman University in Samarinda, East Kalimantan, have conducted research at Bulungan, for example, including a team headed by Dudy Ruhayat that did soil studies in 2000 at the site of CIFOR’s reduced-impact logging experiments near Malinau.

The MacArthur Foundation provides grants to support research at Bulungan by Indonesian students. CIFOR has a formal agreement with the Graduate Program of Forests to support research at Mulawarman, to provide research opportunities for students studying aspects of sustainable forest management and forest-related livelihoods.

Several Mulawarman University graduate students have done research for their M.Sc. theses at Bulungan. Atika Nostalgia, for example, studied the inter-relationships of the forest, honey bee feeding and nesting, and traditional uses of natural honeys by several indigenous communities in the vicinity of the PT. INHUTANII operations near Malinau.

Another recipient, Agni Klintuni, has studied life, death and disease among the indigenous people of Bulungan as part of his Ph.D. requirements at the University of Paris 7. Based on his previous work at Bulungan, Iwan Kurniawan received assistance from MacArthur to support research for his master’s thesis.

Also near the Malinau timber concession, Arman, an intern from Mulawarman, has worked in the field with Jérôme Chabbert, a graduate student at University of Paris XII, collecting and analysing data on logging damage. Sigit Budiarja, an intern in the RIL project for the past two years, recently prepared a scientific report on post-logging residual stands in the PT INHUTANII concession to complete requirements for a degree in forest try from Bogor Agricultural University.
The biological and other natural resources of a forest and the surrounding area are usually critical to the people living there. But that importance is generally not well represented in planning for biodiversity conservation and other forest use because common biological survey methods fail to adequately ‘capture’ local and environmental values of a forest in a way that is useful for decision makers.

To improve the situation, CIFOR biologist Doug Sheil and a multidisciplinary team of scientists have been working in Bulungan Forest to develop a more broad-based approach, which they call Multidisciplinary Landscape Assessment. Sheil says: ‘Doing the surveys at a landscape level is important because effective land use planning requires looking at a forest and its resources as part of a broader agro-ecosystem that provides a variety of community needs’.

The last phase of fieldwork was completed in December 2000. The team is now reviewing the data and compiling a comprehensive manual on the work so far, in preparation for scientific review. Several of the methods employed are novel, and an account of the tree plot method has already been accepted for publication in Tropical Forest Science.

The study area encompasses seven communities in the Malinau watersheds of two rivers. From 200 experimental plots the team compiled extensive records on local vegetation, soil characteristics, animal species and other biophysical features, along with sociocultural information such as the history of settlement, people’s attitudes toward the forest and its resources, and traditional uses of those resources.

The team members include ethnobotanists, anthropologists, biologists, soil experts and economists, to insure that a broad range of forest values was represented in the surveys. Local villagers worked closely with the researchers acquiring the data. As part of the surveys, local inhabitants were asked to rank the various features of the forest and surrounding land according to how highly those elements were valued by the community.

More than 2,000 plant species were recorded, about 10 percent of which have not yet been fully identified. Information about the uses of these plant resources is still being processed, but more than half of the species recorded so far have some practical use or value to local residents; 20 percent are consumed as food, for example, and 13 percent are used for medicinal purposes. Wild pigs (Sus barbatus), whose natural history is little known, were generally cited as the region’s most important species because of their value as a source of protein.

Local conflict is multi-layered, requiring multi-dimensional negotiations.

Local conflict changes in response to various factors, requiring a phased and flexible negotiation process.

Alliances between village leaders and other elites hamper transparent decision making and management.

The negotiating process is seldom genuinely participatory and democratic, which tends to make any agreements inherently partial and temporary.

Says Wollenberg: ‘Reaching a community agreement is not necessarily a good thing if it is not built on transparent and legitimate social foundations’.

The researchers found that in cases where successful agreements were reached, disputes were settled more quickly where boundaries were seen not as ‘fences’ but as delineated ‘bundles of resources’ governed by certain entitlements and sanctions. And because of mutual dependency on each other’s territories, people were more likely to achieve a widely acceptable outcome if agreements were written to include provisions of local forest access for livelihood needs.

New Species in Bulungan

During field work at Bulungan Forest, scientists in CIFOR’s Multidisciplinary Landscape Assessment project have observed what appear to be several species new to science. Ike Rachma Wati of the Indonesian Institute of Sciences found two previously undescribed fish species, while Djoko Iskandar of the Bandung Institute of Technology recorded several unknown reptiles and amphibians. In related botanical surveys, the group, headed by Doug Sheil, also discovered a new fruiting tree (genus Mammea, family Clusiaceae). Verifying the discoveries will take some time.

Biodiversity Conservation and Local Interests

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Cultural Crossroads: Will New Options Erase Traditional Way of Life?

From a wide body of research, a broad picture of rapid social and economic change in Punan and Dayak communities along the Malinau River is emerging. The information offers a strong foundation for long-term research at the site, and is useful in developing policies for managing the forest.

Bulungan Forest is an especially rich environment for studies of forest livelihoods and dependency on local forest resources. Patrice Levang, a scientist at CIFOR seconded from the Institut de Recherche pour le Développement (IRD) in France, is coordinating a number of studies in this area. Many of them illustrate the tensions and complexity of issues that make forest management today a tough task.

From a recent survey and similar research in 1993, Lars Raskjiba found that settlement history and territoriality is an important issue today. Punan and other indigenous groups, including some who migrated to the area not long ago, want financial compensation from outside interests, such as logging and mining companies, for land they claim was theirs. Says Levang, ‘The people seem less interested in the defense of their environment and livelihood than in getting appropriate compensation from wealthy outsiders’.

Similarly, researcher Nicolas César found that many rural inhabitants who have long been highly dependent on the forest for subsistence increasingly view forest products mainly as a source of income to buy goods such as chain saws, televisions, VCDs and motorboats.

As commercial enterprises in the region expand, companies now operating in the area would seem a likely source of much needed jobs for local communities. Yet research by Soaduon ‘Edo’ Sitorus shows that the companies tend to hire few villagers, saying they lack adequate education and are not reliable enough. Villagers cite the influx of outside workers as a major cause of the growing scarcity of locally important resources such as ironwood, birds, fish and game.

Josni Mannes is investigating the scarcity of fish that were once plentiful in the area. Tidung fishermen from Malinau and workers from local timber and mining concessions are seen as the culprits. Both groups are known to use poison and electric fishing equipment to catch fish that they sell to local markets in Malinau. Water quality has deteriorated steadily, and the water in many villages is no longer drinkable. Recourse is difficult, however, because it is hard to prove blame and the local people have no legal basis to act on.

Many local communities, especially in the most remote areas, are highly dependent on trader’s who sell locally collected forest products and bring manufactured goods. Iwan Karniawan traced the chain of trade in forest products—especially yagak, or eagle wood—from the upper Malinau River to several main trading centers in Kalimantan. He found that traders often provoke their suppliers into indebtedness. This makes the collectors highly dependent on their relationship with the traders, thereby allowing the traders to exert control over the products.

What new changes and opportunities will arise at Bulungan under Indonesia’s new programme of regional autonomy? Researcher and Ph.D. student Krystof Obidzynski suggests that one trend may be an increase in illegal logging. It has been on the rise in East Kalimantan since 1998, and his studies indicate that more and more local people are involved. Far from being spontaneou, he found, the activity is often very well organised and conducted with the full knowledge of some local authorities, who get their share of the business.

The goal is to develop the novel survey approach into a method that will eventually be applicable to different locations. For now, the project is revealing site-specific information that could help guide policies on local forest management and land use.

The studies found, for example, that rattan, a locally important resource, has grown scarce. A major factor in its decline is government logging regulations that require timber companies to slash all undergrowth and climbers, which is intended to promote regeneration within the concessions. The practice has clearly hurt local communities while its silvicultural benefits are debatable, say the researchers, who suggest that the policy should be reconsidered.

This finding, Sheil explains, is the kind of information that policy makers and planners need to make more informed and balanced decisions about forest conservation and land use. ‘If we can demonstrate that local biodiversity matters to communities, and why’, he says, ‘it is harder for decision makers to ignore that in policy making and land use planning’.
For centuries, the Punan people have dwelled in the forests of Borneo. Formerly nomadic hunter-gatherers, they now live in villages and grow some of their food. But hunting, fishing, and gathering products of the forest are still the main activity of daily life.

Early in 2000, French photographer Christophe Kuhn visited Meutut, a northeastern corner of East Kalimantan, Indonesia, where the Punan live in and around Bulungan Research Forest. Over a period of several weeks, Kuhn followed the Punan in their usual activities and documented scenes of daily life.

Some Punan villages are in remote areas, but the Punan are not isolated. They have long interacted with traders and other outsiders. In recent decades, government programmes have provided better access to education and health services. Television and consumer goods are also increasingly available.

The Punan know the forest well and, when necessary, how to tap its resources to survive. But faced with the often stark living conditions, many Punan travel to neighboring Malaysia to work on oil palm plantations or as loggers. With the arrival of more and more commercial enterprises, some local communities have sold or considered selling their land.

Under these pressures, the forest home of the Punan and other indigenous groups in the area is shrinking, a threat to their way of life. The Punan have demonstrated their ability to adapt. But whether they will benefit from the wave of development remains to be answered.
In 2000, CIFOR published a book of Christoph Kühn's photographs of the Punan, which includes the photos featured in these pages. The Indonesian Ministry of Forestry, the International Tropical Timber Organisation and the Institute for Development Research were partners in the project.

ATHOMEintheforest:THEPUNANPEOPLEOFTHEMALINAURIVER
To influence forestry policies and practices, research results must reach many different audiences. Devising strategies to strengthen the flow of information and achieve results is an important aspect of CIFOR's work.

Improving Access to Information in Cyberspace

In 2000, CIFOR continued to improve the delivery and access to its information resources both internally and externally. Content on the centre’s Web site expanded significantly, and the site has become a major vehicle for fast and efficient dissemination of information.

Staff members of CIFOR’s Information Services Group developed Web sites to support workshops and CIFOR initiatives on integrated natural resources management, genetic resources management in ecosystems, financing of sustainable forest management and forests, and the Kyoto Protocol’s Clean Development Mechanism. The sites not only provided information about the workshops, but also offered ‘work space’ for posting and reviewing conference papers, discussing issues and obtaining background documents. The Web sites continue to serve as repositories of information and forums for ongoing dialogue.

IntraCIFOR—the centre’s Intranet, created in 1999—has now become the main avenue for sharing information throughout the institute. Each programme and department now maintains its own extensive Web pages, which are updated regularly. The available information is wide ranging; it ranges from staff profiles and a schedule of events to supportive services such as research tracking, publications review and financial reporting.

A Strategy for Knowledge Management

As a global research organisation working in collaboration with many partners, CIFOR considers the sharing of knowledge important. So far, however, the staff and management have little understanding of the related principles and practices.

With support from the CGIAR’s Organisational Change Program, CIFOR in 2000 began examining the role of knowledge management in relation to achieving the centre’s mission, as the foundation for developing a strategy to improve the centre’s flow of knowledge. Exercises were designed to establish a common understanding of knowledge management, identify key steps required to implement it effectively and develop a vision of how it should work, based on the organisational values CIFOR wants to convey (such as excellence, multidisciplinarity, collaboration, cultural sensitivity and a commitment to achieving impact).

Developing a strategy will entail looking at current operations to determine what changes are needed in three broad areas: processes and systems, information and knowledge content, and people and culture.

The efforts so far produced a number of lessons that may be useful to other organisations interested in improving their knowledge management:

- Knowledge management is complex because it deals with how the entire organisation and its staff—not just a single programme or division—manages and transmits information.
- Acquiring a clear understanding of the difference between ‘knowledge’ and ‘information’, then approaching knowledge management accordingly, is a process that takes some time.
- Knowledge management is broader than technology or information management issues, as demonstrated by the inclusion of discussions about research management, team building, ‘communities of practice’ and organisational culture.
- The concept of ‘knowledge sharing’ is easier for people to understand than ‘knowledge management’.
Expanded Media Coverage and Public Awareness

Through the services of several consultants, CIFOR significantly broadened international and national media coverage of its activities in 2000. News reports and feature articles appeared in several new major media outlets, some in relation to international meetings on forestry and environmental issues. In addition, the Communications Unit strengthened relations with The Jakarta Post, an important English-language newspaper for reaching Indonesian decision makers and representatives of international NGOs and the donor community in Indonesia. The effort led to increased coverage of CIFOR’s work by the newspaper throughout the year.

Among the newspaper articles published in 2000 was a lengthy piece in November in the UK’s Financial Times. It was tied to international meetings on the Clean Development Mechanism of the Kyoto Protocol. Titled ‘The Carbon Trappers’, the article by consultant Charlie Pye-Smith explored the pros and cons of including forest projects in the CDC, which was a major topic of discussion among the climate change policy makers meeting in The Hague. Comments by CIFOR’s Kenneth MacDicken and Joyotee Smith were included in the article and in a related report on Indonesian pulp and paper companies. CIFOR received more than 400 requests for the paper, which was posted on the centre’s Web site for easy access.

In February 2001, the International Herald Tribune’s opinion section featured an article by CIFOR Director General Jeffrey Sayer, titled ‘Get the Forest People on Your Side’. It described his conversations with villagers in Indonesian Borneo, in which they explained how they use and value the forests around them. The article ended with an appeal for policy makers to remember the needs of forest-dependent people in designing international forestry and conservation programmes.

Wide Array of Publications — Now on a Single CD-ROM

CIFOR published and disseminated a wide range of publications in 2000, intended for different audiences: 10 monographs and 7 Occasional Papers, 3 issues of the 12-page newsletter, CIFOR News, each in English, French and Spanish; the centre’s Annual Report; Research Abstracts, also in English, French and Spanish; several policy briefs; a number of posters and brochures; and a desk calendar. External publications by CIFOR staff in 2000 included more than 75 journal articles, books and book chapters (see Annexes). A special publication in 2000—the first of its kind for CIFOR—was a 48-page art-quality book featuring black and white photographs of the Punan people who live in the forests of Indonesian Borneo, where CIFOR does extensive research. French photographer Christophe Kuhn took the photos over a two-month period (see page 46). The book was published by CIFOR with financial support from Institute de Recherche pour le Développement (IRD). CIFOR also issued an updated edition of its CD-ROM containing all the centre’s publications from 1993 through 2000. It includes the full text of the publications along with citations and abstracts of all papers published externally by CIFOR staff over the seven-year span. The full-text documents are prepared in PDF (Portable Document Format), which enables users to read and print a document as it appeared in its original form. The CD-ROM also features an easy-to-use search capability.
In any research endeavour, the bottom-line question is: What difference does it make? How will the findings improve the quality of life or increase our ability to solve a problem? For CIFOR, like its partner CGIAR institutions, the issue of impact assessment is important to ensure that the centre meets its mission.

In past years, a major focus of attention was identifying ‘impact pathways’—that is, recognising the needs and capabilities of targeted beneficiaries and designing research projects in ways that should lead to on-the-ground changes. This is still an important aspect of CIFOR’s research. In 2000, however, another important element of impact assessment took centre stage: priority-setting. Aided by a ‘simulation workshop’ in April, CIFOR worked to devise better in-house methods to determine priorities in strategic areas of research and analyse research ‘portfolios’ at the project level.

The ‘portfolio analysis’ technique involves a scoring-and-weighting measurement of five key criteria [see chart], followed by Delphi-type discussion of factors in an individual project that have a high variance of scores. ‘The method is most meaningful when combined with full cost accounting of research’, says Michael Spilsbury, the staff scientist who manages impact assessment at CIFOR. Research managers can use the approach as a tool to analyse the overall portfolio of research investments, not to unilaterally filter out projects with low impact potential.

The results of this and related work on research evaluation and impact assessment at CIFOR were presented to an international audience in May at a workshop convened by the CGIAR’s Standing Panel on Impact Assessment, held at FAO headquarters in Rome.

### Key Criteria for ‘Portfolio Analysis’

#### Strategic fit
1. Consistency with strategic direction
2. Contribution to other CIFOR projects
3. Enhancement of CIFOR research capability

#### Impact potential (in relation to CIFOR’s goals of benefiting rural livelihoods)
4. People affected and contribution to livelihood
5. Extent of impact on environment
6. Enhancement of research capability

#### Implementation context
7. Impediments and incentives, from ‘uptake’ to outcomes (government and industry)
8. ‘Uptake’ events required and directness of impact pathway, from users to beneficiaries
9. Capacity and willingness to use, adapt, and ‘deliver’ research products and processes

#### Scientific potential
10. Time to produce and deliver outputs
11. Fertility of relevant fields of research
12. Probability of technical success

#### Research capacity
13. Financial feasibility
14. Quality and breadth of skills available; critical mass of effort
15. Quality of institutional infrastructure, systems and support staff
16. Climate for creativity and innovation
CIFOR is highly indebted to numerous countries, institutions and individuals whose support is vital for the centre’s work. Foremost among those who deserve a large share of the credit for CIFOR’s achievements are the partner institutions and scientists in the developing countries where CIFOR is engaged in research.

These partners bring major resources, intellectual capacity and local knowledge to bear on problems of tropical forests and the communities they serve—making CIFOR truly a ‘centre without walls’.

Several institutions have provided particularly strong support in recent years as CIFOR established its regional offices: EMBRAPA in Brazil, the International Institute of Tropical Agriculture in Cameroon, and in Zimbabwe, the University of Zimbabwe and its Institute of Environmental Studies.

Major recognition—and thanks—is also due to the governments and organisations that provide generous financial support. Since CIFOR was established in 1993, its total funding has grown steadily. In 2000, the top 10 donors to CIFOR were the European Commission, Germany, the International Fund for Agricultural Development, Japan, the Netherlands, Norway, Sweden, the United Kingdom, the United States and the World Bank.

CIFOR receives funds in two streams: institutional funding, which currently makes up nearly half of the annual budget, and targeted funding for specific projects. In the early years of CIFOR, the bulk of its budget was unrestricted; over time, financial support has increasingly shifted toward targeted funding. These two funding streams are complementary, and both are essential for CIFOR to operate.

Institutional funds provided the flexibility CIFOR needed early on to develop its fledgling programme. This kind of funding has benefited all of CIFOR’s main research programmes and is critical for the centre’s basic operations. It enables CIFOR to undertake new activities until long-term funding has been identified, while targeted money provides added resources to tackle particular problems of concern. This combined funding has been indispensable for CIFOR to expand its work into the major tropical regions, increase capacity building in developing countries, strengthen the dissemination of scientific knowledge and provide expertise on forestry issues to international policy making processes.

CIFOR pledges to maintain its track record of responsible stewardship of the financial resources it receives, and thanks its many donors for continuing to provide the funds that make it possible for the centre to fulfill its mission.

Japan and CIFOR: An Enduring Partnership

Since CIFOR was established in 1993, Japan has been one of its most committed partners in working to promote sustainable forest management in developing countries. Having a member from Japan on CIFOR’s Board of Trustees from the beginning has solidified that relationship.

Japan has a strong commitment to forestry, which is rooted in the national culture. The Japanese people treasure their forests not only as a source of material needs but also for spiritual benefits and social values. At home, Japan has an exemplary record of sustainable management and use of its forests, and shares its knowledge and technology in this area with developing countries.

Japan has consistently been one of the leading sources of funds for CIFOR, particularly for institutional funding. This has been especially important in giving CIFOR the flexibility needed to build a core scientific staff and a solid research programme with activities in many countries and the international community. Japan has also provided targeted funding to support research in specific areas.

To complement these financial contributions, CIFOR has worked to increase direct scientific cooperation with Japan’s forest research community. Initiatives are expected to include reciprocal exchange visits by scientists, student internships and more forest project partner ships in developing countries.

Plans are also underway to better inform scientists in Japan about CIFOR and its work. Says Shigeo Kobyashi, who coordinates overseas research at the Japan Forestry Research Institute: ‘There are many in Japan who would like to cooperate with CIFOR if only they knew more about it. I therefore look forward to seeing CIFOR become an active at select ed events of the Japanese forestry community’. Kobyashi was recently named a CIFOR Affiliate Scientist in recognition of his contributions to tropical forestry research and his role in improving the CIFOR-Japan partnership.

Acknowledging Our Generous Supporters

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Since CIFOR was established in 1993, Japan has been one of its most committed partners in working to promote sustainable forest management in developing countries. Having a member from Japan on CIFOR’s Board of Trustees from the beginning has solidified that relationship.

Japan has a strong commitment to forestry, which is rooted in the national culture. The Japanese people treasure their forests not only as a source of material needs but also for spiritual benefits and social values. At home, Japan has an exemplary record of sustainable management and use of its forests, and shares its knowledge and technology in this area with developing countries.

Japan has consistently been one of the leading sources of funds for CIFOR, particularly for institutional funding. This has been especially important in giving CIFOR the flexibility needed to build a core scientific staff and a solid research programme with activities in many countries and the international community. Japan has also provided targeted funding to support research in specific areas.

To complement these financial contributions, CIFOR has worked to increase direct scientific cooperation with Japan’s forest research community. Initiatives are expected to include reciprocal exchange visits by scientists, student internships and more forest project partner ships in developing countries.

Plans are also underway to better inform scientists in Japan about CIFOR and its work. Says Shigeo Kobyashi, who coordinates overseas research at the Japan Forestry Research Institute: ‘There are many in Japan who would like to cooperate with CIFOR if only they knew more about it. I therefore look forward to seeing CIFOR become an active at selected events of the Japanese forestry community’. Kobyashi was recently named a CIFOR Affiliate Scientist in recognition of his contributions to tropical forestry research and his role in improving the CIFOR-Japan partnership.
## Donors

### Schedule of Grant Revenue

For the years ended 31 December 2000 and 1999

(US $'000)

<table>
<thead>
<tr>
<th>Institutional Grants</th>
<th>2000</th>
<th>1999</th>
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<tbody>
<tr>
<td>Australia</td>
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<tr>
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<tr>
<td>Belgium</td>
<td>163</td>
<td>121</td>
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<tr>
<td>Canada</td>
<td>267</td>
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<tr>
<td>Denmark</td>
<td>128</td>
<td>147</td>
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<tr>
<td>Finland</td>
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<tr>
<td>France</td>
<td>89</td>
<td>92</td>
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<tr>
<td>Germany</td>
<td>196</td>
<td>274</td>
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<tr>
<td>Indonesia</td>
<td>57</td>
<td>200</td>
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<tr>
<td>Japan</td>
<td>636</td>
<td>1,020</td>
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<tr>
<td>Netherlands</td>
<td>973</td>
<td>718</td>
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<tr>
<td>Philippines</td>
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<td><strong>Sub-total</strong></td>
<td>6,177</td>
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<table>
<thead>
<tr>
<th>Targeted Grants</th>
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<tr>
<td>African Timber Org.</td>
<td>51</td>
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<tr>
<td>Asian Development Bank</td>
<td>204</td>
<td>91</td>
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<tr>
<td>Australian Centre for Int. Agricultural Research</td>
<td>67</td>
<td>71</td>
</tr>
<tr>
<td>Berau Forest Management Project</td>
<td>6</td>
<td>-</td>
</tr>
<tr>
<td>Brazil (EMBRABA)</td>
<td>30</td>
<td>(4)</td>
</tr>
<tr>
<td>Canada</td>
<td>43</td>
<td>123</td>
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<td>CGIAR Secretariat</td>
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<td>-</td>
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<tr>
<td>Chemonics International Inc.</td>
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<td>CIAT (PRGA Programme)</td>
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<tr>
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<td>European Commission</td>
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<tr>
<td>European Space Agency</td>
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<tr>
<td>Finland</td>
<td>-</td>
<td>22</td>
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<tr>
<td>Food and Agriculture Organisation of the U.N.</td>
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<td>-</td>
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<tr>
<td>Ford Foundation</td>
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<tr>
<td>Forest Trends</td>
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<td>-</td>
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<tr>
<td>France</td>
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<tr>
<td>German y (GTZ/BMZ)</td>
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<td>Inter-American Development Bank</td>
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<tr>
<td>International Centre for Research in Agroforestry</td>
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<td>International Development Research Centre</td>
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<td>International Fund for Agricultural Development</td>
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<td>International Plant Genetic Resources Institute</td>
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<td>International Tropical Timber Organisation</td>
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<td>NOAA of the U.S.</td>
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<td>Netherlands</td>
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<td>Norway</td>
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<td>Overseas Development Institute</td>
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<tr>
<td>Pact</td>
<td>-</td>
<td>33</td>
</tr>
<tr>
<td>Protierra/Inforom</td>
<td>-</td>
<td>45</td>
</tr>
<tr>
<td>Rockefeller Foundation</td>
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<tr>
<td>Spain</td>
<td>-</td>
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<tr>
<td>Sweden</td>
<td>302</td>
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<td>Switzerland</td>
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<td>The Nature Conservancy</td>
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<td>Tropical Forest Foundation</td>
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<td>-</td>
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<td>U.S. A.</td>
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<td>United Kingdom (DFID)</td>
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<td>UNESCO</td>
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<tr>
<td>United Nations Environment Programme</td>
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<td>U.S. Forest Service</td>
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<tr>
<td>University of Wales</td>
<td>5</td>
<td>-</td>
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<td>World Bank</td>
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<tr>
<td>World Conservation Union (IUCN)</td>
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<tr>
<td><strong>Sub-total</strong></td>
<td>6,366</td>
<td>5,235</td>
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**TOTAL GRANTS** 12,543 11,514
### Statement of Financial Position

As of 31 December 2000 and 1999

(US Dollar 000s)

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>1999</th>
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</thead>
<tbody>
<tr>
<td><strong>Current Assets</strong></td>
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</tr>
<tr>
<td>Cash and cash equivalents</td>
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<td>7,133</td>
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<tr>
<td>Accounts receivable:</td>
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<tr>
<td>Donors</td>
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<tr>
<td>Others</td>
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<td>616</td>
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<td>Prepaid expenses</td>
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<td><strong>Total current assets</strong></td>
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<td>11,127</td>
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<tr>
<td><strong>Non-Current Assets</strong></td>
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<tr>
<td>Fixed assets – net</td>
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<td>2,381</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td>12,544</td>
<td>13,508</td>
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<table>
<thead>
<tr>
<th></th>
<th>2000</th>
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<tbody>
<tr>
<td><strong>Current Liabilities</strong></td>
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<td></td>
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<tr>
<td>Accounts payable:</td>
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<td></td>
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<tr>
<td>Donors</td>
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<tr>
<td>Others</td>
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<tr>
<td>Accruals and provisions</td>
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<tr>
<td><strong>Total current liabilities</strong></td>
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<td>5,996</td>
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<thead>
<tr>
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<td><strong>Net Assets</strong></td>
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<tr>
<td>Unappropriated</td>
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<td><strong>Total net assets</strong></td>
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<td>7,512</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Liabilities and Net Assets</strong></td>
<td>12,544</td>
<td>13,508</td>
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</table>

### Statement of Activities

For the years ended 31 December 2000 and 1999

(US Dollar 000s)

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<thead>
<tr>
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<th>1999</th>
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<tbody>
<tr>
<td><strong>Revenues</strong></td>
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<tr>
<td>Grants</td>
<td>6,177</td>
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<tr>
<td>Other revenues</td>
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<tr>
<td><strong>Total revenues</strong></td>
<td>6,608</td>
<td>6,366</td>
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<table>
<thead>
<tr>
<th></th>
<th>2000</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating expenses</strong></td>
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<tr>
<td>Research programs</td>
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<td>6,366</td>
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<tr>
<td>Research support</td>
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<td>–</td>
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<tr>
<td>General and administration</td>
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<tr>
<td><strong>Total operating expenses</strong></td>
<td>6,888</td>
<td>9,802</td>
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<tr>
<td>Indirect costs recovery</td>
<td>(486)</td>
<td>(486)</td>
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<td><strong>Total operating expenses (net)</strong></td>
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<td>9,316</td>
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<tr>
<td>Change in net assets</td>
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<td><strong>Net assets at the beginning of the year</strong></td>
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<td>7,512</td>
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<tr>
<td><strong>Net assets at the end of the year</strong></td>
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<td>7,718</td>
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<thead>
<tr>
<th></th>
<th>2000</th>
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<td><strong>Operating expenses – by nature of classification</strong></td>
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<td>Personnel costs</td>
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<td>Operational travel</td>
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<tr>
<td>Depreciation of fixed assets</td>
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</tr>
<tr>
<td><strong>Total operating expenses</strong></td>
<td>6,888</td>
<td>12,730</td>
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</table>
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Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA)

and its regional centers

Escola Superior de Agricultura Luiz de Queiroz, Universidade de São Paulo

Faculdade de Ciências Agrárias do Pará

Fundação de Tecnologia do Estado do Acre

Fundação Floresta Tropical

Fundação Norte-Rio-Grandeense de Pesquisa e Cultura

Grupo de Pesquisa e Extensão em Sistemas Agroflorestais do Acre


Mendoza, G.A. and Prabhu, R. 2000. Development of a methodology for selecting criteria and indicators of sustainable forest management:


**Sanchez, Jose G., Tournon, Jacq ues. Evaluació n fisicociolò gica y ecomò nica de un bosq ue secular en cerca de Pucallpa-Uca yali, Amazonia peruana. Revista Forestal del Perú XXIII & 2: 79–90.


Regional Development Planning Agency (RAPPEDA), East Kalimantan Province.

Indonesian Forest Concessioners Association


AICIRM Monograph Series. Canberra, Australia, Australian Centre for International Agricultural Research.


CIFOR Publications

Books and Report s:


Foundation for the Philippine Environment

International Institute of Rural Reconciliation

Kapu’u Upliftment Foundation, Inc.

University of Philippines, Los Banos

Xavier University, Research Centre Institute for Mindanao Culture

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University of Cape Town

Switzerland

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Clark University

Colorado College

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University of Florida

University of Maryland

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Imperial College of Science, Technology and Medicine

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National History Museum

Overseas Development Institute

Stirling University

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University of Edinburgh, Institute of Ecology and Resource Management

Vietnam

Forestry College of Vietnam

University of Hanoi

Zambia

Copperbelt University
CIFOR An n u a l Re p o r t  2 0 0 0

CGIAR
The Consultative Group on International Agricultural Research (CGIAR), established in 1971, is an informal association of nearly 60 public and private-sector donors that support a network of 16 international research centres. The CGIAR's mission is to contribute to food security and poverty eradication in developing countries through research, partnership, capacity building, and policy support. The CGIAR promotes sustainable agricultural development based on the environmentally sound management of natural resources.

Future Harvest
Future Harvest is a public awareness initiative of the 16 international agricultural research centres sponsored by the CGIAR. It works to educate the general public and decision makers about the important role that scientific research plays in feeding the world’s population and addressing environmental problems that undermine continued progress in food production. It also builds financial support for projects that help rural communities, farmers and their families in developing countries to benefit from the results of that research.

Writing and Editing: Diana Pabst Parsell
Coordination: Michael Hailu
Design: Lans Brahmanyo, Afterhours, Jakarta
Printing: CV Indonesia Printer
Printed on recycled paper. Cover and main pages: Cougar Opaque White Smooth 270gsm and 118gsm; flysheet: GSK 105gsm; annexes: Speckletone Sand 118gsm

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7/5/01, 11:03 AM
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