

Forests for People and the Environment CIFOR Annual Report 2004

Our Mission

CIFOR's mission is to improve the well-being of forest-dependent people, reduce poverty and ensure the survival of the world's tropical forests through high-quality research.

CIFOR's research seeks to reduce poverty among the hundreds of millions of people who rely on forests for their livelihoods. In this way, CIFOR believes it can help developing countries achieve the United Nation's Millennium Development Goals of halving extreme poverty by 2015, and reversing the process of forest loss.

CIFOR is committed to alleviating rural poverty by helping poor people retain access to forest resources, create new resources and earn more from those they have.

CIFOR's research encourages the sustainable use of forests and the protection of biodiversity.

CIFOR is committed to strengthening the capabilities of developing country scientists, governments, civil society organisations and local communities so they can develop and promote their own solutions to forest problems.

CIFOR is a learning organisation that constantly seeks to expand its own institutional frontiers by fostering new ideas and practices.

As a 'centre without walls', CIFOR is committed to collaborative research that makes a real difference to people's lives and the health of the forests.

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Message from the Chair of the Board and the Director General

Since 1993, CIFOR's research has provided policymakers, practitioners and forest managers with new insights into what they need to do if forests are to be used sustainably to improve people's lives. Recently, we have been heartened to see more and more signs that they are listening.

CIFOR will have its second External Program and Management Review (EPMR) in late 2005. As part of our efforts to prepare for the review, we did a lot of work in 2004 to document our achievements over the last six years, and we are happy with the results.

Among other things, we found that:

- At least eight countries have incorporated recommendations from research by CIFOR and its partners into new national forestry laws and policies.
- CIFOR's research has influenced the policies of major global actors such as the World Bank, the UN Food and Agriculture Organization (FAO), the UN conventions on biological diversity (CBD) and climate change (UNFCCC), and the Global Environmental Facility (GEF). Most of their important policy documents related to forests cite our research.
- Groups involved in forest certification have used CIFOR and its partners' research on Criteria & Indicators of Sustainable Forest Management to develop the standards they use to assess and improve the management of millions of hectares of tropical forests.
- CIFOR's research has been used directly as an input into the design and implementation of forestry projects with a total investment of roughly US\$200 million.
- Research by CIFOR and its partners on Adaptive Collaborative Management has helped communities strengthen their organisations, begin new forestry activities and improve their relationships with government agencies and private companies at 30 sites in 11 countries.
- Most major newspapers have run news stories mentioning CIFOR and its research, and media coverage has steadily increased from 170 stories in 2002 to 520 in 2004.
- Many key people in the forestry and conservation world regularly read the short policy briefs CIFOR sends through its POLEX listserve and report that the messages have helped shape their opinions.

We are pleased with these outcomes because we feel we have been able to provide decision-makers with information they need to do a better job. Each year governments and international agencies spend billions of dollars on forestry and conservation activities. That money could help to achieve the Millennium Development Goals much more effectively and efficiently if those groups based their investments on solid research. CIFOR is committed to making that happen. We can already see that we are making good progress.

Angela Cropper Chair, Board of Trustees David Kaimowitz Director General





Focus on Africa

Sub-Saharan Africa has exceptionally high levels of poverty, with almost half the population living on less than US\$1 a day. Forests are vital for the welfare of tens of millions of Africans, especially the poor and marginalised, and over twothirds of the population rely directly or indirectly on forests for their livelihoods. The way in which forests are managed - or mismanaged - therefore has profound implications for the continent's future. This explains why CIFOR has made a strategic decision to increase its research investments in sub-Saharan Africa. CIFOR believes it can make a significant contribution towards both poverty alleviation and the sustainable management of Africa's forests. Over the next five years, 40 per cent of CIFOR's research budget will be devoted to Africa.

In 2003, CIFOR marked its 10th anniversary by organising major events in Germany, Brazil and Indonesia. In 2004, it was Africa's turn, and CIFOR's regional offices for Southern and Eastern Africa and Central and West Africa both



In Kenya, the activities of the 2004 Nobel Peace Prize winner Wangari Maathai have led to the tree becoming a symbol of peace. Photo by Mia MacDonald

organised events to mark the beginning of CIFOR's second decade. 2004 also witnessed an increase in CIFOR's research activities in Africa, and by the end of the year CIFOR had offices in Burkina Faso, Cameroon, Ethiopia, Gabon, Zambia and Zimbabwe.

CIFOR's 10th anniversary event in Harare, Zimbabwe, was held in September 2004. It was both a celebration and a workshop, attended by leading natural resource scientists and forestry officials from countries in the region. The workshop theme was: 'People and forests in Africa — towards a research agenda for the next decade'. The keynote speech was given by the permanent secretary of the Ministry of Environment and Tourism, Mrs Margaret Sangarwe, who praised CIFOR for the role it had played in building forest management capacity and for its research on the miombo woodlands.

On the other side of the continent, in the Cameroonian capital of Yaoundé, government ministers from Cameroon, Burundi, the Central African Republic, the Democratic Republic of Congo and São Tomé attended a major CIFOR book launch. The event was held as part of the 5th Conference on Dense Humid Central African Forest Ecosystems. The launch attracted over 170 people.

Among the books launched — and described in greater detail later in the annual report — were Forest Products, Livelihoods and Conservation: Case Studies of Non-timber Forest Products Systems and Riches of the Forest: For Health, Life and Spirit in Africa. In their very different ways, these books encapsulate CIFOR's approach to research, with its strong emphasis on partnership and determination to share research findings with as wide an audience as possible. The books are two of a series which describe the

Nonto Nemarundwe was among the CIFOR staff who visited Liberia on a joint mission with the World Agroforestry Centre (ICRAF) which explored the opportunies for establishing community forestry in the country. Photo by Zac Tchoundjeu (ICRAF)





results of a major CIFOR research project that involved over 60 scientists from 47 institutions, working in some 27 countries, most in the developing world.

In recent years CIFOR has been emphasising the fact that violent conflicts in forested regions are among the main causes of poverty and human suffering in Africa. CIFOR believes that people and institutions concerned with forests and natural resources have an important role to play in addressing these problems. That is why we were particularly happy that Wangari Maathai, one of Africa's most steadfast activists in the struggle to use forestry activities to bring about peace, won the Nobel Peace Prize in 2004. In doing so, she became the first African woman to win the prize.

Professor Maathai came to prominence as an environmental activist in the late 1970s when she founded the Green Belt Movement in Kenya. Since then, the movement has brought about the planting of over 30 million trees and provided jobs and an income for nearly 10,000 women who plant and sell seedlings. Besides her environmental work, Professor Maathai, who became Kenya's Assistant Minister for Environment and Natural Resources in 2003, has fought against corruption and championed good governance.

'Many conflicts, present and past, are waged over resources, whether land,

forests, minerals, oil, water or seeds,' says Professor Maathai. 'As the Earth's resources continue to be depleted through unsustainable use, poor management and exploitation, conflicts will flare more often, and will be more difficult to contain. Protecting global and local environments, therefore, is essential for achieving lasting peace.' A community meeting in Biyengue village, South Cameroon. CIFOR scientists have been conducting research on non-timber forest products (NTFPs) with many rural communities in West Africa. Photo by Joachim Nguiebouri



Among the politicians who attended CIFOR's 10th anniversary event in Cameroon were the Minister of Environment of the Central African Republic, Col. Salle Michel; the Minister of the Environment and Forestry of Cameroon, Chief Tanyi-Mbianyor Clarkson; the Minister of Lands, Environment and Tourism of Burundi, Mbonerane Albert; and the Minister of the Environment of the Democratic Republic of Congo, Anselme Enerunga. Photo by CIFOR.



Millions of poor people rely on forests. In Cameroon, a man collects nutritious palm weevil larvae. Photo by Edmond Dounias

Forests and Livelihoods

Making forests work for the poor

Over 240 million people live in or near tropical forests, and their livelihoods and well-being depend on them. Forests provide building materials, food, land on which to grow crops and many other things. Two billion people — a third of the world's population — use fuels like fuelwood and charcoal, most harvested in the forests. Two billion people rely on traditional medicines, many of which come from forests. However, forest-dependent people tend to be politically weak and economically marginalised, and they are among the poorest in the world.

CIFOR's Forest and Livelihoods Programme seeks to bring about improvements in the livelihoods of forest-dependent people bv helping governments, conservation organisations and development agencies work out how to handle the trade-offs between livelihood enhancement and forest conservation, and how to take advantage of synergies between the two, where they exist. The research also aims to help raise the living standards of forest-dwelling people by providing information about markets, by improving forest management, by creating viable partnerships between industry and local communities, and by enhancing poverty reduction policies.

Notable among the publications produced by the Forests and Livelihoods Programme during 2004 were three volumes of case studies and three popular books which describe the findings of the Non-timber Forest Product (NTFP) Case Comparison Project. *The Science of Sustainable Development* argues that researchers need to adopt a more integrated approach to tackling the problems of poverty and sustainable development. And *Hamburger Connection Fuels Amazon Destruction*, which provided new insights into the causes of forest loss in South America, became a worldwide media story.

Fruits and Useful Plants in the Lives of Amazonians was launched to great acclaim in Brazil and is now being used by government departments and in rural literacy programmes. Material from the book, and information about NTFPs generated by CIFOR's research, is now included in the training activities of the Tropical Forest Foundation and the Federal Agricultural University in Pará, Brazil.



Women sorting damar, a tree resin used in the paint and varnish industries, in Krui, West Lampung, Indonesia. Photo by Koen Kusters



Deforesting Amazonia — the hamburger connection

If you were to stop someone in the street in Cairo, or Moscow, or virtually any European city, and ask them whether they or their country had any influence over what happens in the Brazilian Amazon. they would probably be bemused. And if they gave you an answer, it would probably be 'no'. But they would be wrong: Egypt, Russia and the European Union are among the many destinations for Brazil's beef exports, which increased fivefold between 1997 and 2003.

An analysis by CIFOR scientists David Kaimowitz, Benoit Mertens, Sven Wunder and Pablo Pacheco has established that the burgeoning export market for Brazilian beef has been responsible for a rapid increase in deforestation in Amazonia over the past five years.

CIFOR published its report, Hamburger Connection Fuels Amazon Destruction, in

April 2004, shortly before the Brazilian government's National Institute of Space Growth in Brazil's Beef Production, Consumption and Exports between 1997-2004 1600 1400 1200 1000

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Research (INPE) issued its deforestation figures for the 12 months up to mid-2003. 'The previous year's figure had been incredibly high, at 2.5 million hectares,' explains Pacheco. 'We had a real sense from our fieldwork that deforestation had continued at a very rapid rate, and we wanted to show precisely what the causes were.' Pacheco and his colleagues were right: the new INPE figures, released just after the CIFOR report, showed that the pace of destruction had barely faltered. Cattle were largely to blame.

In 1990, there were 26 million head of cattle in the Brazilian Legal Amazon, which embraces the states of Acre, Amapá, Roraima, Rondônia, Pará, Mato Grosso, Amazonas, Tocantins and Maranhão. This represented 17 per cent of Brazil's herd. Twelve years later, this region had 57 million head of cattle, or a third of the country's herd. Prior to 1998, the increase in the number of cattle in the Amazon could be largely attributed to the steady rise in domestic consumption, with much of the beef heading south to feed city dwellers in São Paulo and Rio de Janeiro. However, in 1998, the beef export boom began, sparked off by two unrelated events: the devaluation of Brazil's currency, and the eradication of foot-and-mouth disease.

'The report showed how a couple of issues which no one had really thought about when considering deforestation had been crucially important,' explains Kaimowitz. 'Devaluation of the real in 1998 had the effect of doubling the price of exported beef, which created a major incentive for ranchers to expand the area

Growth in Brazil's beef production, consumption and exports skyrocketed between 1997 and 2004.

Production and

under pasture.' The same year, two southern states were declared free of foot-and-mouth disease. Others soon followed, giving them access to new markets in Europe, Russia and the Middle East.

In 1995, Brazil exported 28,000 tonnes of beef to the European Union. Exports rose to 125,000 tonnes by 2002. In 1995, Egypt did not import any beef from Brazil. In 2002, it imported 47,000 tonnes. Russia, Chile, Israel and the Philippines also became major buyers of Brazilian beef. The researchers found that most of the exported beef was reared in Brazil's southern states. To fill the vacuum there, cattle ranchers in the Amazon rapidly expanded their herds, converting forests to pasture.

The report put paid to the popular belief that logging and the conversion of forest to make way for soya beans were the major causes of deforestation. Logging seldom leads to deforestation directly in the Amazon, even though logging operations often damage the forests and the construction of logging roads makes it easier for farmers and settlers to open up new areas. As for soya beans, a rapidly growing sector, by 2002 they occupied 4.9 million hectares of land in Amazonia, around a tenth of the area converted from forest to cattle pasture.

Official concern about the scale of Amazonian deforestation - an area of forest the size of Portugal was lost during the 1990s - encouraged President Lula de Silva to announce a major new 'Action Plan to Prevent and Control Deforestation in the Legal Amazon' in March 2004. CIFOR welcomed the government's approach, but argued that additional funding and attention were required if the rate of deforestation was to be significantly curbed. 'There is little that Brazil can do to influence international markets,' explains Pacheco, 'but there is a series of policies which could help to reduce the conversion of forests into cattle pasture.'

The government, argue the researchers, needs to put an end to land grabbing. There should also be restrictions on some road projects



outside areas which have already been developed. The report also recommends that government-owned land should be formally registered as National Forests in order to prevent the spread of ranching into these areas. Finally, the government should consider providing economic incentives to maintain land under forests. However, if this is to happen, Brazil cannot go it alone, and will need financial assistance from the international community.

Hamburger Connection made the role of beef exports in promoting deforestation in the Amazon an international issue, and stimulated media coverage across the world. Articles appeared in São Paulo's two largest newspapers, in the International Herald Tribune, the Toronto Star, the Guardian, the Daily Telegraph, Reuters and dozens of other newspapers, inside and outside Brazil.

'CIFOR's report highlighted the importance of currency devaluation and the international beef markets, and showed that they were the main factors driving cattle expansion in the Amazon,' explains Oriana Almeida, director of the Institute for Environmental Research in Amazonia (IPAM). 'By making explicit the causes of cattle expansion, the report provides the information required to define the policies needed to achieve a sustainable future for Amazonia's forests.' The findings of CIFOR's *Hamburger Connection* were reported in newspapers and magazines around the world.



"This book will be of great interest to anyone involved in developing countries." Agnes Kiss of the World Bank, in trends in *Ecology and Evolution*.

A new vision for research

Sophisticated science can save lives. Had it not been for the research conducted by some of the centres which belong to the Consultative Group on International Agricultural Research (CGIAR), there would probably have been famines in parts of Asia during the 1970s. The introduction of high-yielding varieties of rice, maize and other crops, developed by CG scientists, led to the Green Revolution and a dramatic increase in food production. However, while the more prosperous farmers benefited from the new technologies, tens of millions missed out. Hi-tech research, in short, did little to help most of the rural poor. The same remains true today.

What is needed, argue Jeff Sayer of WWF and Bruce Campbell of CIFOR in *The Science of Sustainable Development*, is a new approach to research. 'We're putting forward a new vision for managing natural resources that requires us to re-examine our scientific objectives, our concepts, our leadership abilities and much else,' explains Campbell.

In 1998, CGIAR recommended that its centres give greater emphasis to Integrated Natural Resource Management (INRM), and it set up a taskforce to put this recommendation into practice. Sayer, then Director General of CIFOR, was appointed chair. *The Science of Sustainable Development* grew out of this process.

Sayer and Campbell believe there are various reasons why so much research has failed to achieve its goals of improving rural livelihoods and helping resource managers tackle environmental problems. Frequently, scientists fail to consult the people who are supposed to benefit from their research. Instead of embracing complexity and accepting that problems are multi-faceted, and require a range of solutions, scientists tend to adopt a narrow, reductionist approach. Instead of thinking on their feet, and adapting their research strategies to suit changing circumstances, scientists often stick rigidly to their predetermined agendas.

The authors believe that research should be flexible and dynamic. INRM requires research which cuts across sectors and disciplines. Instead of heading for the field for just a few days at a time, researchers should be prepared to spend long periods living with local people, finding out what they think and observing the complexities of real life. There should be a strong emphasis on participatory research, and instead of being detached researchers should observers. see themselves as actors.



Scientists need to work closely with local people. Here a CIFOR researcher collaborates with villagers in Papua, Indonesia. Photo by Douglas Sheil

The authors provide various examples of research which goes some way towards achieving the dramatic shift in scientific culture they believe is needed, and one chapter is devoted to CIFOR's experience in its Malinau Research Forest in Indonesian Borneo. 'I think CIFOR learnt some important lessons about how you do science in places where there is huge complexity, much uncertainty and rapid change,' says Sayer. CIFOR's work in Malinau has certainly not solved the conservation and development problems in the area, but it has made modest progress in that direction.

Saver believes that the research in Malinau became more relevant to the needs of local people and local decisionmakers as time progressed. The scientists became more willing actively to engage with local communities and officials and



they adapted their research to changing circumstances. 'The experience shows how important it is to begin research with an open mind,' says Sayer. 'It also shows that good research involves a continuous process of learning and adaptation.'

CIFOR's Imam Basuki discusses medicinal plants with Awing Ayu in Lio Mutai, East Kalimantan, Indonesia. Photo by Charlie Pye-Smith

Africa's Quiet Revolution

A revolution in the way natural resource scientists conduct their research is taking place in Africa. For evidence, you need look no further than CGIAR's US\$20 million Sub-Saharan Africa Challenge Programme (SSA-CP). Under the programme, scientists and farmers will work together using participatory action research techniques, in partnership with extension agencies, non-governmental organisations and others.

Although the focus is largely agricultural, CIFOR played a key role in developing the programme and will be involved in its facilitation. CIFOR ran the first two meetings of CGIAR's Integrated Natural Resource Management (INRM) taskforce, and Bruce Campbell, co-author of The Science of Sustainable Development, delivered the keynote paper at the formulation workshop for the programme. At its In a workshop on scenario building and modelling held for heart is the concept of International Agriculture Research African scientists in Chillimo village, Ethiopia, CIFOR's Bruce for Development (IAR4D), which has its roots in the INRM approach promoted by CIFOR.



Campbell (far right) discusses a problem with participants. Photo by Aritta Suwarno

Throughout the scientific world, perhaps more so in Africa than anywhere else, there is much interest in new ways of doing research and development,' explains Campbell. 'This is reflected in initiatives such as the Sub-Saharan Africa Challenge Programme. There is a realisation that we have to change our way of doing business if we are going to have an impact which benefits people and the environment.'

A revolution in research practice is also happening at the local level. For example, at Wondo Genet College of Forestry in Ethiopia, a major new research project, jointly run with the Swedish University of Agricultural Sciences, is completely re-orienting the way forestry scientists conduct their research by equipping them with the participatory skills they need to collaborate with smallholders and local communities. CIFOR scientists have provided input to the college's new action research programme.

'Many of our staff are natural scientists, and there was much scepticism about this change in direction,' reflects Abdu Abdulkadir. 'However, we have seen a real turn-around of attitudes.'

Forest Products, Livelihoods and Conservation

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"Some of the claims made for NTFPs were far too optimistic," says Brian Belcher, "and I hope our study has injected some realism into the debate."

The truth about non-timber forest products

Imagine an activity which has the ability not only to lift the rural poor out of poverty, but save tropical forests from destruction. It would be the perfect example of sustainable development. In 1989, in a famous paper in *Nature*, three scientists argued that people in the Peruvian Amazon could earn more money through the benign harvesting of wild fruits, nuts, resins and other non-timber forest products (NTFPs) than by cutting the trees down for timber. Conservationists loved the idea and so did development agencies. They began to invest in initiatives to develop markets for NTFPs. But did the theory make sense?

This is one of the questions which a major research project managed by CIFOR, the Non-timber Forest Product Case Comparison Project, sought to answer. 'The project was a *tour de force*,' says John Hudson of the UK Department for International Development (DFID), which funded the research. 'This was the best attempt to bring together all the available knowledge about NTFPs in a way that's useful. The project shows just how complicated the world is, and it confirms the need for very specific analysis.'

The 60-strong team of researchers, drawn from 47 institutions in 27 countries, developed a methodology to evaluate the livelihoods and conservation potential of 61 NTFPs in Asia, Africa and Latin America. 'Unlike most previous studies,' explains Brian Belcher, the project leader, 'we looked at each NTFP in the context of the social, economic and environmental conditions which prevail where they are harvested and traded.'

The researchers found that most NTFPs fall into one of three categories. One consists of products such as cardamom and damar resin, which are intensively managed in forests or grown in plantations. These products tend to provide families with all or most of their income. At the opposite end of the spectrum are products harvested from unmanaged natural forests by poor farmers who exploit a number of different NTFPs and rely on a range of other income sources. These products are frequently subject to over-harvesting. Many African NTFPs fall into this category. The third group falls midway between the two extremes. It consists of products which represent a small share of income for farmers who make a living from a variety of different activities. Obvious examples are bamboo in China and tendu leaves, used as cigarette wrappers, in India.

The study suggests that there are few instances where selling products from unmanaged natural forests helps both to save forest and lift people out of poverty. 'Some of the claims made for NTFPs were far too optimistic,' says Belcher, 'and I hope our study has injected some realism into the debate.' None of which is to deny the importance of NTFPs. The cultivation of NTFPs can undoubtedly enhance the livelihoods of better-off small farmers, and the collection of NTFPs from the wild often provides vital subsistence and safety nets for the poor.

Some of the analytical tools developed by the project are already proving useful elsewhere. For example, a project exploring the commercialisation of NTFPs in Mexico and Bolivia, funded by DFID and managed by the United Nations Environment Programme's World Conservation Monitoring Centre, has used CIFOR's Livelihoods Impact Assessment Tool to validate its own models. 'We found this very useful when developing a tool which will help decision-makers assess whether it is worth providing financial support for NTFPs,' explains Kate Schreckenberg of the Overseas Development Institute.

Schreckenberg, who also worked on CIFOR's NTFP project, believes one of the project's great strengths derived from its collaborative nature. 'It was the most participatory scientific project you could imagine,' she says. 'Intellectually, it was extremely stimulating having so many people contribute — not just in terms of providing data, but to the whole process of establishing a methodology for comparing NTFPs.'

Similar views were expressed in participants' feedback at the regional workshops. In particular, they appreciated the way in which the project had created a network of scientists working on NTFPs. Typical of the comments — they were all provided anonymously — was the following:



Women going to the damar agroforest, Penengahan, West Lampung, Indonesia. Photo by Koen Kusters

Sharing the findings

Many rural communities will tell you that scientists are often little better than loggers or miners: they take what they want and give nothing in return. When the researchers involved in CIFOR's Non-timber Forest Case Comparison Project held their first Latin American and African meetings, they vowed that they would do things differently. 'We'd gathered lots of rich information,' recalls Citlalli López, 'and we wanted to share our research with people in rural communities.'

The researchers set up a 'restitution group' to explore ways of presenting their findings so that they would reach the great array of communities and individuals who harvest NTFPs. These ranged from peasant farmers in the Amazon who collect *uxi*, 'the poor man's fruit', to hardy individuals in Cameroon who wade through swamps in search of edible palm weevil larvae; from the Batak forest dwellers in the Philippines who climb towering trees in search of honey to the woodcarvers of Zimbabwe and Kenya.

But there was an obvious problem: the project simply wasn't in the position to package the research in a way which would reach dozens of different communities speaking many different languages. 'So we decided that our target audience should be people in the cities who use non-timber forest products and trade in them,' explains López, 'We wanted to improve their knowledge about the commercial and cultural benefits of the trade in NTEPs.'

The three *Riches of the Forest* books, edited by CIFOR ethnobotanists López and Patricia Shanley, tell the life histories of some 60 NTFPs, describing the ways they are harvested, processed and sold. Highly readable and generously illustrated, the books immediately caught the attention of publishing houses and government departments. Gramedia, one of Indonesia's leading commercial publishers, produced an Indonesian version of *Riches of the Forests: Food, Spices, Crafts and Resins of Asia*, with support from BP and DFID's Multistakeholder Forestry Project. And in Mexico, the Secretariat of Environment and Natural Resources supported the production of 10,000 copies of a special edition of the Latin American volume of *Riches of the Forest*, focusing on Mexican NTFPs.



Damar resin is an important NTFP for many families in West Lampung, Indonesia. Photo by Patrice Levang

'The project was extremely important to me. It brought me into contact with researchers from different parts of the world and provided me with a broad understanding of a range of cases and their significance for conservation and livelihoods.'

The results of the comparative analysis have been reported in two journal articles and at many different scientific, conservation and development forums. Three volumes of Forest Products, Livelihoods and Conservation – one for Asia, one for Africa and one for Latin America – provide detailed analyses of the 61 different case studies. The researchers were also determined to present their knowledge in a form which would appeal to a wider audience. This has been achieved through the publication of three popular volumes under the title *Riches of the Forest*.

"The aspect I enjoyed most while reading the NTFP book was the sense the reader had of walking through the forest with the collectors and opening our eyes to the issues surrounding each NTFP." Review in *Plants and People Newsletter.*



Vietnam's poverty dilemma



Poverty Alleviation and Forests in Vietnam

William D. Sandadia and Harok The Ro

Poor people are often dependent on forests for their survival. But does that mean that forests, with their wealth of resources, ranging from timber to resins, wild foods to medicinal plants, can help people to pull themselves out of poverty? And if they can, then to what extent are poverty alleviation and the conservation of forests compatible? Countries like Vietnam, which is determined to reduce poverty and stem forest loss, urgently need to find answers to these questions.

Poverty Alleviation and Forests in Vietnam, by CIFOR social scientist William Sunderlin and Huynh Thu Ba, suggests that the Vietnamese government's decision to link poverty reduction with forests in its new five-year plans makes good sense. However, there are many gaps in our knowledge. 'There is a large forestry literature which makes little mention of poverty,' says Thu Ba, 'and the poverty literature says little about forests.' This book sheds new light on the subject.

During recent decades, Vietnam has undergone a remarkable transformation. By abandoning the centrally planned economy and encouraging private enterprise, relatively free trade and foreign investment, the government has dramatically reduced poverty levels. In the mid-1970s, seven out of 10 Vietnamese were classified as poor; now, the proportion is less than a quarter. However, that still means over 20 million people live below the poverty line.

'It is clear that the vast majority of the people who have risen out of poverty during recent years were only just below the poverty line before, and most were living in or close to urban areas,' explains Sunderlin. 'There is still a very high incidence of deep poverty, most concentrated in remote and relatively inaccessible regions.' With the exception of the far north-west, where there has been rapid and recent deforestation, the highest levels of poverty tend to be found in areas which still have relatively good stands of natural forest.

The book concludes that people in remote areas tend to be poor because they lack access to markets and good infrastructure. The remoteness of these regions also means that forests have been subject to less exploitation than in the lowlands and near cities. People in remote areas are sometimes highly dependent on forests for their survival, and indeed many non-timber forest products lend themselves well to exploitation by the poor.

But does this help policy-makers design poverty alleviation strategies? 'The fact that forest resources are so important to the poor in forested areas means that they must be part of the picture,' says Sunderlin. 'We believe there is enough evidence to show that forests can play a role in improving and supporting livelihoods.' He adds that more research is urgently needed if policy-makers are to gain a clear understanding of how forests can help reduce poverty. Studying the successes and failures of various forestry programmes would provide some useful answers.

Sunderlin and Thu Ba believe policy lessons would surface as a matter of course if there was closer collaboration among government departments responsible for poverty alleviation and forest management. They also suggest development agencies should pay greater attention to the links between the two.

According to Rob Swinkels, the World Bank's senior poverty economist in Hanoi, *Poverty Alleviation and Forests in Vietnam* has helped to kindle an important debate. 'I think its main contribution has been to get foresters to think about poverty, and poverty people to think about forests,' he says. 'It has certainly helped to inform our work with the government on the sort of policy changes which need to take place in Vietnam.'

Researching the links between forests and poverty

We know that hundreds of millions of poor people depend on forests. Forests help to support livelihoods; they provide fuelwood, food, medicinal plants and much else. But just how significant are forests when it comes to poverty alleviation? Can forests actually help to lift people out of poverty and make them better off? And if they can, then what type of forests, and what sort of forest products, matter most for poverty alleviation? We may have the answers to some of these questions, but we often lack hard empirical evidence to convince policy-makers that forests matter, especially for the poor.

A new research network, launched CIFOR and the Swedish-based bv International Foundation for Science (IFS) in September 2004, aims to fill this knowledge gap. 'When we were working on economic models of deforestation in the 1990s,' explains Arild Angelsen, coordinator for the Poverty and Environment Network (PEN), 'we noticed that much of the best work was being done by PhD students who were spending a long time in the field. However, their results were often difficult to compare as they were asking different questions and using different methodologies.'

The idea for PEN grew out of this experience. CIFOR scientists realised that PhD students could help to gather a global set of data which could serve as the basis for a comparative analysis of the role which tropical forests play in poverty alleviation.

In September 2004, 18 people attended the first PEN workshop at CIFOR's headquarters in Bogor. Many of the PhD students present were to become PEN partners, making them eligible for a grant, provided by IFS, of up to US\$12,000 each to cover their field work and data collection expenses. In addition to working on their own specific research projects, the students will gather data – on household incomes, village institutions, market access, the use of forest products and the like – which will be fed into PEN's common data bank. All the students will gathering the same sort of data in the same way, although their PhDs cover a wide range of forest-related subjects, from studies of carbon sequestration and ecotourism to research into fuelwood consumption and the use of particular forest products.

The benefits will flow two ways. PEN will gain high-quality data on the links between forests and poverty, while the students will benefit from their involvement with CIFOR and one another. 'At the September meeting, I told them about the Liverpool football anthem – You'll Never Walk Alone,' explains Angelsen. 'That's how they should feel as members of PEN. PhD students are often lonely and isolated. Now, they can meet their peers at regular meetings, and they can forge closer links with scientists at CIFOR.'

PEN coordinator Manyewu Matumba believes the network will help students to gain the sort of research experience PhD students need if they are to flourish in Africa. 'This programme will be valuable to PhD students as most of them lack field data collection experience and advice,' he says. 'It will also enhance networking skills among the students and foster a broad understanding of key research issues at the frontier of the forests-people-poverty debate.'

CIFOR's Poverty and Environment Network will help PhD students gather data which will shed light on the role forests play in alleviating poverty. Eventually, such research could benefit villagers like these in Côte d'Ivoire. Photo by Christian Cossalter





Healthy forests like this in Tanimbar, Indonesia help to protect supplies of clean freshwater. Photo by Phillipe Guizol

Environmental Services

Promoting wise use

Tropical forests support over half of all terrestrial plant and animal species. They supply us with timber, food, fuel and fibre. They also provide a range of environmental services. For example, they soak up the greenhouse gases which cause global warming, recycle nutrients and stabilise soils. If we lose the forests, we lose far more than the trees. Yet each year an area of forest the size of Greece is destroyed or converted to other land uses. Most of the losses are occurring in the developing world.

CIFOR's Environmental Services and Sustainable Use of Forests Programme aims to improve the way we use forests, both natural and planted, and provide the knowledge needed to ensure that forests deliver a range of goods and services. The programme works at many scales, from the local to the global, from the village farm to the city boardroom. The beneficiaries range from governments and development agencies to corporations involved in industrial timber production and small farmers who grow a few hectares of trees to sell to their local pulp mill.

During 2004, CIFOR scientists working under this programmes published 25

academic papers and a large numbers of books and reports, some of which are featured in the following pages. Life after Logging shows how timber harvesting could be dramatically improved to benefit wildlife in Indonesian Borneo. A study of forestry concessions in the Congo provides valuable insights into the nature of the industry and how it might be reformed. CIFOR scientists continued to research the impact of the Chinese pulp and paper industry on wood suppliers in south-east Asia, and their findings were published in a special issue of the International Forestry Review.

Site Management and Productivity in Tropical Forest Plantations provides the latest results of the research conducted by an international network of scientists coordinated by CIFOR. In Peru, CIFOR scientists prepared guidelines for concession management and trained concessionaires. At the international level, CIFOR was part of the key United Nations Framework Convention of Climate Change (UNFCCC) expert panel on small-scale Clean Development Mechanism projects.

CIFOR scientists working under this programme continued to conduct research on multidisciplinary landscape assessment, forest fires, forest rehabilitation and climate change. As always, there was a strong emphasis on partnership and capacity building.



The Nabonswede women's group has established a multi-purpose garden on the outskirts of Ouagadougou, Burkina Faso. Photo by Daniel Tiveau



"Meeting China's Demand for Forest Products is the most comprehensive document produced in the past decade concerning China's impact on forest conservation throughout the region." Allan Thornton, President, Environmental Investigation Agency

Forestry's new superpower – researching the impact

In 1998, over 4,000 people were killed by floods on the Yangtze River. Deforestation was thought to have caused the floods, and the Chinese government immediately introduced a logging ban over much of the country. The ban, rapid economic growth, rising consumer demand and a burgeoning furniture export market have since led to a massive increase in Chinese imports of forest products. 'China has become the main driver for change in the forest landscape, not just in Southeast Asia, but worldwide,' explains Andy White of Forest Trends. 'This is having a major impact on forests and livelihoods in many other countries.'

Meeting China's Demand for Forest Products, co-authored by White, provides a remarkable insight into arguably the most dramatic trading story of modern times. The document is one of the outputs of a multi-partner investigation of China's timber and paper industries, led by Forest Trends, CIFOR and the Chinese Center for Agricultural Policy.

Between 1997 and 2002, the value of China's forest-product imports increased from US\$6.4 billion to US\$11.2 billion. The volume of timber imports rose by a factor of three; of pulpwood by even more. Over 70 per cent came from Asian and Pacific countries, but China also imported forest products from as far afield as Chile and Gabon. Over half the timber imported into the country was processed and exported, turning China into the world's largest wood workshop.

There is much to celebrate about China's economic transformation — the number of people living on less than US\$1 a day halved between 1990 and 2001 — but there is a dark side to this story. 'Much of the timber and wood pulp imported by China comes from poor countries with weak governance,' explains CIFOR scientist Christian Cossalter, 'and this is fuelling illegal logging and the destruction of natural forests.'

Softwood imports from the Russian Far East rose 14-fold between 1997 and 2002, and a significant proportion of the harvest was thought to be illegal. Illegal and unsustainable logging in Myanmar, another supplier country, has been associated with human rights abuses and rapid forest loss. In Indonesia, the increase in Chinese demand for hardwood lumber and pulp has led to significant deforestation.

The research has increased our knowledge about the scale and impact of China's timber trade. 'Government officials are now much more aware of international concerns about China's impact on forests and livelihoods in other countries,' says Jintao Xu of the Chinese Centre for Agricultural Policy (CCAP). The research has provided significant input to the government's 11th five-year forestry plan, and it has helped to shape the policy dialogue within the State Forest Administration.

A new phase of research, involving CIFOR, Forest Trends and many national and international partners, aims to increase the levels of awareness and commitment among governments, and encourage market-related reforms and policies that will benefit both forests and the poor. The project will further strengthen the network of organisations involved in market analysis and policy reform.

The paper trail

Not long ago, most literate Chinese had to make do with poor-quality paper manufactured from bamboo, straw and other agricultural residues in tens of thousands of small mills scattered across the countryside. This was good for the farmers and good for the families who worked in the mills, but a disaster for the environment. Concerns about water pollution, coupled with rising demand for high-quality paper, encouraged the government to close down over 4000 small-scale pulp mills and promote a modern paper industry based on huge processing plants and fast-growing pulpwood plantations.

China is now the world's second largest producer of paper and paperboard, and by 2010 production will rise to almost 70 million tonnes, up from 43 million tonnes in 2003. 'This has very serious implications both for local livelihoods in China and for forests in supplier countries



Wood yard and manufacturing facilities of a pulp and paper company in Guanzhou, China. Photo by Christian Cossalter

like Indonesia,' explains Chris Barr, a CIFOR policy scientist.

Since 2003, Barr and plantation specialist Christian Cossalter have been examining China's ambitious programme to develop a plantations-based wood pulp industry. The results of their research were published in a special issue of the *International Forestry Review* and presented at an International Workshop on Investment and Finance in China's Forestry Sector, held in Beijing in September 2004 and jointly organised by the Forest Economics and Development Research Center, Forest Trends and CIFOR.

'One of the things we wanted to explore was whether the new wood pulp mills now being developed in China are likely to adopt similar practices to the big pulp and paper companies in Indonesia, and cause the same sort of problems,' explains Barr. Previous research by CIFOR found that Indonesia's leading producers - the Asia Pulp & Paper (APP) and APRIL groups expanded their processing capacity in Sumatra at a much faster pace than they brought plantations online. As a result, a substantial part of their fibre needs was met through the felling of natural forests. Both companies are now making major investments in China's pulp and paper sector.

Research in Hainan, Guangxi and Guangdong provinces suggests that the development of wood-based pulp mills – a large new mill built by APP is the first of several planned – could also lead to significant supply problems. 'Even if APP doubles its plantations within the next six years, these will still only supply two-thirds of its fibre needs,' suggests Cossalter. 'The rest will have to come from elsewhere, and it is possible that it will come from natural forests in countries like Indonesia.'

The Chinese government recently introduced a programme of subsidies and incentives to encourage the development of almost 6 million hectares of fastgrowing pulpwood plantations. The hope is that these plantations will provide 13 planned pulp and paper projects with a sustainable supply of fibre. However, the CIFOR researchers question whether the plantations will produce pulp in sufficient quantities or at a competitive price.

'Avariety of factors — high population density, poor soils in mountainous areas, problems related to access and tenure — mean that China is unlikely to produce wood pulp as cheaply as countries like Indonesia and Brazil,' says Barr. Faced with domestic fibre shortages and relatively high prices, mills will continue to import pulpwood from elsewhere. This is likely to put further pressure on natural forests.

China's plantation targets will be met only if farmers and local communities make a significant contribution. If this is to happen, suggest the researchers, companies and local governments must ensure that farmers who joined outgrower schemes have secure land tenure, are provided with clear incentives to grow pulpwood, and are paid a fair price for what they produce. The researchers also suggest government agencies need to make sure that sufficient sustainable and legal suppliers of wood fibre are available prior to the installation of new pulp-processing capacity. Just as importantly, Chinese state banks need to make a thorough assessment of the economic, social and environmental risks before they provide loans for new pulp-mill projects.







Logging for wildlife

Ask conservationists what they think about logging in tropical forests, and many will paint a grim picture. They will tell you how industrial logging has destroyed vast areas of forest, dramatically reduced biodiversity and frequently been associated with corruption, violence and the abuse of local communities. In many areas, this is precisely what has happened, and it explains why conservationists are often opposed to logging in tropical forests.

But logging needn't be like this. 'We've found that well-managed logging can be compatible with wildlife conservation,' explains Erik Meijaard, a forest ecologist with The Nature Conservancy (TNC) and co-author of *Life after logging: Reconciling* wildlife conservation and production forestry in Indonesian Borneo.

Life after logging looks at the way in which individual mammal and bird species react to logging. Based on detailed field research carried out by CIFOR scientists in the Malinau watershed in East Kalimantan, and a review of the literature, the book provides the guidance logging companies need if they are to manage their concessions in a way which benefits wildlife without reducing their profits.

'Our study shows that the loss of dipterocarp trees — which are what logging companies take — actually affects

few vertebrate species directly,' explains Meijaard. 'It is often the activities associated with logging which cause most of the problems.' For example, logging roads make forests more accessible to local people and hunters from outside. It seems that hunting, rather than logging, has led to the decline of targeted species like the clouded leopard and Malayan sun bear. The slashing of ground vegetation after logging, insisted upon by law to encourage regeneration, affects the food resources of terrestrial insectivores. And logging activities often cause soil erosion, which leads to the muddving of rivers and the loss of amphibians and fish.

The species which suffer most from logging tend to be specialists. In evolutionary terms these are often the older species which evolved at a time of uniform forest cover. For example, yellow muntjac, western tarsier and the Malay civet, all of which are specialist feeders, appear particularly sensitive to logging. In contrast, species such as red muntjac and Malaysian field rat, which evolved more recently in a more open environment, have fared better, as they have a varied diet and are not fussy about the habitat they occupy.

Such insights have enabled the researchers to come up with detailed

Spotting diseases in eucalypts

When Kenneth Old, a forest pathologist with the Commonwealth Scientific and Industrial Research Organization (CSIRO), joined a group of foresters in Indonesia a couple of years ago, one of them produced a battered copy of *A Manual of Diseases of Tropical Acacias*, co-authored by Old and published by CIFOR in 2000. 'It was dog-eared with use and the pages were falling out,' recalls Old approvingly.

Old hopes its companion volume, *A Manual of Diseases of Eucalypts in South-east Asia*, published in 2004, will get similar treatment. 'We felt it was important to get the information down about the most common diseases for the people who really matter – the plantation managers who have to deal with them,' he says.

Eucalypts now cover over 2 million hectares in South-east Asia, and this makes them one of the most important fast-wood crops. The modern trend is to establish plantations using several clones, each capable of producing a uniform product of high quality in only a few



years. However, there is a downside to this: if a limited number of clones is used, the restricted genetic base can make plantations particularly susceptible to disease. This can lead to a dramatic loss of yield, and have a serious impact on local businesses and local livelihoods.

If epidemics are to be avoided, plantation managers need to select clones which are resistant to the diseases and pathogens in their area. If they are to do that, they need to recognise their blights and wilts, their cankers and mildews. This manual provides them with the information they need. And, crucially, it is small enough to fit in a jacket pocket and take into the field.

recommendations. They suggest logging companies should design roads in a way which avoids dividing the forest into too many fragments. Sufficiently large areas need be set aside to protect large carnivores, and there should be regulations to control hunting in timber concessions. Certain areas should be left untouched as they are particularly important for wildlife. These include mineral-rich springs and clay soils, abandoned villages and riverside vegetation.

'We're not saying that logged forest will have as high a conservation value as undisturbed forest,' says CIFOR ecologist and co-author Doug Sheil, 'but logging is one way of maintaining large forest landscapes in a way that is economically productive and far more beneficial for wildlife than many other land uses.'

But will loggers take any notice? The authors have been encouraged by the reaction so far. When logging company representatives visited the CIFOR headquarters in Bogor to discuss the book, they said they wanted an Indonesian language translation. 'When we asked them if they would be happy with just the recommendations,' recalls Meijaard, 'they said, no, they wanted everything, including the long appendices with all the details about the ecology of each species and how they react to logging.' One of the companies, PT Sumalindo Lestari Jaya, manages over half a million hectares of forest in East Kalimantan. Since 2001, it has been working with TNC to redesign one of its concessions to fulfil Forest Stewardship Council (FSC) requirements for certification. *Life after logging* will help Sumalindo, and other logging companies, refine their management plans.



The great slaty woodpecker (right, photo by Martjan Lammertink) is a specialist feeder and particularly sensitive to logging. The bearded pig (bottom left, photo by Margareth Kinnaird) may come under pressure from hunters when forests are opened up by logging roads. The pitcher plant (top left, photo by Douglas Sheil) provides an important habitat for, and eats, insects and small vertebrates.

Logging the Congo

Less than one-tenth of the Congo Basin's rainforest is officially designated as national parks and nature reserves. If the region's great wealth of biodiversity is to survive outside these protected areas, then it is vital to establish sustainable logging practices across the vast area where governments have granted concessions. However, if that is to happen, we need to understand the nature of the logging industry, and the factors which influence the way it develops and changes.

A pilot study, funded by the International Tropical Timber Organization (ITTO) and managed by CIFOR, has provided a preliminary portrait of logging in the Congo Basin. The study involved a questionnaire survey of 31 concessions in Cameroon, the Central African Republic, the Democratic Republic of Congo, Gabon and the Republic of Congo. Between them the concessions manage 7.3 million hectares, an area twice the size of Belgium. They range in size from 1800 hectares to over a million hectares. Some have been in operation for many decades; some for just a few years.

A handful of species dominates the logging trade, although 35 are harvested in significant quantities. The researchers found that the largest concessionaires, and those operating in the most remote areas, harvested just one or two species

of the highest value. According to CIFOR ecologist Robert Nasi, this has serious implications for the conservation of the forests. 'Logging companies which exploit a small number of valuable species tend to log lightly, often taking just two or three trees a hectare,' he explains. 'However, that means they have to log over very large areas.' He suggests that if they logged more intensively by increasing the number of species they harvest, it could take pressure off virgin rainforest. But he warns that such a strategy would have to be carefully thought through: in some situations it could increase local damage to the forests.

two There are categories of environmental problems on logging concessions. There are the problems caused by the concessionaries themselves, such as pollution and road building; and there are the problems caused by outsiders – for example, by hunters and illegal loggers. All but one of the concessions surveyed experienced problems associated with excessive hunting of wildlife. Logging roads open up forest to hunters, who have been responsible for the rapid decline of many endangered and protected species, including chimpanzee, lowland gorilla and forest elephant.

The researchers asked the concessionaires to rank the key factors, or drivers of change, which influenced the way they operate. Government policies, infrastructure, markets and technology are the main drivers of change, in that order. The medium to large concessionaires are most likely to be influenced by the key drivers for change. These are often foreign-owned and export their timber to Europe and other 'sensitive' markets.

'Although this was a pilot study,' says Nasi, 'it has suggested ways in which companies could be encouraged to adopt more sustainable practices.' For example, it is clear that concessionaires consider hunting to be a significant problem. As it yields neither profits nor a good press, they could be encouraged to cooperate with non-government organisations and others to tackle the illegal bush-meat trade. Nasi also believes fiscal incentives could encourage concessionaires to

The Congo's timber can be a source of wealth but also a source of conflict if not managed properly. Photo by Driss Ezzine de Blas





harvest a greater range of species from secondary and logged-over forests, and thus reduce pressure on virgin forests.

The survey was part of a larger ITTOfunded research project investigating the forestry research capacity of Congo Basin countries. It helped to establish a network of researchers from many different countries, enabling them to exchange views and develop methodologies together. The survey received widespread media coverage in Africa, and was the subject of an article in *National Geographic News*. Logging in the Congo Basin. Photo by Robert Nasi

Building Research Capacity

Since 2001, CIFOR and the Institut de Recherche en Ecologie Tropicale (IRET) of the Centre National de la Recherche Scientifique et Technologique (CENAREST) in Gabon, funded by the European Commission, have been working with a range of partners, especially the universities of Gembloux and Brussels, the Museum National d'Histoire Naturelle in Paris and Cornell University to rehabilitate Gabon's Makokou/Ipassa Research Station. Once an outstanding centre for rainforest research, Makokou had fallen into disrepair.

'Research capacity in West and Central Africa is much lower than in southern and east Africa,' explains Robert Nasi, 'and CIFOR is involved on various schemes which try to address the problem.' One of these is the Makokou project, thanks to which the research station is once again fully operational. Another is FORINFO, a research and training project funded by the French government and managed by CIFOR, the Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD) and the West and Central African Council for Agricultural Research and Development (WECARD). By the end of 2004, the two projects had funded 15 PhD theses and three teams of African scientists. The latter were working on specific capacity-building projects using a system of competitive funding, based on relevance and excellence of the research.



Group work during a workshop in Gabon

The PhDs cover a wide range of forest-related subjects. The last five to be granted focus on: the origin and adaptive dynamics of neo-tropical species in central Africa; the impact of harvesting and domestication on the conservation of *Prunus africana* in Cameroon; the genetic diversity and conservation of the forest elephant; the ecology and epidemiological role of Stomoxes flies in Gabon; and the contribution of remote sensing to the monitoring of ecosystems in four countries.

Getting the best out of plantations

Site Management and Productivity in Tropical Plantation Porests



Environmental groups may rail against the rapid expansion of industrial plantations in the tropics, but they are here to stay. There are now over 10 million hectares of fast-wood plantations in the world, to which are added a further one million hectares each year. These intensively managed plantations produce large quantities of wood in a very short period of time. A much greater area is devoted to tree crops which grow less rapidly. Plantations can place huge demands on the soil, and when they are badly managed they have the potential to cause serious land degradation.

In 1995, CIFOR, in partnership with Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the United States Department of Agriculture's Forest Service, set up the 'Network on Site Management and Productivity in Tropical Forest Plantations'. Its aim was to establish whether it is possible to produce successive harvests of fast-growing plantations on the same plot of land without damaging soil and water resources. Since then, researchers working at 16 sites in eight tropical and sub-tropical countries - Australia, Brazil, China, Congo, India, Indonesia, South Africa and Vietnam – have explored the impact of different site management practices on soil fertility, nutrient recycling and productivity. The results have been reviewed at six workshops. The proceedings of the fourth and fifth, held in Congo in 2001 and China in 2003, were published in 2004.

'The research is already having a significant impact in and around the sites where the network has been operating,' says Takeshi Toma, the CIFOR scientist responsible for coordinating the Network's activities. For example, research at eight sites found that soil fertility improved and trees grew more rapidly – by about 100 per cent at one site in Brazil – when techniques were used to conserve organic matter and nutrients. Instead of burning harvest residues, it made sense to leave them. The debarking of trees at the stump also helped conserve nutrients.

As a result of the research, plantation managers have changed their practices. For example, results in China encouraged the Nanping Forestry Committee to abandon its practice of burning logging slash after harvesting. In Sumatra, Indonesia, PT Musi Hutan Persada decided to retain harvesting residues on site as a result of experiments conducted in its plantations.

According to Sadanandan Nambiar of CSIRO Forestry and Forest Products, the Network's value is greater than the sum of its individual parts. 'When the research



Over 100 people attended the 6th meeting of the 'Network on Site Management and Productivity in Tropical Forest Plantations,' held in Piracicaba, Brazil, in November 2004. Co-hosted by CIFOR, São Paulo University and private companies, the meeting attracted foresters from throughout South America. Photo by Takeshi Toma began, I knew some private companies which wouldn't even talk to one another, for fear of losing a competitive advantage,' explains Nambiar. Now, they are happy to share and publish the findings of the research conducted at their sites, and are eager to showcase their plantation practices.

Just as importantly, organisations which have recently joined the Network have been able to benefit from the experience of other partners. For example, the Forest Science Institute of Vietnam (FSIV) joined the Network in 2002. Vietnam was in the process of establishing acacia plantations on degraded land as part of its 'Five Million Hectares Reforestation Programme.' Instead of starting from scratch, FSIV was able to take advantage of the research conducted by the Network partners and gain significant new information.

The Network is a public-private partnership. The private sector funds most of the on-the-ground research, while CIFOR is responsible for the meetings and publications, with financial assistance from Japan. 'The Network is a wonderful example of a small, cleverly targeted research programme,' says Nambiar. 'It is creating an important body of knowledge that is publicly available and now widely used.' Nambiar believes that CIFOR's coordinating role, and its willingness to form partnerships with scientists outside CIFOR, have been of paramount importance.

Translating talk into action in Asia

The Asia Forest Partnership (AFP) was set up at the 2002 Earth Summit in Johannesburg to combat illegal logging and forest fires and promote forest rehabilitation. The governments of Japan and Indonesia, CIFOR and the The Nature Conservancy (TNC) were the founders. By the end of 2004, the partners included 17 governments, seven international institutions and nine civil society organisations. Inevitably, early meetings of the AFP were dominated by discussions about what the partnership could achieve and how it should operate.

However, significant progress was made during 2004, and this was reflected in the discussions at the 4th meeting of the AFP, held in Japan in December 2004, and at a regional workshop of the International Tropical Timber Organization (ITTO), held in Yogyakarta, Indonesia, prior to AFP4. The latter brought 160 forest



The 4th meeting of the Asia Forest Partnership was held in Japan in December 2004. Photo by Takeshi Toma

experts and officials together to discuss ways of strengthening the partnership. "In the past, the partners tended to be very passive," explains CIFOR scientist Takeshi Toma, "but I sensed a significant change at the December meeting. Before, the attitude was: 'I recommend; someone else implement.' Now, the partners have a much clearer vision about what is expected of AFP and they are happy to be proactive."

The December meeting produced a series of concrete work plans and proposals. One will focus on formulating guidelines for systems to verify and assess the legality of timber. Another, involving the government of Indonesia, will establish a legal origin verification system that consumers will be able to trust. Other work plans deal with creating a framework of cooperation among customs agencies, decentralisation, forest governance, and monitoring illegal logging using satellite information.

CIFOR agreed to continue acting as the AFP information-sharing secretariat and maintain the web site. (www. asiaforests.org)



Log tracking by Sumelindo and TNC in Kuta Barat, East Kalimantan. Photo by Douglas Sheil

Forests and Governance

Improving the way we make decisions

Forests are used — and misused — by a remarkably diverse array of different interests. They range from logging companies to hunter-gatherers, from government forestry departments to conservation groups, from swidden cultivators to fuelwood collectors. Some wield great influence and power; others have little or none at all. At present, the decision-making agenda in most countries is dominated by state agencies, private companies, donor organisations and conservation bodies. All too often, the people who live in the forests have the least influence.

Research conducted under CIFOR's Forests and Governance Programme promotes good forest governance. Good governance means that decisions are made in a manner that is just and fair to all stakeholders; that the decisionmaking processes are transparent; and that decision-makers are held to account. The research seeks to enhance the capacity of forest-dependent communities and excluded groups to participate in the decision-making process. It promotes greater social and environment corporate responsibility in the forest sector. And it supports the strengthening and transformation of national and local government policies so that they promote more effective and equitable forest management.

The programme focuses on two themes: forest finance, trade and law enforcement; and the governance of multi-stakeholder forest landscapes. In 2004, research on the first of these themes yielded a range of outputs. These included a report for The Nature Conservancy (TNC) and the World Wide Fund for Nature (WWF), analysing their alliance to promote certification as a means of tackling illegal logging. CIFOR researchers continued to investigate the nature of illegal logging in Indonesia and its links with corruption, and worked closely with the Asia Pacific Group (APG) on money laundering. Thanks to CIFOR's input, the APG, which now lists illegal logging as a money-laundering offence, is forming a special working group on illegal forestry activities.

The programme's other main theme focuses on the governance of multi-stakeholder forest landscapes. One of the highlights for this theme was an international workshop on decentralisation, held in Switzerland and attended by 160 people from 51 countries. Major publications during 2004 included policy briefs and case studies describing the findings of a two-year project in Indonesia - Can Decentralisation Work for Forests and the Poor? - and a book exploring forest governance, The Equitable Forest. This revealed that women play a vital role in managing forests, yet they are frequently excluded from the decision-making processes. In Zimbabwe, the Forestry Commission incorporated CIFOR's adaptive collaborative management (ACM) methodologies into its forestry extension work in seven districts.

Future scenarios workshop with the local government in Pando, Bolivia. Photo by Kristen Evans



Researching — and tackling — illegal logging

In Indonesia, illegal logging is a great way of getting rich quick if you are a businessman who's prepared to pay bribes, or a corrupt official who's prepared to take them. Illegal logging also helps to provide a living for hundreds of thousands of rural families. But there are a great many losers too.

An analysis by CIFOR scientists Fernandus Agung and Krystof Obidzinski, commissioned by TNC and widely reported in the Indonesian press in 2004, estimates that East Kalimantan is losing over US\$100 million in taxes each year as a result of illegal logging and timber smuggling. 'This is money that could be spent on poverty reduction programmes, job creation schemes, new schools and health centres,' explains Agung. If the province were to capture the taxes on all the timber harvested, it would double its local revenues.

Nationally, the value of the timber harvested illegally in Indonesian probably amounts to US\$3 billion a year. This represents a considerable loss in taxes to the government. Factor in the environmental damage caused by illegal logging, the loss of forests which could sustain local livelihoods now and in the future, and the corruption and violence associated with the trade, and it all adds up to a massive problem.

'We estimate that around 80 per cent of the timber harvest in Indonesia was illegal in 2001, and there is no reason to think there has been much change since then,' explains Luca Tacconi, co-author of Learning Lessons to Promote Forest Certification and Control Illegal Logging in Indonesia. The report provides an assessment of the first year's operations of the Alliance to Promote Certification and Combat Illegal Logging, established by TNC and the WWF.

The Alliance recognises that a range of measures is required to combat illegal logging. One of these is the independent verification of the legality of wood supplies. The theory is simple: if companies buy timber which comes from forests which have been audited and verified as managed according to the law, then the market for illegal timber will decline, and forests will be better looked after.

The CIFOR report suggests that the Alliance made some significant progress during its first year. It contributed to the international and national debate on illegal logging, and alerted some of the largest private-sector wood buyers in Japan and China to the benefits of certification and the problems caused by illegal logging. In one notable instance, a major Japanese paper importer, Ricoh,



Learning Lessons to Promote Forest Certification and Control

Illegal Logging in Indonesia

Illegal logging costs the Government of Indonesian up to US\$2.5 billion a year in

Tackling the money launderers

In 2003, the Indonesian government introduced a law which classified forestry and environmental crimes as 'predicate offences' for money laundering. 'I had been arguing for some time that illegal logging could not be tackled simply through forestry laws,' explains Bambang Setiono, a CIFOR financial analyst who worked with the government's Reporting and Financial Transaction Analysis Centre (PPATK) to get illegal logging listed as a money-laundering offence.

Illegal loggers, like drug smugglers and people traffickers, need to launder their ill-gotten profits through banks. The new law requires banks to inform the government of any suspicious transactions, and it represents a significant step in the fight against illegal logging. However, Setiono realised that much greater international co-operation was needed if illegal loggers were to be prevented from laundering their money through banks outside Indonesia.

Until recently, the Asia Pacific Group (APG) on Money Laundering, a regional body established by the G-7's Financial Action Task Force (FATF) in 1989, had focused its attention on traditional money-laundering offences, and taken no account of illegal logging. Now illegal logging is firmly on the agenda, largely as a result of a presentation given by Setiono and Yunus Husein of the Indonesian lost tax revenues. Photo by Krystof Obidzinski Financial Transaction Reports and Analysis Centre at the APG Typology Workshop, held in Brunei in October 2004.

'We highlighted the significant role which money-laundering plays in the illegal logging business,' explains Setiono. 'The outcome was that the APG has now requested PPATK to organise a special working group on illegal logging.' The working group will help member countries to deal with illegal logging by introducing and enforcing money-laundering laws. A clear message is being sent to banks in the region: if you do business with illegal loggers, you are an accessory to crime.



'Ongkat' system of illegal logging on wet areas, Riau, Indonesia. Photo by Romain Pirard

revised its buying strategy to ensure that its imports from Indonesia came from legally harvested timber.

'The CIFOR report has provided us with a useful, independent perspective of our progress,' explains Nigel Sizer of TNC, 'and we have already begun to act on its recommendations.' For example, the Alliance now intends to expand its programme of field visits for East Asian wood buyers. The report found that these had been particularly valuable: it was a visit to a pulp and paper operation run by APP in Sumatra which encouraged Ricoh to change its buying policy.

Tacconi believes that independent auditing has a role to play in tackling illegal logging, but he stresses that other measures are needed too. 'Most of the timber exported from Indonesia goes to countries like China and Japan, which lag far behind Europe in terms of developing eco-sensitive markets,' he says. 'So using market instruments like certification shouldn't be seen as a substitute for strong regulatory measures.'

If Indonesia is to tackle successfully the problem of illegal logging, there needs to be better law enforcement on the ground, greater transparency and accountability in government institutions, and a dramatic reduction in processing capacity, which far exceeds the annual official harvest. At the same time, the authorities must try to prevent the big players in the illegal logging business from laundering their profits through the banking system.

The changing face of corruption

During the autocratic rule of former President Suharto, forestry companies in Indonesia had to pay government officials large bribes simply to go about their legal business without being harassed. Besides lining the pockets of corrupt officials, this form of corruption added to the costs of the private sector, without reducing the logging taxes which flowed into the government's coffers.

Since the collapse of the regime in 1998, decentralisation has made local governments significant players in the forestry industry. At the same time, weak law enforcement has enabled many companies to log virgin forest without any permits. All this has changed the nature of corruption. Nowadays, it seems that logging companies no longer have to pay large bribes to central government officials to operate legally; instead, they pay lots of small bribes to local officials – frequently to operate illegally.

During the Suharto years, corruption pitted the briber against the bribed. Now both briber and bribed stand to gain. The corrupt officials get richer. The logging companies pay less than they did under the *ancien regime*, and they find it easier to evade taxes and break the law. Under collusive corruption, as it is known, the biggest losers are the government – which in a democratic society means the people – and the environment.

These were the findings of a study co-authored by Joyotee Smith and Krystof Obidzinski of CIFOR and scientists from the Forest Research and Development Agency (FORDA) and Yayasan Pionir, and published in an *International Forestry Review* special issue on illegal logging. Although corruption is in many ways worse now than it was under Suharto, the authors say that the blame does not lie with democracy or decentralisation. In fact, what is needed is more democracy and greater transparency.

Obidzinski believes that local organisations could look at the discrepancy between timber production and tax collection, as he and his colleague Fernandus Agung did in 2004 in Kalimantan, and feed their results to the media. 'If people realise that illegal logging is depriving districts and provinces of taxes, then they can elect individuals who are willing to do something about it,' he says.



Women collecting *Piliostigma reticulatum* pods they will later sell as high-quality animal feed. These pods are a good example of an underutilised resource in the savanna woodlands of Burkina Faso. Photo by Daniel Tiveau



Sharing the forests

All too often people treat communities as homogenous groups. Yet they are seldom that. 'Sometimes people will talk to a village headman and then claim they have consulted the community,' explains CIFOR anthropologist Carol Colfer. 'But they haven't. They have simply consulted the headman. In a place like Nepal, you can find 18 different castes in the same village. The headman will not be speaking for the lower castes, or for women.'

The Equitable Forest, a collection of essays edited by Colfer, argues that we need to move beyond an undifferentiated 'community' in forest management and recognise that different groups within communities have different interests, different skills and different levels of access to power in terms of their relationships with one another and with outsiders.

Most of the 14 case studies draw on the experiences of CIFOR's adaptive collaborative management (ACM) programme in Asia, Africa and Latin America. ACM helps local communities to improve their welfare and safeguard the natural environment through a process of collaboration, learning together and collective action. ACM seeks to empower women and other marginalised groups who live in and around forests by giving them a greater say in how forests are managed. However, ensuring that women have equal rights to community-managed forests is far from easy, not least because the way they view the world, the role they play in forest management and their relationships with the rest of the 'community' vary from one part of the world to another.

The contrast between women's attitudes in Nepal and Zimbabwe is striking. In Nepal, researchers found that it was very difficult to get women to participate in community decision-making. Their reluctance was partly a reflection of practical considerations: they were too busy tending crops, collecting fuelwood, earning a daily wage and bringing up their children to take time off. When women did participate in group meetings the men often treated their input lightly, which further inhibited their willingness to make their views known.

In Zimbabwe, researchers also found that women were unwilling to participate fully in public decision-making processes, but for different reasons. The women felt that if they did so they would simply be behaving like 'men in dresses'. They preferred to perpetuate the illusion of male dominance, and allow their influence to be felt behind the scenes. Their attitude clearly challenges Western notions of inclusive democracy.

When a CIFOR researcher first began to work with a community forestry initiative in Bolivia, he found that women were being ignored by the government foresters involved in the project. The reluctance of the foresters to involve women was not based on male chauvinism so much as the belief that forestry was not a relevant topic to discuss with women. After all, they reasoned, women traditionally gathered firewood, fetched water and took care of the home; it was the men who did the tough stuff, like cutting down trees and clearing land. However, women are capable of undertaking many of the tasks involved in forest management.

Women have also suffered from exclusion – quite literally, in this case – in southern Cameroon, where a conservation project has restricted villagers' hunting and gathering activities. Before Campo-Ma'an National Park was established, men hunted wild animals in the area and the women made a living by selling the meat in a nearby town. Men, denied legal access to the national park, began selling their produce deep in the forest, cutting out women's access to cash. Conservation, in this instance, has made women poorer.

In *The Equitable Forest*, the ACM researchers describe some of the measures which have been taken to encourage the participation of women and marginalised groups in community forest management.

In Nepal, for example, the ACM team encouraged disadvantaged members of the community - women and the lower castes – to meet in smaller groups where they would feel more comfortable expressing their views. Now, an elected representative from each of these groups provides feedback to the larger forest user groups. In Bolivia, the ACM team convinced the technical forestry staff that women should be involved in the community forestry project. Once they became involved, they had a positive impact on the project and made a major contribution to decision-making and forest monitoring.

There can be no simple blueprint empowering women and the to disadvantaged in forest management. However, The Equitable Forest describes some promising approaches. Colfer hopes that people involved in forest management, from non-government organisations to research groups and forest managers, will learn from the rich experience of CIFOR's ACM team and put some of the lessons to good use. 'Now we'd like to build on this experience by following up on some of the interests women have expressed around the world in health and population issues – as a more direct way to catalyse women's capabilities and ultimately to involve them even more meaningfully in forest management,' say Colfer.

Three young women from Muluy taking a break from harvesting paddy in East Kalimantan. Photo by Carol Colfer



Decentralisation – a global analysis



CAROL J. PERCE COURS & DON'S CARETRAND

Participants at the Interlaken workshop on decentralisation on a field trip to a private forest in the Emmental region, Switzerland. Photo by Michael Hailu During the last decade, some 60 countries in the developing world have given local and provincial governments greater powers to manage forests. However, decentralisation is nothing new. For the past 300 years, the local cantons in Switzerland have played a key role in looking after the country's forests, and the federal system in the United States has also meant that forest management is heavily decentralised. But have these old hands at decentralisation got anything to teach the newcomers? And can the new kids on the block teach the old hands a thing or two?

These questions inspired the governments of Switzerland and Indonesia to organise a major international workshop on decentralisation and forest management in Interlaken, Switzerland, in April 2004. CIFOR was responsible for putting together the technical aspects of the programme and for the publications. The main objectives of the workshop, which brought together 160 people from 51 countries, were to analyse the impact of decentralisation on key aspects of forest management; share experiences between countries; and provide a report on decentralisation for the United Nations Forum on Forests (UNFF).

Four field excursions gave workshop participants the opportunity to learn how the Swiss have benefited from decentralisation. 'Switzerland has a long experience of decentralised governance in forestry, and one aim of the excursions was to document just how long it takes to establish a political process like decentralisation,' explains Christian Küchli of the Swiss Agency for the Environment, Forests and Landscape, which organised the excursions with the Forest Service of the Canton of Berne.

So far, the results of decentralisation have been mixed: in some places it has improved forest management; in others it hasn't. 'People are generally agreed that decentralisation is a good idea,' explains CIFOR scientist Carol Colfer, co-editor of the workshop papers, The Politics Decentralization. 'Decentralisation of ought to improve democracy; it ought to make governments more responsive to local people's needs; it ought to make the decision-making process more transparent; it ought to lead to better and more equitable forest management. But it was clear from the case studies that this often isn't happening.'

By examining examples from around the world, the workshop was able to analyse the factors which are helping to make decentralisation work in some countries, but preventing it from achieving its goals in others. 'One of the things which became apparent at the workshop is that every case is unique,' explains Jürgen Blaser of Intercooperation, a non-governmental organisation which helped the Swiss government organise the conference. 'However, it is also clear that countries can benefit from one another's experiences. It would be difficult to create a toolkit for decentralisation, but countries undergoing decentralisation can learn from mistakes and successes elsewhere.'

The workshop generated considerable interest among those countries which are embarking on the process of decentralisation. For example, a side





Villagers returning from their sago fields, Mambaramo, Papua, Indonesia. Photo by Miriam Van Heist

event devoted to a discussion of decentralisation in countries in transition was scheduled to last one hour. It lasted four. 'This indicates just how high the level of interest is among government officials involved in forest management in those countries,' suggests Blaser.

Besides providing recommendations on decentralisation to UNFF, the workshop influenced other processes. The keynote paper at the workshop was translated into Russian for use at a highlevel workshop on decentralisation in Russia. And the findings of the Interlaken workshop were influential at a meeting of the Asia Forest Partnership, held in Tokyo in December 2004. One of the work plans which emerged from the AFP meeting focused on decentralisation.

The Indonesian government used the results of the Interlaken workshop as the basis for a national workshop on decentralisation. Like many countries which have recently embarked on

programme of decentralisation, а Indonesia has discovered that transferring responsibility and power from central government to local government is fraught with difficulties. 'The Indonesian government accepts that decentralisation is here to stay,' explains Wahyudi Wardojo, the Secretary General to the Ministry of Forestry in Indonesia. 'Decentralising forest management has room to improve, as there have been mistakes which have led to deforestation. But ultimately, if managed properly, decentralisation will benefit both the forests and the people of Indonesia.'



CIFOR and its partners have been exploring the extent to which decentralisation has helped forest dwellers such as these. Mambaramo, Papua, Indonesia. Photo by Douglas Sheil

Decentralisation – good for the poor?

When the Indonesian government embarked on а programme of decentralisation in 1999, there were high hopes that the shift in power away from the centre would make decision-makers more accountable to the public, render the whole business of government more transparent, and lead to better and more equitable resource management. The extent to which these hopes have been realised, or dashed, has been explored by a two-year project, 'Can Decentralisation Work for Forests and the Poor?'

The aim of the project was to document the impact of decentralisation on forest management and local livelihoods in the five provinces of South Sulawesi, Papua, East Kalimantan, West Kalimantan and Jambi. The project was run as a partnership between CIFOR, the Research and Development Agency of the Ministry of Forestry (FORDA), and universities and non-government organisations in the provinces. It was funded by the Australian Centre for International Agricultural Research (ACIAR) and the UK Department for International Development (DFID).

In each province, a CIFOR scientist helped local partners to define their research priorities, set up workshops, run seminars and establish relationships with government officials, particularly in the provincial forest departments. The precise focus of the research differed from one province to another. For example, in Jambi, the project focused on public involvement in the drafting and introduction of two forest-related *perda*, or local laws. One *perda*, already ratified

CIFOR's research partners

- University of Hassanuddin, South Sulawesi, Indonesia
- Yayasan Pionir Bulungan, East Kalimantan, Indonesia
- University of Tanjungpura, West Kalimantan, Indonesia
- Yayasan Konservasi Borneo, West Kalimantan, Indonesia
- Study Center for Regional Autonomy, Law and Policy (PSHK-ODA), Jambi, Indonesia
- University of Papua, Papua, Indonesia
- Forestry Research and Development Agency, Ministry of Forestry (FORDA), Indonesia
- Murdoch University, Australia

by the time research began, introduced new regulations for logging and the collection of non-timber forest products. The other, still in draft, dealt with taxes and fees for timber harvesting.

'One of the main findings was that there had been very little public consultation during the drafting of the *perda*,' explains CIFOR researcher Yulia Siagian. 'As a result, the *perda* that had been ratified had led to an increase in conflict between local communities and companies involved in plywood and pulp production.' The mayor and principal government departments agreed that in future there should be much greater public consultation during the drafting of new laws, and they asked CIFOR and its research partner to provide support.

The project's research findings, describedinaseries of five Decentralisation Briefs, case studies and synthesis reports have also had a significant impact in other provinces, and are helping to shape new governance reforms. 'In South Sulawesi,' explains project coordinator Sîan McGrath, 'the research raised awareness about the problems associated with revenue sharing and deforestation. As a result, the District Head's office has now pledged significant funds for a local forestry development project that will implement the research findings." And in East Kalimantan, the research inspired local stakeholders to establish a multidisciplinary working group on forest and land rehabilitation, with support from the head of the district.

Papua produced one of the most outputs. interesting research а documentary film – Suara Masyarakat Papua, or 'The Voice of the People' – in which local villagers share their views about how forest management could work in favour of the poor. The film helped to generate discussion at the National Forest Policy Seminar, held at CIFOR's headquarters in September 2004, and it was shown to wide acclaim at the Jakarta International Film Festival, the 3rd Congress of Papua's Adat Council and the World Conservation Congress in Bangkok.
The project significantly improved the research capacity of CIFOR's partners. 'When we began,' recalls McGrath, 'it soon became obvious that the NGOs and universities had very different levels of skill.' As a result, CIFOR hosted a series of shared learning workshops in Bogor, with a strong accent on participatory action research, and a one-month writing workshop. The first workshop was attended by five individuals; the last by 32. 'We decided there was no point in just training the head of an organisation or university department when research assistants and students would be doing much of the field work,' explains McGrath.

So has deforestation helped forests and the poor? There is no simple answer. The researchers found that the existing data on forest cover and forest management was often so thin that it was impossible to come to any firm conclusions about whether decentralisation had improved forest management, or led to an increase in the rates of deforestation.

As far as the poor were concerned, the picture was mixed. In some places, decentralisation had enabled local communities to benefit from smallscale forest concessions. However, the benefits tended to be limited, as local communities lacked capital and expertise and were in a poor bargaining position when it came to making deals with logging companies.

The failure to give wider recognition to indigenous property rights, and the reluctance of many local governments to consult local people when formulating new laws, meant that decentralisation had failed to deliver significant benefits to the poor in many parts of Indonesia. True, some decision-making now takes place closer to local people than it did in the past, but the poor still have relatively little influence over the decision-making process.

However, the recent move by government to recentralise control over Indonesia's forest estate is unlikely to benefit those most in need. 'Our research found no evidence that central management will improve conditions for the poorest forest dependent people,' says McGrath. 'Indeed, we found good examples of district governments adjusting to their new responsibilities and moving towards more sustainable and fairer forest management policies.'

Helping local governments tackle poverty

In 2003, CIFOR began a three-year action research programme on Poverty and Decentralisation. Focusing on Indonesia and Bolivia, and funded by BMZ, the programme is developing indicators and tools which will help local governments measure poverty and design strategies to improve the welfare of the rural poor in forested areas.

The first phase of the project has concentrated on gathering data. In Indonesia, Ade Cahyat and Godwin Limberg led field teams which surveyed 34 villages in two districts in East Kalimantan. The research suggests that decentralisation has brought some benefits. In Malinau, for example, half of the households believe their wellbeing has improved since decentralisation. However, less than half the households have access to junior high school, only 13 per cent have WCs, and just 7 per cent have a regular supply of protein in their diet.

'Decentralisation provides local governments with great opportunities to address rural poverty, as they should have a better understanding of local priorities,' explains social scientist Lini Wollenberg. 'But at the moment, most local governments adopt a "Band Aid" approach to poverty alleviation - for example, by providing food aid and transport subsidies. We aim to provide local governments with the tools to gather the information they need to make long-term improvements to the welfare of the poor.' In the second phase of the project, CIFOR is working with district governments, monitoring the impacts of their programmes on the well-being of the poor and on the forest resources which the poor depend on for their livelihoods and survival.



CIFOR scientist Lini Wollenberg makes a presentation at a Poverty and Decentralisation workshop in Santa Cruz, Bolivia. Photo by Kristen Evans



How We Work

Having an impact

Conducting good research is one thing; making sure it has an impact quite another. A small organisation like CIFOR has to get its messages across to policymakers, opinion leaders and others without spending large amounts of money on dissemination. If its research is to have an impact, then it must catch the attention of the institutions and people who really matter. That means getting its publications into the right places in the right format.

CIFOR's communication strategy is many-pronged. Besides publishing books, occasional papers and monographs, CIFOR seeks to get a wider audience for its research findings by using the international and national media. In 2004, CIFOR scientists wrote or coauthored over 160 publications and 60 journal articles. During the year some 520 news and feature stories in the media referred to CIFOR research, a 60 per cent increase on 2003. One research story, describing the impact of cattle ranching on the Amazon, appeared in over 120 different outlets.

Several studies evaluated the impact of CIFOR's work during 2004. One revealed that CIFOR research was cited by most significant forest policy documents. Between 1995 and 2003, global agencies produced 29 major policy documents related to forests which had references to CIFOR's research. They cited CIFOR research 89 times, 88 per cent of the citations being in documents published since 2000. One hundred and sixty-four secondary policy documents cited CIFOR research 316 times. CIFOR research also targets the scientific community with considerable success and is frequently cited in academic journals.



CIFOR scientist Peter Cronkleton (center) discusses community forestry issues with local farmers in Pando, Bolivia. Photo by Kristen Evans

Influencing the influencers

An impact analysis by CIFOR scientists Michael Spilsbury and Purabi Bose, carried out in 2004, looked at the way in which CIFOR research has helped to shape the global forest policy agenda. They did this by examining forest-related documents produced by the key organisations and processes that shape the international forestry agenda, and by the organisations that provide major financial support for forestry. The main players are the World Bank, the Food and Agriculture Organization (FAO), the World Resources Institute (WRI), the International Tropical Timber Organization (ITTO) and the Convention on Biological Diversity.

The scientists looked for citations of CIFOR's research in 309 documents published between 1993, the year CIFOR was founded, and 2003. Of the 95 'significant' policy documents - these represent the official opinion of the organisations concerned — a third had bibliographies. CIFOR research was cited 99 times in 29 of these documents. CIFOR scientists were also lead authors of major policy documents: for example, they contributed chapters to FAO's 2003 State of the World's Forests report, and CIFOR publications were cited in 164 of the 212 technical back-up documents surveyed by Spilsbury and Bose.

Co-authors Huynh Thu Ba and William Sunderlin launching their book, *Poverty Alleviation and Forests in Vietnam*, in Hanoi.



'The research suggests that CIFOR has had a significant impact on international forestry policy,' says Spilsbury. 'It is all about generating ownership — about getting other organisations to use your research findings.'

The most frequently cited publications related to CIFOR's research on the underlying causes of deforestation, and to work on the impact of economic crises on forests. Other key areas of CIFOR research referred to in the policy documents included reduced impact logging and Criteria and Indicators (C&I) for sustainable forest management.

A separate study, also conducted by Spilsbury, investigated the impact of CIFOR's C&I research, primarily by looking at the way in which this research has been used by organisations involved in forest certification. 'We knew that CIFOR had had an influence,' explain Spilsbury, 'but there was always the problem of attribution, of working out which particular piece of research led certifiers to come up with specific standards for sustainable forest management.'

The study established clear links between CIFOR's research and the development of certification standards. For example, the African Timber Organisation used the results of CIFOR's C&I research in Cameroon and amalgamated these with the ITTO's C&I standards; and the research and advice provided by CIFOR scientist Ravi Prabhu and his colleagues clearly influenced the development of C&I in South Africa. 'C&I research had an impact far beyond the areas where the work was carried out,' says Spilsbury. 'In that sense, CIFOR was fulfilling its mandate of conducting international public goods research.'

Policy-makers use science to support their arguments and provide them with credibility. But they need to be sure that the science is reliable. One way of gauging whether an organisation is producing good scientific research is to evaluate the extent to which it is cited in the scientific literature. An analysis conducted by CIFOR associate Arild Angelsen and Baikuntha Aryal of the Agricultural University of Norway found that 24 per cent of CIFOR's published



Rewarding success in Central America

In the late 1980s and early 1990s, many forested areas in Guatemala and Nicaragua were plagued by violent conflict and corruption, following years of civil war. Today, the region is relatively peaceful and local communities are playing an important role in maintaining two biosphere reserves. In northern Guatemala, community forest reserves around the Maya Biosphere Reserve are well managed, and in Siuna, Nicaragua, farmers have slowed down the advance of the agricultural frontier and encroachment on the Bosawas Biosphere Reserve. Much of the credit for this goes to two community organisations, the Association of Forest Communities in Petén and the Campesino-to-Campesino Programme in Siuna.

These organisations have developed a vision of self-sustainability and taken control of their livelihoods and their environment, winning accolades and support from international donors and development agencies. CIFOR researchers Peter Cronkleton and Carmen Garcia, working with local partners in ACICAFOC, have helped the organisations to strengthen their ability to use outside technical assistance effectively and to improve their internal management.

In October 2004, CIFOR and its two partners in Guatamala and Nicaragua won the Consultative Group on International Agricultural Research's much-coveted Innovation Marketplace award. This recognises outstanding partnerships between community organisations and CGIAR research centres in Latin American and the Caribbean.

According to Marcedonio Cortave, the executive director of the Association of Forest Communities in Petén, it was not so much the prize money — US\$10,000 — that mattered, as the sense of achievement it gave to everyone involved in grassroots forestry organisations in Guatemala and Nicaragua. 'It is wonderful recognition for some truly wonderful team work,' explains Cortave.

research between 1993 in mid-2004 journal articles, in-house publications, books and book chapters — was cited in academic journals. Seventeen CIFOR publications were cited more than 20 times, and five more than 50 times.

A number of interesting trends emerged. Half of the top 43 publications have non-CIFOR first authors. This indicates that CIFOR scientists benefit from collaboration; it also affirms the importance of working in partnerships. Journal articles have a much higher chance of being cited than other publications, including books and books chapters. Encouragingly, CIFOR research appears to have a long shelf-life, and there was no sign of falling citation rates, even after seven years.



"With its language at the same time rigorous and simple, accessible, pleasant, practical, the book became a vehicle to disseminate information that is fundamental to the future of the Amazon." Marina Silva, Brazilian Minister for the Environment, writing in the preface.

CIFOR's Patricia Shanley, with Alexandre Dias of Forest Stewardshop Council in Brasília, Prof Ademir Reis, from the University of Santa Catarina, Brazil, Paulo Kageyama, Director of National Biodiversity Conservation at the Ministry of the Environment during the launch of the Fruit Book. Photo by Trilby MacDonald

Spreading the message in Amazonia

You wouldn't expect the launch of a book with the title *Frutiferas e Plantas Uteis na Vida Amazônica* — 'Fruit Trees and Useful Plants in the Lives of Amazonians' — to be much of a crowd-puller. Indeed, many people told CIFOR ethnobotanist Patricia Shanley and her co-author Gabriel Medina that they would be lucky to attract a dozen people.

In fact, over 400 people turned up, bringing a carnival atmosphere to Governor's House in Belém, in the Brazilian state of Pará, when the book was launched in December 2004. Women from the Amazon sang farmers' songs; men played instruments made out of forest seeds; hawkers sold medicinal plants, nut jewellery and ice-cream made from forest fruit. The launch also attracted politicians, non-governmental organisations and academics.

The reason why so many came was summed up in a speech by Aldaberto Veríssimo, director of IMAZON and consultant to Brazil's Environment Minister, Marina Silva. According to Veríssimo, the book managed to communicate rigorous scientific research about the value of forest fruits and other non-timber products to a broad public, reaching even the remotest forest communities. 'It is very rare for scientists to do this,' he said. 'It gives science back to the people.'

The Fruit Book, as it is known, is the culmination of a 12-year project which integrates traditional knowledge with scientific research. The first edition, which concentrated on eastern Amazonia, proved such a success with colleges, rural unions and the *caboclos*, peasant farmers of mixed Indian and African descent, that Shanley was encouraged by leading policy-

makers in the western Amazon to write a second edition covering the whole of the Brazilian Amazon. Drawing on research by dozens of scientists, this describes the life histories of 30 trees and palms whose fruit, nuts, fibre and leaves are widely used by local people.

With its liberal use of drawings and cartoons, alongside the hard science and local stories, the Fruit Book appeals to a wide audience, including those with limited literacy skills. The book doesn't tell caboclos what to do, but it does provide them with a better understanding of which trees to sell to loggers, and which to protect. Take, for example, the narrative about the bacuri tree. If the caboclos sell a tree to the loggers, they will get R\$2, but they will lose the tree. Yet they can earn the same amount by selling just 10 bacuri fruit on the riverbank, and each tree produces on average 300 fruit a year.

However, this sort of information will only make a real difference if it is widely disseminated. Initially, CIFOR's partners held workshops, often in remote villages. Although these were useful, they were time-consuming and inevitably limited in their scope. What was needed was a more far-reaching strategy.

In February 2004, after seeing proofs of the book, the Land Titlement Bureau (INCRA) contacted Medina to say they wanted to use it for their PRONERA initiative, designed to improve adult rural literacy. 'This was a major breakthrough,' explains Medina. 'By using the book, the literacy educators are not only teaching people to read, they're providing them with the information they need to negotiate their timber rights.' By the end of 2004, over 1000 educators had been trained by PRONERA to use the Fruit Book. Their initial target audience was estimated at over 14.000 rural adults. At the same time. more than 300 rural leaders, working for community organisations, forest reserves and the influential National Council of Rubber Tappers, received training on how to use the book.

Until recently most educational institutes involved with forestry issues in Brazil were solely concerned with training people to become commercial foresters. Non-timber forest products, vital for subsistence and a source of income for millions, were simply not an issue. But attitudes are beginning to change, thanks largely to the Fruit Book. The Fundaçio Floresta Tropical and five universities in the Amazon are now using the book on their forestry courses. (See Box: Changing the Curriculum.)

State governments throughout Amazonia have expressed their enthusiasm for the Fruit Book, with government agencies paying for book launches in Manaus and Rio Branco. Four government secretaries in the states of Acre and Amazonas - representing Environment, Culture, Education, and Science and Technology - have promoted the use of the book within their departments. They recognise that the book provides information directly relevant to social programmes on nutrition, health and Fome Zero, President Lula de Silva's campaign to eradicate hunger.

As Bene, a hunter who spoke at the Belém book launch, told the gathering at Governor's House: 'The book has helped us to recognise the value of our fruits, our fibres and our medicinal plants. We no longer sell trees to the loggers in return for nothing.' The book, in short, is helping forest dwellers to improve their livelihoods and safeguard the forests. In doing so, it is playing its part in the battle against poverty and hunger.

Sister Dorothy Stang

Sister Dorothy Stang, an American-born missionary, spent 37 years working among the rural poor in the Amazon. She opposed land grabbers and illegal loggers, who frequently used violence against local communities, and she helped to establish a new model of settlement based on good forest management. She was murdered on 13 February 2005, shortly after she had accused loggers and ranchers of persecuting rural workers. She was 74 years old.



Her bravery — she had received many death threats — and her passionate belief that good forest management and poverty alleviation go hand-in-hand meant that she was well known among conservation and development groups in Brazil. In December 2004, she had attended CIFOR's launch of the Fruit Book in Belém. There she met co-author Gabriel Medina and invited him to work with her at one of the Sustainable Development Projects. Medina visited her in Anapu the following month. Together they explored the possibility of using the Fruit Book on the Anapu project.

When Medina asked her about the viability of the Sustainable Development Projects, which involve settling people who have had no previous experience of forest management, she told him that that was exactly what was needed. 'She said it was necessary to rethink development in the Amazon,' recalls Medina. 'She argued that extensive cattle farms and the old models of development had failed, and that we needed to promote sustainable systems of land use that encouraged peasants to stay on the land.' Although Sister Dorothy is dead, the Sustainable Development Projects will continue, a fitting reminder of her dedication to both the poor and the environment.

Changing the curriculum

Until recently, the courses at the Fundaçio Floresta Tropical (FFT), an Amazonian institute which promotes sustainable forestry, concentrated on the theory and practice of reduced impact logging. Now, as a result of the pioneering research by Patricia Shanley and her colleagues from CIFOR, FFT has included the study of non-timber forest products (NTFPs) in its curriculum.

According to Purabi Bose, an impact assessment expert at CIFOR, this has been well received by students. 'When I visited one of the field sites,' explains Bose, 'the students were very enthusiastic. They said they thought that the NTFP elements in the course were very relevant, as this was something they hadn't covered on their university courses.'

Universities in the Amazon are also incorporating new material into their forestry curricula and focusing on NTFPs for the first time. For example, the University Federal do Pará in Belém invited CIFOR to join it as a research partner in its work along the Trans-Amazonia highway. As result of CIFOR's involvement, the university's train-the-trainers programme now includes material on how to conduct NTFP inventories, how to assess the local value of biodiversity, and how to help them negotiate better deals with logging companies.

'CIFOR is not a training institute,' says Bose, 'but by working with organisations like FFT and the University Federal do Pará, the researchers are reaching a much wider audience than they would otherwise. They are influencing forest managers, and others, who are closely involved with communities living in the Amazon.'

Making headlines

2004 was CIFOR's most successful year yet in terms of media coverage. Over 530 news and feature stories referred to CIFOR's research, compared to 370 the previous year and 171 in 2002. Online media coverage accounted for 221 stories, newspapers for 182, radio for 59, wire services for 28 and television for 20.

CIFOR's Hamburger Connection Fuels Amazon Destruction created the biggest media splash. Over 120 different outlets gave the report extensive coverage, and the story was picked up by print media heavyweights such as the Guardian, Le Figaro, Folha de São Paulo and the Economist, as well as by two of the world's leading science magazines, New Scientist and Science. Other topics which received significant coverage included the Interlaken Decentralisation Congress, money-laundering and forest crimes in Indonesia, illegal logging, CIFOR's Malinau Research Forest and forest fires.

As CIFOR's Information Services Group is based at its headquarters in Bogor, it is no surprise that around 40 per cent of the media coverage for 2004 appeared in the Indonesian media. However, during the year CIFOR expanded media coverage in other countries, with the regional office in Cameroon generating over 60 stories (see box). The Latin American regional office also had considerable success. The launch of Fruit Trees and Useful Plants in the Lives of Amazonians attracted widespread coverage in Brazil, and coauthor Patricia Shanley even appeared on a TV chat show with Brazil's most famous folk singer.

In this era of information overload, organisations like CIFOR have to do far more than send out press releases if they are to grab the attention of the mass media. 'CIFOR's strategy is to identify good stories and approach the media directly,' explains CIFOR communications



CIFOR Director General David Kaimowitz being interviewed by local radio at the third meeting of the Asia Forest Partnership in Yogyakarta, Indonesia, in August 2004. Photo by Yani Saloh

Raising CIFOR's profile in Cameroon

CIFOR is currently developing communication units in each of its regional offices. The first to be established was in Cameroon, and it had an immediate impact, generating 66 stories in the local media in 2004. CIFOR's Central and West African research caught the attention of newspapers such as the *Post*, the *Cameroon* Tribune, the Herald, Mutations Quotidien and La Voix du Paysan. CIFOR research was also covered by Canal 2 International TV, CRTV and Radio Environment. Most of the coverage was related to the four CIFOR books launched at the 5th Congress on Dense Humid Central African Forest Ecosystems; to the Decentralisation Forum held in Yaoundé and jointly organised by CIFOR and the World Resources Institute; and to CIFOR's collaboration with farmers on a programme of domestication of non-timber forest products such as bush mango and kola nut.



Filming a sequence for one of BBC World TV's 'Earth Reports'. The programme showed CIFOR scientists training women in Cameroon to improve the management and marketing of non-timber forest products. Here researcher Abdon Awono explains the aphrodisiac properties of Nka'an (*Mondia whitei*) in Mfoundi Market, Yaoundé. Photo by Patrick Nyemeck

specialist Greg Clough. 'Once we have gained their interest we send them the background information they need to pursue the story.' Clough believes that CIFOR's media success stems from the fact that it has developed a reputation for providing interesting news, without being dogmatic. 'We have also made an effort to win trust by providing accurate information and helping journalists identify other sources when we can't help,' he says.

Since 1997, over 150 POLEX messages have been posted on CIFOR's website and mailed to an ever-increasing subscription list. Almost 17,000 individuals, including many leading forest policy-makers, now receive POLEX. Written by CIFOR's Director General, David Kaimowitz, and published in English, French, Indonesian, Spanish and Japanese, each message provides a concise summary of recent research that has a bearing on forest policy. Over 30 newsletters and listserves regularly or occasionally reproduce POLEX messages. The 18 POLEX messages sent out in 2004 covered a wide range of research topics, from bribery and illegal logging in Indonesia to China's burgeoning demand for timber and environmentally friendly logging in Borneo. Approximately half the messages described research by CIFOR scientists.

A survey of POLEX recipients elicited 1166 responses and confirmed the importance of the listserve. Eightyeight per cent of the respondents said that they read all or most of the POLEX messages they received. Eighty-three per cent frequently or occasionally forwarded messages. Seventy-three per cent said they usually or always found the messages relevant to their work. Forty per cent said POLEX helped to improve their understanding of forestrelated issues and shape their opinions.

Donors

SCHEDULE OF GRANT REVENUE

FOR THE YEARS ENDED 31 DECEMBER 2004 AND 2003

(in US Dollar 000s)

Others 28%

U.S.A. 5%

Canada 4% Japan 5%

			RESTRICTED	2004	2003
			Asian Development Bank	54	-
			Australian Centre for International Agricultural Research	250	190
			African Wildlife Foundation	9	-
			Brazil (EMBRAPA)	1	-
			Belgium	36	17
UNRESTRICTED	2004	2003	Canada	31	13
Accetoralia	107	1(2	CARPE	6	3
Australia	197	162		20	15
Canada	100	102	CIRAD Forot	- 245	37 24
China	10	4/4	Conservation International Foundation	205	20
Finland	10	10 ∕\20	Technical Centre for Agricultural and Pural Co-operation (CTA)	4/	13
France	96	75	Furopean Commission	1 190	1 500
Germany	298	286	Food and Agriculture Organization of the United Nations	49	51
Indonesia	56	59	Ford Foundation	296	327
Japan	206	287	Forest Trends	- 5	10
Korea		60	France	225	314
Netherlands	1,306	1,118	Germany (GTZ/BMZ)	496	408
Norway	956	763	Indonesia Ministry of Forestry (FKKM/HKM)	2	4
Philippines	5	7	IITA	2	23
Sweden	440	370	INRENA	7	90
Switzerland	396	364	Inter-American Development Bank	-	63
USA	700	650	IRM	-	19
United Kingdom	368	-	International Centre for Research in Agroforestry	55	14
World Bank	1,200	1,010	International Development Research Centre	210	15
SUB TOTAL. UNRESTRIC	TED 7.472	6.297	International Food and Policy Research Institute	21	-
		-,	International Fund for Agricultural Development	122	48
			International Tropical Timber Organization	276	350
			Italy	89	-
			Japan	558	546
			Korea	106	-
			MacArthur Foundation	-	1
			National Oceanic and Atmospheric Administration	- 201	(1)
				201	200
			Organisation Africaine du Bois	6	-
Top Ten Donor	s 2004		Overseas Development Institute	4	7
			Others	6	(1)
hers Ne	therlands	d Kingdom	PI Environmental Consulting	6	6
8%	11% 011120	11%	RSCI-Peruvian Secretariat	21	20
			SANREM	-	7
			Secretariat of the Convention on Biological Diversity	-	18
			Swedish University of Agricultural Sciences	7	54
			Sweden	379	217
		World Bank	Switzerland	203	92
		10%	The Overbrook Foundation	101	62
I.S.A	Norway Euro	opean	The Nature Conservancy	74	18
Germany Sweden	7% Comr	nission	Tropical Forest Foundation	97	105
5% 6%	c	5%	USA	91	262
			United Kingdom (DFID)	1,278	1,282
			United Nations Environment Programme	-	24
			United Nations Educational, Scientific and Cultural Organization	3	4
			United Nations Forest Service	-	54 40
			United Nations Forum on Forest (UNFF) Wasada University	- 11	40 27
			World Bank	11 247	21
			World Conservation Union (ILICN)	(5)	215
			World Resources Institute	(J)	7 96
			World Wide Fund for Nature	5	323
				7 470	7 3 4 6
			SUD IVIAL, KESIKILIED	/,4/9	7,310
			TOTAL UNRESTRICTED AND RESTRICTED	14.951	13.607

Financial Statements

STATEMENTS OF FINANCIAL POSITION

31 DECEMBER 2004 AND 2003

(in US Dollar 000s)

	2004	2003*
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	10,237	9,440
Accounts receivable		
Donors, net	2,838	3,380
Employees	297	274
Others	699	620
Prepaid expenses	370	396
TOTAL CURRENT ASSETS	14,441	14,110
NON-CURRENT ASSETS		
Fixed assets, net	1,698	1,650
TOTAL ASSETS	16,139	15,760
LIABILITIES AND NET ASSETS		
CURRENT LIABILITIES		
Accounts payable		
Donors	4,265	3,569
Others	53	66
Accrued expenses	685	1,097
TOTAL CURRENT LIABILITIES	5,003	4,732
NON-CURRENT LIABILITIES		
Employee benefits obligation	2,285	2,071
NET ASSETS		
Unrestricted		
Undesignated	5,848	5,954
Designated	3,003	3,003
TOTAL NET ASSETS	8,851	8,957
TOTAL LIABILITIES AND NET ASSETS	16,139	15,760

* Certain accounts in the 2003 financial statements have been reclassified to conform with the presentation of accounts in the 2004 financial statements.

STATEMENTS OF ACTIVITIES YEARS ENDED 31 DECEMBER 2004 AND 2003

(in US Dollar 000s)

	2004			2003*
	Unrestricted	Restricted	Total	Total
REVENUES				
Grants	7,472	7,479	14,951	13,607
Other revenues	226	-	226	202
Total revenues	7,698	7,479	15,177	13,809
EXPENSES				
Research programs	4,830	7,479	12,309	11,171
Research support	878	-	878	831
Management and general expenses	2,590	-	2,590	2,152
	8,298	7,479	15,777	14,154
Indirect expense recovery	(494)	-	(494)	(449)
Total expenses	7,804	7,479	15,283	13,705
CHANGE IN NET ASSETS	(106)		(106)	104

* Certain accounts in the 2003 financial statements have been reclassified to conform with the presentation of accounts in the 2004 financial statements.

STATEMENTS OF CHANGES IN NET ASSETS YEARS ENDED 31 DECEMBER 2004 AND 2003

(in US Dollar 000s)

	Unrestricted net assets		
	Undesignated	Designated - investment in fixed assets	Total
Balance as at 31 December 2002, as			
previously reported	5,598	3,003	8,601
Prior-period adjustment	252	-	252
Balance as at 31 December 2002, as restated	5,850	3,003	8,853
Changes in net assets for the year ended			
31 December 2003	104	-	104
Balance as at 31 December 2003	5,954	3,003	8,957
Changes in net assets for the year ended			
31 December 2004	(106)	-	(106)
Balance as at 31 December 2004	5,848	3,003	8,851

STATEMENTS OF CASH FLOWS

YEARS ENDED 31 DECEMBER 2004 AND 2003 (in US Dollar 000s)

	2004	2003*
CASH FLOWS FROM OPERATING ACTIVITIES		
Change in net assets	(106)	104
Adjustments to reconcile change in net assets to net cash provided by operating activities:		
Depreciation	306	311
Gain on the disposal of fixed assets	(14)	(8)
Accounts receivable written off	-	(5)
Provision for doubtful accounts	8	63
Changes in:		
Accounts receivable		
Donors	534	(769)
Employees	(23)	(98)
Others	(79)	(123)
Prepaid expenses	26	(14)
Accounts payable		
Donors	696	441
Others	(13)	(13)
Accrued expenses	(412)	610
Accrued employee benefits	214	475
NET CASH PROVIDED BY OPERATING ACTIVITIES	1,137	974
CASH FLOWS FROM INVESTING ACTIVITIES		
Acquisition of fixed assets	(354)	(228)
Proceeds from the disposal of fixed assets	14	8
NET CASH USED IN INVESTING ACTIVITIES	(340)	(220)
NET INCREASE IN CASH AND CASH EQUIVALENTS	797	754
CASH AND CASH EQUIVALENTS, BEGINNING OF THE YEAR	9,440	8,686
CASH AND CASH EQUIVALENTS, END OF THE YEAR	10,237	9,440

* Certain accounts in the 2003 financial statements have been reclassified to conform with the presentation of accounts in the 2004 financial statements.

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Secrétariat Permanent à l'Environnement Ministère de l'Environnement et des Forêts PO Box 12489 Yaoundé CAMEROUN

Dr Eugene Terry

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- César Sabogal (Peru), Silviculturist (based in Brazil)
- Agus Salim (Indonesia), Statistician (until May 2004)

Marieke Sassen (Netherlands), Natural Resources Ecologist (based in France) Douglas Sheil (Ireland), Ecologist Laura Snook (USA), Forester (until April 2004) Charlotte Soeria (Indonesia), Secretary Indah Susilanasari (Indonesia), Secretary Takeshi Toma (Japan), Forest Ecologist Elke Verbeeten (Netherlands), Physical Geographer (based in Burkina Faso) (since October 2004)

Meilinda Wan (Indonesia), Agronomist

*Senior Associates

Laura Snook (USA), Forester (since May 2004)

*Consultants

Antonio Carandang (Philippines), Forester Owen Elias (UK), Editor Nina Haase (Germany), Socio-economist Murniarti Halef (Indonesia), Forester Abi Ismarrahman (Indonesia), Data Entry Misa Kishi (Japan), Public Health/Medical Doctor

Hiroaki Kuramitsu (Japan), Project Assistant Sofyan Kurnianto (Indonesia), Hydrologist Abel Meza Lopez (Peru), Agronomist Rolyn Medina (Bolivia), Forester Erik Meijaard (Netherlands), Senior Forest

Ecologist Michael Padmanaba (Indonesia), Forester Lukas Rumboko (Indonesia), Forester Paian Sianturi (Indonesia), Forest Modelling John Turnbull (Australia), Forester/Editor Miriam van Heist (Netherlands), GIS Analyst Ahmad Yusuf (Indonesia), Data Entry

*Interns

Motoshi Hiratsuka (Japan), Environmental Science

- Nicolas Hosgood (France), Forestry Hideyuki Kubo (Japan), Environmental
 - Science
- Marion C. Lazarovici (France), Environmental Science
- Romain Pirard (France), Environmental Science
- Mathieu Schwartzenberg (France), Environmental Science Christophe Simon (France), Forestry

Aditya Suhartanto (Indonesia), Forestry

Forests and Livelihoods Programme

- Bruce Campbell (Zimbabwe), Ecologist, Director
- Ramadhani Achdiawan (Indonesia), Statistician
- Abdon Awono (Cameroon), Agronomist (based in Cameroon)
- Brian Belcher (Canada), Natural Resources Economist
- Z. Henri-Noël Z. Bouda (Burkina Faso), Forester (based in Burkina Faso)
- Sonya Dewi (Indonesia), Theoretical Ecologist and Modeller
- Edmond Dounias (France), Ethno-ecologist (Seconded Scientist)
- Carmen García-Fernández (Spain), Natural Resources Ecologist (based in Brazil) Petrus Gunarso (Indonesia), Policy Analyst Syarfiana Herawati (Indonesia), Secretary

Godwin Kowero (Tanzania), Forestry

- Economist/Regional Coordinator (based in Zimbabwe)
- Chetan Kumar (India), Forester (based in India) (since May 2004)
- Dany Kurniawan (Indonesia), Programmer (since June 2004)
- Koen Kusters (Netherlands), Geographer
- Feby Littamahuputy (Indonesia), Secretary
- Crispen Marunda (Zimbabwe), Forester/
- Landscape Ecologist (based in Zimbabwe) Gabriel Medina (Brazil), Forester (based in Brazil)
- Benoit Mertens (Belgium), Geographer (based in France) (until November 2004)
- Manyewu Mutamba (Zimbabwe), Economist (based in Zambia) (since October 2004)
- Ani Adiwinata Nawir (Indonesia), Socioeconomist
- Ousseynou Ndoye (Senegal), Agricultural Economist/Regional Coordinator (based in Cameroon)
- Danielle Lema Ngono (Cameroon), Sociologist (based in Cameroon)
- Levania Santoso (Indonesia), Forester
- Patricia Shanley (USA), Ecologist
- Titin Suhartini (Indonesia), Secretary
- William Sunderlin (USA), Rural Sociologist
- Jusupta Tarigan (Indonesia), Forester
- Daniel Tiveau (Sweden), Silviculturist (based in Burkina Faso)
- Sven Wunder (Denmark), Economist (based in Brazil)

*Senior Associates Peter Frost (UK), Ecologist Manuel Ruiz Perez (Spain), Ecologist

*Consultants

M. Bismark (Indonesia), Ecologist Emmanuel Chidumayo (Zambia), Biologist Pawennari Hijjang (Indonesia), Research Assistant Dedi Junadi (Indonesia), GIS Specialist Tajudin Edy Komar (Indonesia), Forester Alois Mandondo (Zimbabwe), Social Scientist Anggi Maulana (Indonesia), Field Technician Misriani (Indonesia), Data Entry Deep Narayan Pandey (India), Forester Yonika Ngaga (Tanzania), Resource Economist Fadjar Pambudhi (Indonesia), Surveyor Hari Priyadi (Indonesia), Forester Goetz Schroth (Brazil), Agroforester Christina Geisch Shakya (Switzerland), Agroforester

Chairil Anwar Siregar (Indonesia), Ecologist Soaduon Sitorus (Indonesia), Forester Anton Suhartono (Indonesia), GIS Specialist Arrita Suwarno (Indonesia), GIS Analyst Zakaria (Indonesia), Forester

*Interns

- Samwel Mulenga Bwalya (USA), Forestry Alice Rujeko Kanyenza (South Africa), Forestry
- Abisha Mapendembe (Zimbabwe), Environmental Science

Forests and Governance Programme

Doris Capistrano (Philippines), Resource Economist, Director Panca Ambarwati (Indonesia), Secretary Christopher Barr (USA), Policy Scientist Paolo Omar Cerutti (Italy), Forester & GIS Specialist (based in Cameroon) (since January 2004) Carol Colfer (USA), Anthropologist Peter Cronkleton (USA), Anthropologist (based in Bolivia) Ahmad Dermawan (Indonesia), Agriculturist Chimere Diaw (Senegal), Anthropologist (based in Cameroon) Samuel Efoua (Cameroon), Forester (based in Cameroon) (until June 2004) Herlina Hartanto (Indonesia), Ecologist Dina Juliarti Hubudin (Indonesia), Secretary Yayan Indriatmoko (Indonesia), Anthropologist (since September 2004) Rahayu Koesnadi (Indonesia), Secretary Heru Komarudin (Indonesia), Forester Ruben De Koning (Netherlands), Anthropologist (based in Cameroon) (since October 2004) Moira Moeliono (Indonesia), Social Scientist Muriadi (Indonesia), Administration Assistant (since April 2004) Tendayi Mutimukuru (Zimbabwe), Agricultural Economist (based in Zimbabwe) Samuel Assembe Mvondo (Cameroon), Jurist (based in Cameroon) Joachim Nguiebouri (Cameroon), Forester (based in Cameroon) Richard Nyirenda (Zimbabwe), Forester

(based in Zimbabwe) (until October 2004)

Ravindra Prabhu (India), Forester (based in Zimbabwe)

- Ferdinandus Agung Prasetyo (Indonesia), Forester
- Ida Ayu Pradnja Resosudarmo (Indonesia), Policy Analyst (on study leave)
- Bambang Setiono (Indonesia), Financial Analyst
 - Yulia Siagian (Indonesia), Forester
 - Hasantoha Adnan Syahputra (Indonesia), Anthropologist
 - Ronny Syam (Indonesia), GIS/Remote Sensing Specialist (until April 2004)
 - Luca Tacconi (Italy), Economist
 - Nugroho Adi Utomo (Indonesia), Forester Eva Wollenberg (USA), Natural Resources
 - Management/Anthropologist
 - Yurdi Yasmi (Indonesia), Forester (on study leave)
 - Elizabeth Linda Yuliani (Indonesia), Ecologist Yurdi Yasmi (Indonesia), Forester (on study leave)
 - Edwin Yulianto (Indonesia), Programmer (until December 2004)
 - Theodore Zacharias (Indonesia), Programmer (until June 2004)

*Associates

Cynthia McDougall (Canada), Social Scientist Nontokozo Nabane Nemarundwe (Zimbabwe), Anthropologist

*Consultants

Agus Andrianto (Indonesia), Timber Analyst Patricia Bannier (Indonesia), Forest Analyst Keith Barney (Canada), Environmental Scientist

Marilyn Beach (USA), Natural Resources Economist

Jeremy Stephen Broadhead (UK), Agroforester Ade Cahyat (Indonesia), Facilitator Jenne de Beer (Philippines), Facilitator David Dequan (USA), Economic Forester Christian Gonner (Germany), Forester Vinay Gowda (India), Software Developer Dodi Hernawan (Indonesia), Forester Mochamad Indrawan (Indonesia),

Environmental Scientist Ramses Iwan (Indonesia), Field Researcher Emile Jurgen (Denmark), Finance Analyst Kewin Benjamin Bach Kamelarczyk

(Denmark), Forester Judith Kamoto (Malawi), Agriculturist

Hariadi Kartodihardjo (Indonesia), Forest Policy Advisor

Dennis Kayambazinthu (Malawi), Ecologist/ Community Forest Specialist Komarrudin (Indonesia), Illustrator

Trikurnianti Kusumanto (Netherlands), Tropical Crop Scientist

Anne Margaret Larson (USA), Resource Sociologist

Dialung Lawai (Indonesia), Field Assistant Godwin Limberg (Netherlands), Agriculturist Georgetty Mato (Cameroon), Secretary (based in Cameroon) Sian McGrath (UK), Policy Analyst Lusayo Mwabumba (Malawi), Forester Neldysavrino (Indonesia), Field Facilitator Ngateno (Indonesia), Jambi Office Assistant Guntur Cahyo Prabowo (Indonesia), Research Assistant Ririn Salwa Purnamasari (Australia), Economist Herry Purnomo (Indonesia), Modeller/ **Computer Analyst** Rita Rahmawati (Indonesia), Data Analyst Bill Ritchie (UK), Researcher Fabiola Roca (Bolivia), Administrative Assistant Erna Rositah (Indonesia), Researcher Rolando Haches Sanchez (Bolivia), Research Assistant Marianne Schmink (USA), Anthropologist Sulaiman Sembiring (Indonesia), Legal Expert Bintang Simangunsong (Indonesia), Forest Economist Machteld Spek (Netherlands), Financial Analyst Wavell Standa-Gunda (Zimbabwe), Economist Samantha Sara Stone (USA), Anthropologist Eddy Harfia Surma (Indonesia), Jambi Field Coordinator Ding Tao (China), Financial Journalist Yunety Tarigan (Indonesia), Secretary Dede Wiliam (Indonesia), Social Forester Yentirizal (Indonesia), Field Facilitator Sun Yujun (China), Professor of Silviculture *Interns Oding Affandi (Indonesia), Forestry Agusnawati (Indonesia), Gender and Development Eddy Mangopo Angi (Indonesia), Ecology & Dendrology Gusti Z. Anshari (Indonesia), Geography and Environmental Itai G. Chibaya (Zimbabwe), Forestry Ganga Ram Dahal (Nepal), Social Science Firdaus (Indonesia), Ecology Yulita Lestiawati (Indonesia), Natural Resources Erny Cenderanawati Lie (Indonesia), Forestry Mayang Meilantina (Indonesia), Agriculture Socio-Economics Agus Mulyana (Indonesia), Natural Resources Sri Naida (Indonesia), Social Development Management Steve Rhee (USA), Social Science Myrna A. Safitri (Indonesia), Anthropology Saharudin (Indonesia), Anthropology Aula Sakinah Muntasyarah (Indonesia), Forest

Resources

Samsu (Indonesia), Forestry Management Made Sudana (Indonesia), Agriculture & Forestry

Sudirman (Indonesia), Law Sukardi (Indonesia), Forestry Management Sumarlan (Indonesia), Development Kurnia Warman (Indonesia), Law Catur B. Wiati (Indonesia), Forestry Asih Yulianti (Indonesia), Forestry Yusran (Indonesia), Forestry Yustisianita (Indonesia), Law

Corporate Services

Norman Macdonald (Canada), Deputy Director General, Corporate Services

- Jennifer Crocker (Canada), Manager, Human Resources
- Susan Kabiling (Philippines), Financial Controller
- Hudayanti Abidin (Indonesia), Human Resources Assistant
- Martin Ahanda (Cameroon), Driver (based in Cameroon)
- Agung Saeful Alamsyah (Indonesia), Guest House Assistant
- Amri Amrullah (Indonesia), Office Assistant (until April 2004)
- Rubeta Andriani (Indonesia), Human Resources Officer
- Graci Oliveira Anjos (Brazil), Secretary (based in Brazil)
- Henty Astuty (Indonesia), Systems Support Assistant
- Mohammad Nuzul Bahri (Indonesia), Office Assistant (since August 2004)
- Paul Bama (Burkina Faso), Driver (based in Burkina Faso)
- Carlos André Cunha (Brazil), Office Assistant (based in Brazil)
- Dzingirai Dingwiza (Zimbabwe), Driver (based in Zimbabwe)
- Purnomo Djatmiko (Indonesia), Facility Services Officer
- Umar Djohan (Indonesia), Driver
- Cecile Effila (Cameroon), Administrative and Financial Officer (based in Cameroon)
- Ivo Ekane (Cameroon), Driver (based in Cameroon)
- Anastasia Elisa (Indonesia), Management Accountant
- Augusto Freire (Brazil), Secretary (based in Brazil) (from April until September 2004)
- Ramon Alex Gerrits (Brazil), Office Manager (based in Brazil) (until February 2004)
- Consilia Gwaka (Zimbabwe), Administrative Assistant (based in Zimbabwe)
- Harinurdi Hadiwijoyo (Indonesia), Property Officer (until May 2004)

Nina Handayani (Indonesia), Receptionist Kusuma Hendriani (Indonesia), Accountant Suhendar Husain (Indonesia), Guest House Assistant

- Emmanuel Hweta (Zimbabwe), Office Assistant (based in Zimbabwe) (until December 2004)
- lvo Ikane (Cameroon), Driver (based in Cameroon)
- Heny Pratiwi Joebihakto (Indonesia), Human Resources Officer

Elfi Joelijarty (Indonesia), Accounts Assistant Nurjanah Kambarrudin (Indonesia),

Accountant

Sylvia Kartika (Indonesia), Accountant (since November 2004)

Eunice Kunaka (Zimbabwe), Office Assistant (based in Zimbabwe)

Louis Lekegang (Cameroon), Driver (based in Cameroon)

- Henny Linawati (Indonesia), Programme Accountant
- Michael Pereira de Lira (Brazil), Office Administrator (based in Brazil) (since January 2004)
- Lovemore Mafuta (Zimbabwe), Driver (based in Zimbabwe)
- Ismed Mahmud (Indonesia), Procurement Officer

Johannes P. Manangkil (Indonesia), Receptionist

Hani Mardhiyah (Indonesia), Administrative Support Assistant

Edward Martin (Indonesia), Financial Accountant

Didi Marudin (Indonesia), Dispatcher

- Esa Kurnia Muharmis (Indonesia), Purchasing Assistant
- Kusnadi Muhi (Indonesia), Guest House Assistant

Florence Munget Munoh (Cameroon), Secretary (based in Cameroon) Siti Nadiroh (Indonesia), Office Assistant

Pauline Nechironga (Zimbabwe), Secretary

(based in Zimbabwe) Ocim (Indonesia), Driver

Karina Veronika Palar (Indonesia), Cashier

Juniarta L. Panjaitan (Indonesia), Human Resources Assistant

Pendi (Indonesia), Office Assistant

Sisi Ratnasari (Indonesia), Human Resources Assistant

Tereza Cristina Ribeiro (Brazil), Secretary (based in Brazil) (since September 2004)

Rina (Indonesia), Programme Accountant Supandi Rodjali (Indonesia), Office Assistant

Ukat Sanusi (Indonesia), Office Assistant

- Henny K. Saragih (Indonesia), Executive Assistant
- Murniati Sono (Indonesia), Operations Officer Kustiani Suharsono (Indonesia), Operations Assistant
- Ata Sukanta (Indonesia), Driver (until January 2004)
- Hari Sukmara (Indonesia), Programme Accountant

Suratman (Indonesia), Driver

lie Suwarna (Indonesia), Driver

Tony Syafei (Indonesia), Driver

- Lely Pingkan C. Taulu (Indonesia), Human Resources Officer
- Ani Tenterem (Indonesia), Housekeeper Yuliasari Tjokroaminata (Indonesia),
- Accountant (until September 2004) Dolphina Truter (Zimbabwe), Secretary
- (based in Zimbabwe) Tina Turtinawati (Indonesia), Cook

ina Iurtinawati (Indonesia), Coc

*Consultants

Jeremy Akester (UK), Property Engineer Popi Astriani (Indonesia), Secretary Lazaro Diaz (USA), Human Resources Sylvia Kartika (Indonesia), Accountant Glenys Mulcahy (UK), English Tutor

*Interns

Panji Pamungkas Arsyad (Indonesia), Hospitality Study

*The associates, consultants and interns listed above are those who had contracts for a minimum duration of 6 months.

Publications

General

- CIFOR. Ciencia aplicada en bosques y comunidades: CIFOR Informe Anual 2003. CIFOR, Bogor, Indonesia. 72p. ISBN: 979-3361-52-2. Also available in English.
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use change: filters, flows and fallacies'. *Agriculture, Ecosystems and Environment* 104(1): pp.19-34.

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- CIFOR. 'Operationalising the ecosystem approach – re-inventing research'. CIFOR Livelihood Brief. No.2. CIFOR, Bogor, Indonesia. 4p. Also available in French.
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Center for International Forestry Research (CIFOR)

Jl. CIFOR, Situ Gede, Sindang Barang Bogor Barat 16680, Indonesia P.O. Box. 6596 JKPWB Jakarta 10065, Indonesia Tel: +62 (251) 622 622 Fax: +62 (251) 622 100 E-mail: cifor@cgiar.org Web site: www.cifor.cgiar.org

Regional Offices:

Latin America

Convênio Embrapa - CIFOR Embrapa Amazônia Oriental Trav. Dr. Enéas Pinheiro s/n 66.095-100 Belém - Pará, Brazil Tel/Fax: +55 (91) 40092650 E-mail: cifor@cpatu.embrapa.br

Central Africa

C/o IITA Humid Forest Ecoregional Center B.P. 2008, Yaounde, Cameroon Tel: +237 2 237434/2 237522 Fax: +237 2 237437 E-mail: cifor.cameroon@cgiar.org

Eastern and Southern Africa

73 Harare Drive Mount Pleasant, Harare, Zimbabwe Tel: +263 4 369655/369656/ 301028/369595 Fax: +263 4 369 657 E-mail: *cifor-zw@cgiar.org*

West Africa

06 BP 9478 Ouagadougou 06, Burkina Faso Tel: +226 5039 3157/5030 4742 Fax: +226 5030 2930 E-mail: *d.tiveau@cgiar.org*

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