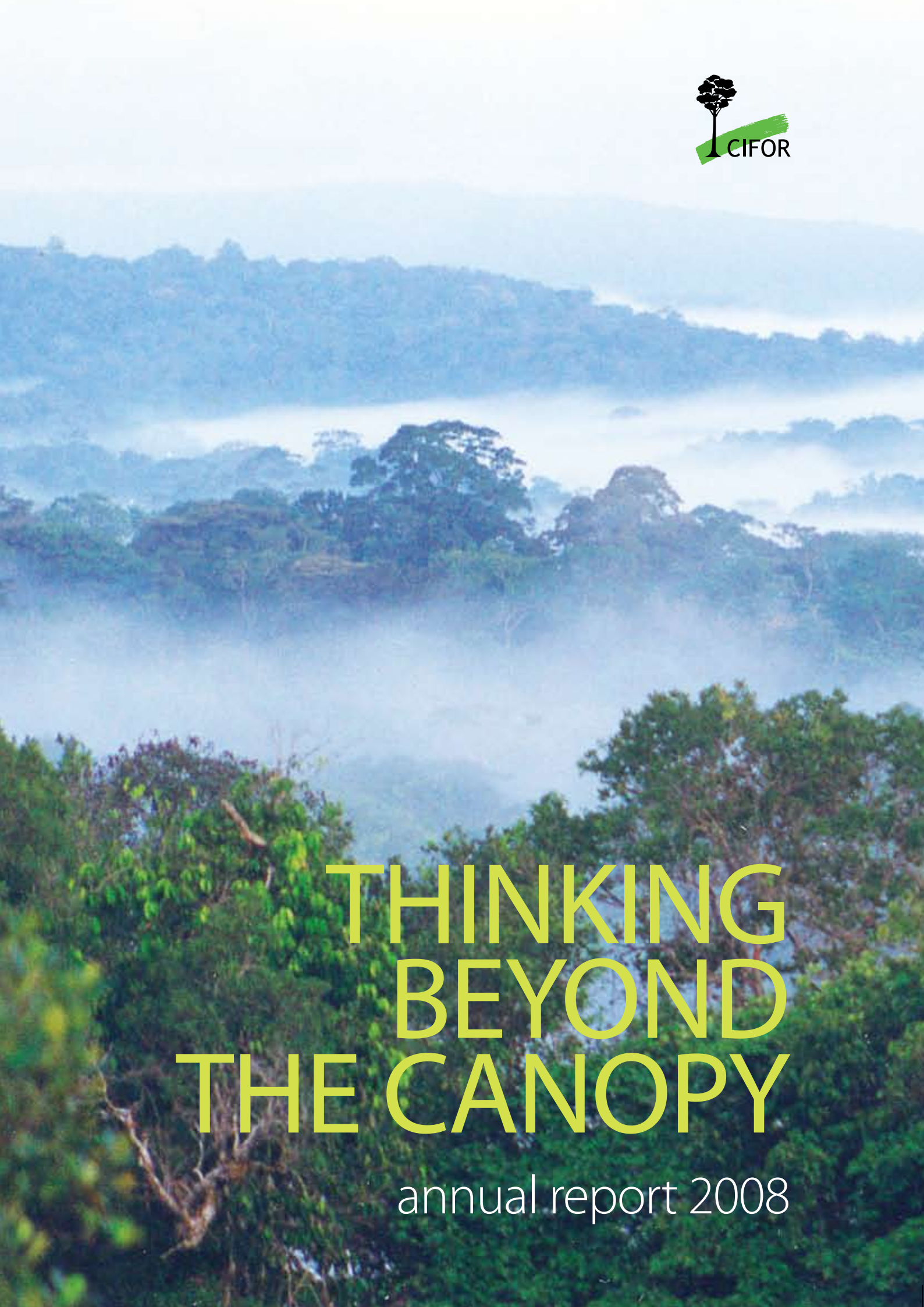
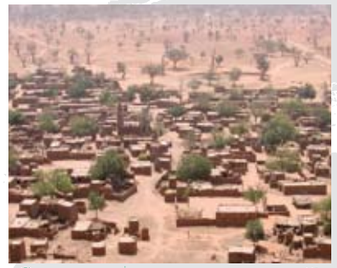

CIFOR
THINKING BEYOND THE CANOPY
annual report 2008

Center for International Forestry Research (CIFOR)

CIFOR advances human wellbeing, environmental conservation and equity by conducting research to inform policies and practices that affect forests in developing countries. CIFOR is one of 15 centres within the Consultative Group on International Agricultural Research (CGIAR). CIFOR's headquarters are in Bogor, Indonesia. It also has offices in Asia, Africa and South America.

CGIAR



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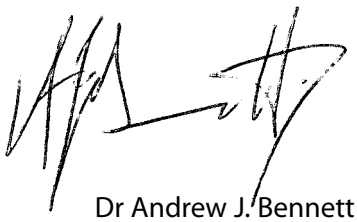

Dr Andrew J. Bennett
Chair, Board of Trustees

Forests are now receiving a level of attention that we haven't seen for years, and there is no doubt that climate change is the major reason for this. The destruction and degradation of forests account for one-fifth of all global carbon emissions, and it is now widely accepted that activities to reduce these emissions should play a significant role in tackling global warming. This has helped to push CIFOR to the heart of the climate change debate.

The year 2008 marked a halfway stage on the road to Copenhagen, where world leaders will finalise a climate agreement to replace the Kyoto Protocol. The previous year, at a UN climate change conference in Bali, CIFOR helped to organise what has now become an annual event. Forest Day 1, attended by over 800 experts, ensured that policy makers, politicians and the press were made fully aware of the important role forests can play in tackling the gravest problem facing humanity. CIFOR also made a strong case for addressing climate change in a way that will benefit poor people, as well as the forests themselves.

The Bali Action Plan endorsed, in principle, the inclusion of reducing emissions from deforestation and forest degradation (REDD) in the post-Kyoto climate agreement. At the 2008 UN Climate Change Conference, held in Poznań, Poland, discussions at Forest Day 2 focused on the design of REDD mechanisms and the importance of helping communities and countries adapt to climate change. In December 2009, world leaders will meet in Denmark to decide how, and to what extent, we will use forests to mitigate climate change and adapt to its effects.

I believe that CIFOR scientists are playing a vitally important role, both by alerting the world to the importance of forests, and by providing the objective research essential to good policy making.

One of CIFOR's great strengths as a research organisation has been its willingness to think outside the box—beyond the canopy. CIFOR was one of the first research centres to show that the rapid loss of rainforest in the Amazon had more to do with agricultural expansion, and in particular extensive cattle ranching, rather than the exploitation of timber. Since then, CIFOR has continued to address the underlying causes of deforestation.

Agricultural development and climate change are among the key drivers of change, but transport and infrastructure development, trade and investment policies, and many other activities also have a significant impact on forests and

forest-dwelling communities. This has been explicitly recognised in CIFOR's new strategy, which the Board of Trustees endorsed in 2008.

Under the new strategy, governance, livelihoods and environmental services remain key programme areas for CIFOR, but there is now a greater emphasis on interdisciplinary research. CIFOR will continue to engage in collaborative partnerships, though with greater relevance and purpose than in the past. CIFOR will continue to base itself in Indonesia, and to concentrate its research on the Amazon Basin, the Congo Basin, dryland Africa and Southeast Asia.

CIFOR is well placed to promote sustainable forest management by providing analyses, information, ideas and technologies that can be used by policy makers, research institutes, environmental groups and community organisations. Ultimately, CIFOR recognises that its efforts will only produce results if they are translated into action at the national and local level. I believe that the new strategy will ensure that this happens.

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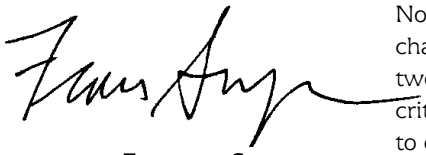
Message from the Director General

'CIFOR has always placed a strong emphasis on impact, rather than research for research's sake, and the new strategy makes this more explicit.'



Frances Seymour
Director General

The year 2008 was a very significant one for CIFOR. In May, the Board of Trustees approved a new strategy to guide our work over the next decade. At CIFOR we recognise that the world's forests and the way we perceive them have changed dramatically over recent years. Our new strategy responds to the opportunities presented by the recent unprecedented level of interest in forests, without losing sight of our core purpose, which is to advance human wellbeing, environmental conservation and equity.

The strategy introduces a number of significant changes to the way we work. Most obviously, our research is now organised around six priority 'domains'. By pulling together strands of existing research, we are developing robust, interdisciplinary approaches to some of the toughest problems confronting forests and forest communities.

Not surprisingly, in view of the challenges we face from climate change, two of the six new domains focus on this critical global problem—one on how to enhance the role forests can play to mitigate climate change; the other on how to help forests and people adapt to the changing climate.

Although CIFOR's work on climate change goes back many years, 2008 witnessed a marked increase in our research activities and influence. One of the best places to see this was in Poznań, Poland, which hosted a UN climate change conference in December. For the second year running, CIFOR helped to organise a special event, known as Forest Day, which attracted over 900 people and provided a platform for debate and discussion about how forests should be included in the next global climate agreement.

CIFOR also launched two publications to coincide with the UN conference. The first, *Facing an Uncertain Future*, looks at the important role of forests in adaptation to climate change, while the second, *Moving Ahead with REDD*, analyses the issues, options for and implications of reducing emissions from deforestation and forest degradation (REDD). CIFOR's research indicates that there is ample opportunity for such schemes to be successful but they also pose risks, so our work is focused on ensuring that they are designed and implemented effectively, efficiently and equitably.

But as the stories in this year's annual report testify, climate-related research accounts for just two of the six new research domains. The other domains—focusing on small-scale and community-based forestry, forest-related trade and investment, biodiversity conservation

and development, and the sustainable management of production forests—have all produced significant outputs in 2008.

CIFOR has always placed a strong emphasis on impact, rather than research for research's sake, and the new strategy makes this more explicit. Our research must not only enlighten, but also help influence policy and provide information and analysis for many different groups of people. Indeed, CIFOR aspires to be the first port of call for anyone who seeks to gain a better understanding of a wide range of issues, from forest researchers to policy makers, from private sector companies to non-governmental organisations.

It is often difficult to assess the impact of policy-oriented research, and a lack of clear evidence recently prompted the Consultative Group on International Agricultural Research's (CGIAR) Science Council to commission seven case studies. One of these focused on CIFOR's long-term research on Indonesia's pulp and paper industry. It revealed that the research has helped to save an estimated 135 000 hectares of natural forest from conversion to other uses. The economic benefits, though difficult to measure, could be in the order of US $130 million—six times more than CIFOR's annual research budget. The message is clear: investing in forest research makes economic, as well as environmental and social, sense. See 'Research delivers return on investment' on page 38.

CIFOR is one of 15 research centres whose performance is annually assessed by the CGIAR. For 2007, CIFOR achieved 87.5 per cent of its output targets, ranking seventh out of the 15 centres. As far as the rigour with which it conducted its impact studies was concerned, it ranked fourth. CIFOR fared less well in terms of the number of externally peer-reviewed publications per scientist, and this is something we intend to remedy during the coming years.

For more information on CIFOR's performance, see the CGIAR's Performance Measurements System Summary Report 2007 at http://www.cifor.cgiar.org/publications/pdf_files/pm/CGIAR-PMSummary2007.pdf

The peer-review process matters, not least because it provides proof of the quality of scientific research. However, research achieves little if it fails to reach an audience beyond the scientific community. A survey of more than 300 scientists from organisations in 29 countries, conducted by CIFOR researcher Patricia Shanley and Citlalli Lopez of the Centro de Investigaciones Tropicales (Centre for Tropical Research), found that many scientists made little or no effort to make their research findings available to policy makers and local people. This is partly because their institutions and peers judge them on their output of peer-reviewed publications; partly because they have little knowledge or expertise about how to disseminate their findings; and partly because they lack the funds to do so.

At CIFOR, we are encouraging our scientists to present their research through a broad range of different media, including peer-reviewed journals, occasional papers, videos, posters and easy-to-read manuals. In this, as in many other matters, we cannot go it alone. As a 'centre without walls', much of our research is conducted as a partnership, and we have a particularly strong record of working with developing country scientists. Similarly, we frequently join hands with other research institutions and specialised communication non-governmental organisations to get our research findings into the hands of policy makers, forest practitioners and others.

To give just one example, the Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC) has drawn heavily on CIFOR research in over a dozen publications. Frequently, it has translated the research into training materials for local communities. In doing so, RECOFTC is acting as a bridge between scientists and local people, and CIFOR is delighted to see its research used so creatively in the field. Ultimately, this is the sort of science that makes a real difference.

Enhancing the role of forests in **mitigating** and **adapting** to climate change

Building momentum on the road to Copenhagen

Although deforestation is responsible for one-fifth of global carbon emissions, international agreements designed to tackle climate change have so far avoided the issue. This is all set to change. The current climate change negotiations recognise that forests must be part of the solution to reducing emissions. And that reducing deforestation should benefit not just the climate, but also poor rural people and biodiversity conservation. This was the key message to come out of 'Forest Day 2', an event co-hosted by CIFOR at a UN climate change conference in Poland.

'Protecting forests means fighting for the very survival of humanity.'

Yvo de Boer
UNFCCC Executive Secretary, at Forest Day 2

The first Forest Day was held in Bali, in 2007, at the 13th UN Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP 13). Jointly organised by CIFOR and other members of the Collaborative Partnership on Forests (CPF), it attracted more than 800 people.

'At Forest Day in Bali, we were arguing that forests had to be included in the climate change negotiations,' says Markku Kanninen, who leads CIFOR's climate research. 'We also wanted the negotiators to recognise that measures to reduce deforestation should be designed in such a way that they benefit poor people.'

The Bali Action Plan acknowledged the importance of forests and initiated a 2-year consultation process expected to culminate in an agreement that will replace the Kyoto Protocol, which expires in 2012. Among other things, the agreement is likely to include measures to reduce emissions from deforestation and forest degradation, or REDD as it is known. Given that deforestation and forest degradation currently account for around 20 per cent of all global carbon emissions, REDD is about using financial incentives to conserve forests. Linking such schemes to a global carbon market, for example, could enable forest conservation to compete with the economic drivers of deforestation, which currently favour destructive logging practices and conversion of forest land to other uses. Financial flows, it is anticipated, will go from developed to developing countries.

The halfway point on the road to Copenhagen, where the post-Kyoto agreement will be finalised at COP 15, was COP 14, held in Poznań in December 2008. Forest Day 2, hosted by CIFOR, CPF and the Polish government, proved a good place to gauge how much progress had been made over the past year, not least in terms of gaining a better understanding of how REDD will work.

01 Official opening of Forest Day 2 in Poznań, Poland.
Photograph courtesy of International Institute for Sustainable Development

02 CIFOR scientist Markku Kanninen interviewed during Forest Day 2.
Photograph by Yani Saloh

The opening plenary of Forest Day 2 was followed by four sessions which focused on a range of cross-cutting themes: the role of forests in adaptation to climate change; addressing forest degradation through sustainable forest management; capacity building for future REDD projects; and options for integrating REDD into the new global climate regime.

A summary of the key messages that came out of these sessions was delivered by Frances Seymour, CIFOR's Director General, to Yvo de Boer, Executive Secretary of the UNFCCC. See http://www.cifor.cgiar.org/publications/pdf_files/cop/cop14/Summary-Forest-Day-2.pdf.

As well as the need for forests to be included in any future climate regime, this summary emphasised the need for any such regime to reflect the fact that forests are more than just carbon storehouses and, if properly designed, a new global climate agreement can deliver enormous co-benefits through forests. These co-benefits include poverty alleviation, biodiversity conservation and strengthening of human rights.

Other key messages included the importance of climate change adaptation, which has been poorly addressed in national strategies and international negotiations, and the need to effectively address forest degradation ('the second D'), which in some parts of the world accounts for more carbon emissions than deforestation.

The feedback on Forest Day 2, both from partners and from those who attended the conference, was overwhelmingly positive.

'Forest Day was a great forum for anybody like us who's involved in the trade in forest carbon, and anyone who wants to learn more about how forests can contribute to climate change adaptation and mitigation,' says Joanna Durbin of the Climate, Community and Biodiversity Alliance. The Alliance launched the latest edition of its standards at Forest Day, and it was one of almost 40 organisations that hosted a side event.

CIFOR also organised a regional Forest Day for Central Africa in April 2008. This event was held in Yaoundé, Cameroon, and it brought together researchers, non-governmental organisations, the private sector, forest communities and government officials. It helped to raise awareness about the role forests can play in mitigating climate change and the impact REDD projects could have on forests and forest-dwelling communities in Central Africa. See 'Central Africa gets its own Forest Day' on page 4.

'At Bali, the key thing was to get forests, and the idea of REDD, on to the climate change agenda. But it was always going to be more complicated in Poznań, as the key issue now is how to design REDD mechanisms.'

Markku Kanninen
CIFOR researcher

'I believe the day was a success because people from so many different backgrounds attended.'

Cyrie Sendashonga
CIFOR's Regional Coordinator for Central Africa

CIFOR scientist Abdon Awono speaking at a panel discussion at the first Forest Day Central Africa. Photo by Paolo Cerutti

The discussions are far from over at the reception following Forest Day Central Africa. Photo by Paolo Cerutti

Central Africa gets its own Forest Day

The Congo Basin has the second largest area of tropical forest in the world after the Amazon. It covers over 2 million square kilometres and stores an estimated 25–30 billion tonnes of carbon. Its survival is vitally important, not just for the millions of people whose livelihoods depend on the forests, but also for the world's climate.

Forest Day Central Africa, held in April 2008 in Yaoundé, Cameroon, helped to raise awareness about the importance of the region's forests, and to share knowledge and experience related to REDD.

The event attracted 150 people, including scientists, policy makers and representatives from intergovernmental and non-governmental organisations. It was widely reported in Cameroon's national press. The theme for the day was: 'Shaping the debate on forests and climate change in Central Africa'. In addition to the opening and closing plenaries, the event comprised four parallel sessions covering different aspects of REDD.

There was a general consensus that REDD focuses too much on markets, and more attention needs to be paid to the issue of poverty. Disputed land rights were also recognised as an issue—they could cause major problems for the implementation of REDD projects in Central Africa. Some participants pointed out that governments were eager to get their hands on money provided by REDD and questioned whether they would share the benefits with forest-dwelling communities. As forest degradation is a greater threat in the Congo Basin than deforestation, it is vitally important that REDD projects place as much emphasis on the second 'D' as they do on the first.

'I believe the day was a success because people from so many different backgrounds attended,' said Cyrie Sendashonga, CIFOR's Regional Coordinator for Central Africa.

Of the 44 participants who filled in a survey at the end of the day, 41 said that they rated the event as 'good' or 'very good.' A typical reaction came from one of the members of parliament present:

'On behalf of the Caucus of Parliamentarians for Environmental Protection, and the African Parliamentarian Network for Climate Change in West and Central Africa, I say congratulations to CIFOR,' wrote Rose Abunaw. 'It was a very good and interesting seminar. Very educative.' The Commission of Central African Forests (COMIFAC) has since welcomed the idea of making Forest Day Central Africa an annual event under its leadership.

REDD: an idea whose time has come

'The idea of REDD is quite simple,' says Arild Angelsen, a CIFOR senior associate based at the Norwegian University of Life Sciences. 'It involves channelling money from the global community to forest users, and making forest conservation more profitable than the conversion of forests to agriculture and other uses.'

Today, deforestation and degradation are responsible for around 20 per cent of global carbon emissions. Besides reducing carbon emissions, projects to reduce emissions from deforestation and forest degradation (REDD) could also yield considerable benefits for biodiversity and local communities. See 'Two for the price of one' on page 8.

REDD may be an idea whose time has come, but a range of potential difficulties needs to be addressed if REDD is to have a major impact on reducing global warming. For example, how will reductions in carbon emissions be measured? How will the international community raise the billions of dollars needed every year to pay for REDD initiatives? How can we ensure that emission reductions in one area will not stimulate deforestation and degradation in another? How can we make sure that the benefits go to the poor communities who live in the forests?

These are among the issues addressed in *Moving Ahead with REDD: Issues, Options and Implications*. Published by CIFOR and edited by Angelsen, the book was launched at the 14th UN Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP 14) in December 2008. The fact that it was ready in time for the meeting was an achievement in itself. Commissioned by Norway's Forest Climate Secretariat, the 20 authors had just two months to complete the book. See http://www.cifor.cgiar.org/publications/pdf_files/Books/BAngelsen0801.pdf.

Fortunately, they were able to build on research from another project, Integrating REDD into the Global Climate Protection Regime, a collaborative analysis undertaken by CIFOR, the UK-based Overseas Development Institute (ODI) and Brazil's Instituto de Pesquisa Ambiental da Amazônia (IPAM). In June 2008, this project brought together 43 researchers, climate negotiators and policy makers in Tokyo. The aim was to ensure that the UNFCCC negotiating processes were informed by rigourous analyses of the implications of the various

'REDD has the potential to add to mitigation efforts involving reform of the energy sector, not least because it will be cheaper.'

Arild Angelsen
CIFOR associate scientist

Transaction in Guinea.
Photo by Terry Sunderland

proposals being put forward for REDD. The Tokyo meeting resulted in a series of CIFOR *Infobriefs,* and these formed the basis for four chapters in *Moving Ahead with REDD*. See http://www.cifor.cgiar.org/carbofor.

A major strength of the book is its refusal to oversell the virtues of REDD or to propose specific solutions. Each chapter focuses on a problem, presents the options on how to deal with it, and then assesses them using three criteria: effectiveness, efficiency and equity. Can the REDD mechanism bring significant emission reductions? Can these be achieved at an acceptable cost? And can the benefits and costs be fairly distributed among countries and within countries?

At COP 15, which will take place in Copenhagen in December 2009, negotiators are expected to make REDD a key part of the agreement to replace the Kyoto Protocol, which expires in 2012. There will still be much work to be done on the 'global architecture' of REDD, but Angelsen and his colleagues are optimistic about its prospects.

'I think REDD has the potential to add to mitigation efforts involving reform of the energy sector, not least because it will be cheaper,' says Angelsen. That's because the returns from converting forest to other uses such as agriculture are often relatively modest. Modest, that is, when compared to other alternatives for meeting carbon emission reduction targets.

The costs, nevertheless, will be considerable, and US $10–20 billion a year could be needed if emissions from deforestation and degradation are to be reduced by 50 per cent. According to Angelsen, many of the non-governmental organisations promoting REDD are sceptical about carbon markets, and would like to see the money raised by governments in the North.

'But looking at current levels of forest and environmental aid,' he says, 'one can only dream about governments raising US $10–20 billion a year for REDD.'

Angelsen suggests that REDD has the greatest chance of success if it is linked to carbon markets, and governments are able to meet their commitments to reduce emissions by buying carbon from countries which adopt REDD. If, for example, just 5 per cent of the projected carbon markets in the EU and the USA are made up of REDD credits, this could raise the amount needed to cut deforestation by 50 per cent.

Moving Ahead with REDD is already considered a key reference, and the UN Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD), a collaboration by the UN Environment Programme, the UN Development Programme and the Food and Agriculture Organization of the UN, has said that it hopes to use it as a textbook in its training courses.

'What we need now,' says Angelsen, 'is a lot more independent research and a detailed evaluation of projects designed to reduce emissions from deforestation.'

Angelsen says there have been few independent evaluations of forest conservation projects, and this is one reason why CIFOR hopes to conduct research on a series of REDD pilot projects. These would provide new insights into the potential benefits of REDD and the sorts of issues climate change negotiators and policy makers need to consider when designing the global architecture for REDD, as well as the mechanisms for implementing REDD at the national level.

01 Land clearing to make space for more farmland in Kuantan Sengingi District, Indonesia.
Photo by Ryan Woo

02 The results of forest fires in the vicinity of Majang Village, West Kalimantan, Indonesia.
Photo by Ryan Woo

03 Logging trucks take *Acacia crassicarpa* to pulp mills in Pelelawan District, Indonesia.
Photo by Ryan Woo

'If you're going to protect orang-utans, you need to protect their habitat.'

Daniel Murdiyarso
CIFOR scientist

Two for the price of one

REDD projects are primarily about keeping forest carbon where it is—in the forests—rather than in the atmosphere. But there could be other benefits too. REDD projects could help to put money into the hands of communities who look after forests. They could also play an important role in protecting biodiversity.

In 2008, CIFOR scientist Daniel Murdiyarso was asked by the United States Agency for International Development (USAID) for advice on how its projects in Indonesia could take climate change into account. One of these projects was the Orangutan Conservation Service Program, which protects the orang-utan. When designing the programme, USAID had not considered the potential impacts of climate change.

Murdiyarso visited Tanjung Puting National Park, in Central Kalimantan, interviewed national park staff and the local community, and assessed the threats posed to the resident population of 6000 orang-utans. Around 16 000 hectares to the north of the park had already been cleared for oil palm plantations, and there were plans for the development of a further 60 000 hectares to the south of the park. Between the proposed development and the park lies a strip of peat forest. This strip provides products valued by the local community, is rich in wildlife and could, if properly managed, provide a buffer zone to protect the park.

The Orangutan Foundation Indonesia, one of USAID's local partners, told Murdiyarso that it wanted the government to upgrade the status of this area in order to protect it.

'I thought that could take too long,' says Murdiyarso, 'and it would also pit central government against local government, which favours oil palm expansion.'

Instead, he has suggested that organisations with an interest in safeguarding the orang-utan should apply to manage the area under an Ecosystem Restoration Permit.

In the long term, Murdiyarso believes the area could take advantage of money made available for REDD projects.

'If you're going to protect orang-utans, you need to protect their habitat,' says Murdiyarso, 'and if you are protecting the habitat, or rehabilitating the habitat by planting trees, you will be helping to improve carbon stocks. So our advice to USAID and its partners was that they should explore the possibility of using REDD as a way of protecting wildlife.'

Baby orang-utan in the Tanjung Puting National Park in Kalimantan on the island of Borneo, Indonesia.
Photo by Keren Su

Tanjung Puting National Park.
Photo by Paula Bronstein/Getty Images

Forests for adaptation and adaptation for forests

When they talk about climate change and forests, people largely think in terms of mitigation. By planting trees we can mitigate climate change by mopping up some of the atmospheric carbon. And by curbing deforestation and forest degradation, we can reduce the emissions going into the atmosphere. We have paid much less attention to forests and adaptation: devising ways through forest management to help human communities and the natural world cope with climate change.

Although climate change poses a significant threat to tropical forests, it is often overlooked, not least because many countries are preoccupied with more obvious threats, such as illegal logging and agricultural expansion. A new study, launched by CIFOR at the 14th UN Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP 14) in December 2008, argues that we need to pay greater attention to the impact of climate change on forests and to future adaptation strategies.

'Most forest managers know relatively little about the impact of climate change, and even less about how they could adapt their forests to cope with change,' says Bruno Locatelli, CIFOR-CIRAD scientist.

But it is not just forest managers who are in the dark. Adaptation is a new arena for tropical forest scientists, and tropical forests are a new arena for adaptation specialists. *Facing an Uncertain Future* is an essential primer for both these groups. It shows how we can help forests to weather the storm of climate change—'adaptation for forests'; and how forest can help communities to cope better with climate change—'forests for adaptation'. See http://www.cifor.cgiar.org/publications/pdf_files/Books/BLocatelli0801.pdf.

Climate change is already affecting tropical forests in some parts the world. Most obviously, changes in temperature and rainfall are leading to a greater chance of fire.

'In these instances,' says Locatelli, 'forest managers could develop fire prevention plans to reduce risk.'

However, he concedes that this will generally be a costly, short-term strategy which is only likely to apply to forests that are considered of high value, either economically or for wildlife conservation.

'Most forest managers know relatively little about the impact of climate change, and even less about how they could adapt their forests to cope with change.'

Bruno Locatelli
CIFOR-CIRAD scientist

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Forest fruit collecting in Brazil's tropical forest. Photo by Flávio Contente 01

Transferring bags of charcoal from donkey carts to river boats in Mali. Photo by Daniel Tiveau 02

Stacking fuelwood in Mali. Photo by Daniel Tiveau 03

Climate change is causing shifts in bio-geographical zones, and this means that some species are likely to be threatened. The authors of *Facing an Uncertain Future* suggest that policy makers and forest managers design strategies to help species migrate to other areas. This might involve the creation of wildlife corridors between large blocks of forest.

Climate change is also likely to lead to the spread of invasive species, and measures to prevent this spread or remove them might need to be established.

A variety of silvicultural practices could also help forests adapt to climate change, according to another CIFOR study published in 2008. For example, forest managers could increase the diversity of species and thus increase the likelihood of establishing species that will survive climate change. See '*Mitigation needs adaptation: tropical forestry and climate change*'. http://www.springerlink.com/content/1x87u71312n8j368/.

Then there is the other side of the coin: forests for adaptation. According to the authors of *Facing an Uncertain Future*, forests have the potential to help human communities cope with climate change. They suggest that we adopt conservation and management policies that reduce human vulnerability by protecting the environmental services that forests deliver.

'This is a very new area of concern,' says Locatelli, 'and it requires not only a lot more research, but a shift in thinking among policy makers.'

At present, most national adaptation strategies concentrate on individual sectors, such as water, agriculture and industry, and tend to ignore the complex links among them. For example, forests play a vital role in regulating water supplies, but national adaptation strategies, where they exist, often fail to recognise these links. Yet, if forests and their surrounding landscapes are threatened, this will almost certainly have an adverse effect on water supplies, as one of the case studies in *Facing an Uncertain Future* illustrates.

Hydroelectric power production in Costa Rica is extremely vulnerable to climate change, and the authors of the case study found that the increase in the frequency of heavy rainfall had led to an increase in the rate of erosion, and thus an increase in siltation in the power generating dams. Current programmes involving payments for environmental services do not cover agriculture, and therefore fail

to have a significant impact on erosion. If water supplies are to be safeguarded against climate change, policy makers need to consider new incentive schemes to reduce erosion and siltation: forestry, agriculture and water supply must be considered together, rather than as separate sectors.

Although most of the efforts to tackle climate change have been directed towards mitigation, the need to develop policies for adaptation is now widely acknowledged, as is the need to establish new funding mechanisms. See 'Taxing times' below. *Facing an Uncertain Future* suggests that efforts to design national adaptation policies have been largely inadequate. A lack of information, uncertainties about the impact of climate change, the political preference to concentrate on policies that bring immediate short-term gains—all have hindered the development of adaptation policies. However, research by CIFOR scientists working on the Tropical Forests and Climate Change Adaptation (TroFCCA) project has identified possible pathways for mainstreaming adaptation into policy, and it is encouraging scientists, decision makers and donors to pay greater attention to the role forests could play in adapting to climate change. See 'Adapting to change in northern Mali' on page 12.

Taxing times

The UNFCCC secretariat estimates that the money needed for adaptation could exceed US $100 billion a year for several decades. The funds currently available under the Kyoto Protocol and a range of other measures come nowhere near meeting such a large bill. In order to raise more money, an Adaptation Fund was established in 2007. Markku Kanninen, who leads CIFOR's climate change research, is one of the alternate members on the Adaptation Fund's board. He believes the fund, which will take 2 per cent of all the revenues raised by the carbon trade under the Clean Development Mechanism, has the potential to make a significant impact.

'Most of the first year was taken up with designing the rules and regulations,' says Kanninen, 'but we are hoping that by the time we get to COP 15 in December 2009, the first tranche of projects will have been financed.'

'This is a good illustration of why it is so important to mainstream adaptation into national policy making.'

Maria Brockhaus
CIFOR scientist

The village of Teli in Mali.
Photo by Daniel Tiveau

A brush fire in Mali.
Photo by Christian Cossalter

Adapting to change in northern Mali

In northern Mali, droughts and famines have occurred throughout history, and the local people are used to hardship. This may explain why they have adapted with some success to the changing climate over recent years. However, the political and administrative systems in the country lag behind, and have yet to adapt their planning and development policies to climate change. This is one of the findings of a study conducted under the TroFCCA project. See http://www.cifor.cgiar.org/publications/pdf_files/Infobrief/019-infobrief.pdf.

The study looked at how local communities were adapting to climate change in two villages to the north of Lake Faguibine, near Timbuktu. At one time, the local economies flourished: fish were plentiful and local people cultivated wheat and barley on the rich soil surrounding the lake. But in the 1970s and 1980s, droughts became more frequent, and rainfall less plentiful. Now, over a quarter of the area that was formerly under water is covered by an indigenous tree, *Acacia,* and an introduced species, *Prosopis*. A development project established the latter in the 1980s to protect the lake shore from the effects of drought. *Prosopis* trees have spread across a wider area than *Acacia* trees have.

The researchers undertook fieldwork between July and October 2008. They began by conducting a 10-day biophysical survey, during which they explained to local people precisely what they hoped to achieve. The survey was followed by a series of workshops to establish how the villagers had adapted, or failed to adapt, to the changing climate and environment.

'At first,' says CIFOR scientist Maria Brockhaus, 'they were telling us what a nightmare the *Prosopis* forest was.'

Some complained that it was so dense they would lose their animals there—and possibly their lives. Others said that the species had taken over land once used for cultivation and fisheries. However, a dissenting view began to emerge. Some of the villagers pointed out that during the recent drought their animals had only been able to survive because of the fodder provided by *Prosopis*; others said that they had used the timber to make charcoal.

'Then they began to laugh and assess what they'd been saying,' says Brockhaus. 'They realised they were always complaining about the *Prosopis,* but they had actually identified more benefits than disadvantages. What's more, they had successfully adapted to the changing environment.'

The same could not be said for either local or central governments. Brockhaus and her colleague Houria Djoudi discovered that a planned development project, designed to cut new water channels around the fringes of Lake Faguibine, could have a profound influence on the environment, yet the plans at the time of research did not take into account the ways in which local people and the ecosystem had already adapted to climate change. There were no plans to manage the local resources sustainably, neither could the researchers identify any technical support from government bodies. In short, the adaptation efforts of the local population seemed to be entirely disconnected from higher-scale planning and decision making.

'This is a good illustration of why it is so important to mainstream adaptation into national policy making,' says Brockhaus.

Industry challenges conservationists to raise the bar

There are two ways forests are being enlisted in the struggle against global warming. One is preventing deforestation and forest degradation, which release carbon into the atmosphere. The other is planting trees to absorb or sequester carbon dioxide. Projects to manage forests in ways that mitigate climate change also have the potential to deliver significant benefits for communities and wildlife. CIFOR has been helping the Climate, Community and Biodiversity Alliance (CCBA) to devise standards to assess the quality of projects like these.

The CCBA emerged as a challenge from industry to conservationists.

'John Browne, then chief executive of British Petroleum (BP), wanted the company to support forest carbon projects, although he recognised that these had the potential to do both good and harm,' says CCBA director, Joanna Durbin.

Browne suggested to Conservation International and The Nature Conservancy that they should work together to develop standards to help investors and buyers of carbon identify high-quality forest projects that delivered multiple benefits. In 2003, the CCBA was formed as a partnership among five NGOs, six companies, including BP, and three centres involved in tropical forestry research, namely CIFOR, the World Agroforestry Centre (ICRAF) and the Centro Agronómico Tropical de Investigación y Enseñanza (CATIE).

The CCBA's first task was to devise standards for evaluating the impact of forest-based activities on the climate, local communities and biodiversity. An early draft was field tested in 2004, followed by public consultations, and the CCBA launched the first edition of the standards in May 2005.

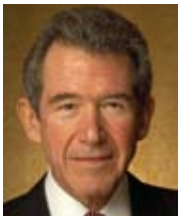
'With their expertise in all matters related to tropical forests and forest communities, the research organisations played an extremely important role in devising the standards,' says Durbin. See http://www.climate-standards.org.

By the end of 2008, six forest carbon projects had been approved by the CCBA. These ranged in size from a 750 000-hectare avoided deforestation project in Aceh, Indonesia, to a 12-hectare reforestation scheme in Lincolnshire, England. The estimated annual carbon sequestering potential is 3.4 million tonnes of CO_2 equivalent

'The research organisations played an extremely important role in devising the standards.'

Joanna Durbin
CCBA director

The Amaluza Hydroelectric Reservoir produces more than half of Ecuador's electricity, but suffers from silting problems. Photo by Sven Wunder



'The CCB Standards increase the value of projects by creating real benefits for the climate, local communities and overall environmental quality.'

John Browne
Former Chief Executive
British Petroleum

for the Aceh scheme and 172 tonnes for the Lincolnshire scheme. A further 21 projects were in the process of being evaluated by third-party auditors for CCBA approval at the end of 2008. Together they will cover 1.6 million hectares, with the potential to sequester almost 5 million tonnes of CO_2 a year. This is equivalent to the annual emissions of the average US coal-fired power station or 480 000 US households.

Within a relatively short period of time, says Durbin, the CCB Standards have been recognised as one of the best tools for measuring the quality of forest carbon projects, and have proved especially important in the design phase of many projects. By early 2009, over 170 project developers had contacted the Alliance to enquire about using its standards. These represent the majority of existing or planned forest carbon projects.

'The original project developers were largely NGOs,' says Durbin, 'but the private sector is now getting involved in the trade and we get organisations telling us, "'we've got a great project and we've found a buyer, but the buyer is insisting that we have CCB Standards"'.'

Many investors and buyers are attracted by the standards because they help them to demonstrate their green credentials. Project developers have found that they improve their access to markets, and they have enabled some to gain a premium for their carbon.

CIFOR scientists Daniel Murdiyarso, Louis Verchot (formerly of ICRAF) and Bruno Locatelli (formerly of CATIE–CIRAD, the Centre de coopération internationale en recherche agronomique pour le développement) contributed to the standards.

The first edition of the standards reflected the Kyoto Protocol's stipulation that forest carbon projects under the Clean Development Mechanism could involve reforestation and afforestation, but not avoided deforestation. The second edition

reflects the importance of projects that will reduce emissions from deforestation and forest degradation (REDD). The new standards were launched at Forest Day 2, a side event co-organised by CIFOR at the 14th UN Framework Convention on Climate Change Conference of the Parties.

Under the first set of standards, the CCBA awarded five projects with a gold rating. This was given to projects that targeted the poorest and most vulnerable communities, conserved biodiversity in sites of global significance, and provided significant support to help communities adapt to climate change. The second edition of CCB Standards introduced stricter criteria for gold rating.

The CCBA now plans to assist in the development of national standards in countries as far afield as Ecuador, Madagascar and Nepal, which have expressed an interest in piloting them. The standards could help governments to check the contribution carbon projects make to their sustainable development. National standards will be devised in partnership with civil society, groups representing indigenous peoples and local and international research agencies, including CIFOR, ICRAF and CATIE.

01 Local community meeting in Nepal. Photo by Adrian Albano

02 Village of Antanandava, Madagascar, in the Manompana corridor where CIFOR conducts research for the Landscape Mosaics project. Photo by Jean-Laurent Pfund

03 A degraded forest in Nepal. Photo by Leasehold Forestry Programme of Nepal

Improving livelihoods through **smallholder** and **community forestry**

Harvesting forests to reduce poverty

Some 240 million people live in or around the dry forests of Sub-Saharan Africa. Most depend on the forests for their livelihoods and survival, yet millions remain trapped in poverty. A major research project, funded by the Swedish International Development Cooperation Agency (Sida), is investigating how non-timber forest products (NTFPs) could make a greater contribution to their welfare. An independent review suggests that the project is on the way to achieving some of its key goals.

By awarding Daniel Tiveau, CIFOR's Regional Coordinator for West Africa, one of its highest civilian honours, the Burkina Faso government acknowledged the importance of his work in the country.

Wander into almost any local market in Africa and you will be struck by the variety of NTFPs on sale. You will see medicinal plants, resins like gum arabic, thatching grass, wild fruits, mushrooms, honey, firewood and possibly wild game. Millions of people are involved in collecting and selling products like these, but a range of factors hinders their successful commercialisation. These include poor management skills, lack of access to credit, the exploitation of harvesters by buyers, and poor market information. A 3-year research project managed by CIFOR, 'Achieving the Millennium Development Goals in African Dry Forests', is currently exploring how these problems can be overcome by focusing on selected NTFPs in Burkina Faso, Ethiopia and Zambia.

The goal of the project is to improve poor rural people's incomes by strengthening the incentives for sustainable forest management. It is doing this in three ways. First, by encouraging better forest management and better marketing practices for gum arabic in Burkina Faso, frankincense and other resins in Ethiopia, and honey and beeswax in Zambia. Second, by encouraging collective action to ensure that the benefits derived from these products are more evenly shared, with a strong focus on ensuring that women and poor people get a better deal. And third, by informing policy makers and influencing national policy.

In 2008, Sida commissioned an independent evaluation. At the time the project still had a year to run, and it was impossible for the reviewer to make a definitive judgment on its impact, not least because many of the written outputs were planned for the final year. However, the reviewer noted that farmers and others directly involved in the project were clearly benefitting. For example, in Burkina Faso the collective action encouraged by the project has helped to improve the income of gum arabic harvesters, especially women, in

Yagha Province. As a result, many people who had given up collecting gum because of the low prices have begun to do so again. They are now selling through a union, which ensures they secure higher prices. See 'Making the most of Burkina's gum harvest' on page 20.

The project combines research with development, with CIFOR responsible for coordination and research, and its local partners responsible for most of the development activities. According to the evaluation, the local development partners have 'successfully been mobilised to work on issues locally that they would otherwise not have worked on, or at least only at a low level'. See 'Sweetening the deal for Zambia's honey industry' on page 22.

Research conducted in all three countries has revealed that poor women are particularly dependent on NTFPs, which they use either for subsistence or to earn cash. However, they tend to earn much less than men, even though they often play an important, if invisible, role in the NTFP trade. For example, in Zambia, women are responsible for processing much of the honey, and in Ethiopia they sort and clean frankincense. The Sida review noted that the project had encouraged women to get more organised in the NTFP supply chain.

CIFOR has played an important role in developing a draft beekeeping policy for Zambia's Ministry of Tourism, Environment and Natural Resources, and this will eventually provide incentives for beekeepers and a framework which should encourage them to manage the forests more sustainably. In Burkina Faso, policy makers have expressed an interest in the collective action stimulated by CIFOR's gum arabic research, and CIFOR is contributing to the formulation of general policy related to NTFPs. In Ethiopia, the inclusion of several articles in the country's new Forest Policy can be attributed, at least in part, to information provided by CIFOR scientists.

During 2009, the data gathered in Burkina Faso, Ethiopia and Zambia will be used in a cross-country comparative study. The research will help to shed light on how NTFPs can improve the livelihoods of harvesters and others in the long chain from the forest floor to the retail market. It will also answer questions about the importance of collective action and decentralisation when it comes to managing forest resources. This should help to influence policy, both nationally and internationally.

01 02 Women producing shea butter in Ouagadougou, Burkina Faso. Photos by Henri-Noël Bouda

03 The fruit of the shea tree is important for several national economies in West Africa. Photo by Henri-Noël Bouda

Making the most of Burkina Faso's gum harvest

Africa's dry forests are rich in wild game, medicinal plants, resins and other non-timber forest products (NTFPs), which have the potential to reduce poverty. But how?

'With the arrival of this project, we women have learned how to organise ourselves in a group so that we gain greater profits from harvesting gum.'

Assatou Amadou
Dowendou Village

A CIFOR research project seeks to find out. The early results are encouraging. In Burkina Faso, the project has led to a significant increase in income for women who collect gum arabic, and policy makers are beginning to take note.

'In Burkina, gum arabic was identified as an NTFP with major commercial potential, and we decided to focus our activities on Yagha Province,' says Daniel Tiveau, CIFOR's task manager for a 3-year project, 'Achieving the Millennium Development Goals in African Dry Forests'. 'The villagers there were so poor, and so desperate to sell the gum, that they would sell it to the first person who came along, often for a very low price.'

Indeed, some had even given up harvesting altogether, even though the gum-bearing *Acacia senegal* is plentiful in the area.

'I'd stopped collecting gum,' says Assatou Hama, 'but with the arrival of the project, many of us have begun again.'

In Burkina Faso, the project has looked at how livelihoods can be improved through collective action. The villagers who harvest gum have been encouraged by the project to establish producer groups and to sell their gum through a union, rather than direct to buyers. During the first year of the project, 2007, the main activities conducted by CIFOR and its local partner, the Association des Volontaires pour le Développement au Sahel (VDS), involved capacity building, establishing the union and conducting literacy training.

'Women are the main gatherers and they were the ones who showed the greatest interest in the project,' says CIFOR researcher Mathurin Zida, 'but most were also illiterate, so VDS had to begin by teaching them to read, how to keep books and how to run an organisation.'

In the past, the task of harvesting gum arabic was often left to children, whom the buyers would frequently look for before they got home.

'They would buy the gum from the children at a price that was good for them, but not for us,' says Fadima Boubacar of Dowendou Village. Now, in contrast, the buyers who come to the

seven villages where the project operates have to deal with the Yagha Gum Producers Union, which buys the gum from the producer groups.

In the past, most buyers paid a maximum of 300 CFA a kilogram (60 US cents)—a pitiful amount when you consider that it can take a day to collect a kilogram. However, thanks to the new arrangements set up by the producer groups and the union, gatherers received around 500 CFA in 2008. The union initially paid them 300 CFA per kilogram, but later in the season, once the union had sold in bulk to the buyers for 500 CFA, it was able to pay the gatherers another 200 CFA per kilogram. In 2008, the union handled only 2 tonnes of gum, largely because low prices had deterred many from collecting gum in previous years. In 2009, the target is 12 tonnes, and many women have told Zida and his colleagues that they will start collecting as early as possible next harvest season.

The Forestry Service in Burkina Faso is currently developing a new strategy for the promotion of NTFPs, and CIFOR has a seat on the steering committee. Zida concedes that it is too early to say exactly what role the Burkina Faso government will play in the gum arabic trade in the future.

'But they are certainly taking an interest in our work,' he says, 'and we know from our discussions that policy makers are interested in the idea of promoting the sort of production and marketing model that we are helping to develop in Yagha Province.'

01 Sudan is the world's leading exporter of gum arabic, used in many industrial processes. Photo by Laura German

02 The tree *Acacia senegal* produces gum arabic. Photo by Daniel Tiveau

03 Gum arabic plantations in northern Burkina Faso. Photo by Daniel Tiveau

Sweetening the deal for Zambia's honey industry

For thousands of rural households in Zambia, honey is an important source of income. But a variety of factors, including lack of a coherent government policy, mean that the country is not tapping the full potential of honey and beeswax to reduce poverty. A CIFOR research project is shedding light on how it could.

'Being a farmer was profitable in the past, but it's difficult to make ends meet nowadays. Now we believe that beekeeping will offer us an alternative source of income.'

Douglas Kaliba
Chinyunya District

If you drive through Zambia's North-Western Province you will see how important honey production is for the farmers here. The trees around many villages are festooned with bark beehives, and the province exports around 700 tonnes of honey to Europe each year.

This is big business—and it could be bigger still. However, Zambia's beekeepers face a number of constraints. Among other things, there has been a notable lack of policies to guide farmers on how to use forest resources, manage their hives and handle honey and wax. The lack of national honey standards has also meant that the quality of honey is often poor, and farmers lack good market information and the skills needed to negotiate fair prices.

CIFOR scientists are currently conducting research on how to improve honey production as part of its 3-year project, 'Achieving the Millennium Development Goals in African Dry Forests'. Although the project still has a year to run, the initial results are promising. Working with the Forestry Department in North-Western, Central and Lusaka provinces, CIFOR has been measuring the efficiency of five types of hive.

'We want to establish what kind of hives are the most productive and encourage farmers to switch to them,' says CIFOR researcher Madeleen Husselman.

This has involved collaborative research with 15 beekeepers at three sites. In the study, each beekeeper works with four kinds of hive: three traditional bark hives, three traditional log hives, six wooden Kenyan top-bar hives, and three mud hives. After participating in training sessions provided by the Forestry Department, the beekeepers now record levels of production, the time spent collecting honey, the problems they encounter and more.

The project has created considerable enthusiasm among beekeepers.

'Initially, many farmers treated us as though we were a non-governmental organisation, and they'd ask for buckets and beehives and other things,' says

01 Zambian beekeepers examining one of the combs of a beehive.
Photo by Fiona Paumgarten

02 The proceeds from the honey trade are an important source of revenue for local populations.
Photo by Fiona Paumgarten

03 Zambian women selling locally produced honey at roadside stalls.
Photo by Fiona Paumgarten

Husselman. 'But now they realise this is a long-term research project, and they ask us to solve serious research questions.'

The district forestry officers who work with CIFOR researchers are optimistic about the project's potential to improve local livelihoods.

'At the end of the project, beekeepers will know the best hive that can be used,' says Paul Kabengele, Mwinilunga's district forestry officer, in his evaluation of the project. He anticipates that many beekeepers will shift from using traditional hives to more efficient modern hives. He also believes that they will develop a better understanding of how to manage the forests more sustainably.

Working on another level, CIFOR has helped the Ministry of Tourism, Environment and Natural Resources to develop a new beekeeping policy. Mercy Mwape, who was seconded to CIFOR from the Forestry Department, wrote the first draft of the policy.

'The support from CIFOR has been very important in terms of pushing me to do the research that was needed to formulate the new beekeeping policy,' says Mwape. The draft was approved by the Ministry in 2008 and sent out for review in consultations. The policy's purpose is to improve the marketing of honey, ensure that farmers are given better guidance, and lead to coordinated efforts to control pests and diseases. All of this should ultimately help to improve the livelihoods of tens of thousands of farming families.

'The support from CIFOR has been very important in terms of pushing me to do the research that was needed to formulate the new beekeeping policy.'

Mercy Mwape
Forestry Department

Shifting the balance of power

Local communities are often threatened by the activities of outsiders, and all too frequently their needs and opinions are ignored. This often leads to conflict. The 'Levelling the Playing Field' project has explored how local communities can compete on an equal footing with more powerful groups, such as plantation companies and government ministries. According to an independent evaluation, the project has successfully developed a system of mediation that can shift the balance of power in forested areas.

'Levelling the Playing Field has shown communities how to defend their heritage for the common good.'

Independent evaluation

The 4-year project, jointly managed by CIFOR and the Centre de coopération internationale en recherche agronomique pour le développement (CIRAD), helped to broker environmental agreements among local communities and more powerful players, such as government ministries and private companies, at six sites in Indonesia, Malaysia and the Philippines. In each country, a local university was involved in the research.

'Although the issues varied from site to site, the approach was always the same,' says project leader Philippe Guizol. 'It involved giving local people the skills and confidence needed to work together and negotiate partnerships with outside groups.'

Local people were encouraged to identify their priorities, develop small-scale projects to gain experience in acting collectively, and establish democratic organisations to represent their interests. They then entered negotiations with the companies or government departments managing local resources, such as plantations or mangrove forests, and the negotiations led to written agreements on how to manage the resources in future, and how to share the benefits.

The project significantly improved forest management and local incomes at several sites. Take, for example, the impact in four villages in Java where Perum Perhutani, a state-owned company that manages 600 000 hectares of teak plantations, has a major influence on local land use. In the past, the company had tried to work with local villages, but with little success, largely because the villagers had little or no bargaining power and were reluctant to make their voices heard.

The project encouraged farmers' organisations to negotiate a new deal with the company. This involved establishing new rules, defining the rights and duties of each partner, and

agreeing how to share the benefits from the teak plantations. Three of the four villages now receive 25 per cent of the timber revenues, whereas in the past they received nothing. In one village without teak forests, a different sort of partnership was established, involving the hotel group Accor Indonesia, along with the local farmers' group and the plantation company. Accor is now paying for the planting of trees on barren land, and when these are harvested, the profits will be divided three ways, between Accor, the farmers' group and Perhutani. Accor intends to use the profits to set up an education fund for scholarships and replanting. Good public relations for Accor? Yes, but it is a good deal for the villagers too.

The project developed an approach that could be used to create fairer relationships between local communities and developers in other areas. It has also provided some interesting insights into the dynamics of collaboration, says Guizol, and the importance of acting at the appropriate time.

'In Java, at the Perum Perhutani site, we arrived at just the right time,' he says. 'Both the local people and the company were fed up with conflicts over the plantations and the company was keen to engage constructively with local villagers. At times such as these, it's important to act swiftly, rather than delay, for example, to do more research.'

The independent evaluation concluded that the research at all six project sites sent out the same message: that sustainable forest management is only likely to be achieved with the participation of local communities. If there is conflict, it is much harder to manage forests and plantations well.

Guizol says the methodology developed by the Levelling the Playing Field project could prove particularly useful if, as anticipated, countries rich in forests host a wave of projects designed to tackle climate change by reducing emissions from deforestation and forest degradation (REDD).

'If REDD projects are going to succeed,' says Guizol, 'then it's vitally important that local communities are not marginalised and that projects don't create conflicts by threatening their livelihoods. One way of doing that is through environmental mediation of the sort we've developed with Levelling the Playing Field.'

Web links: http://www.cifor.cgiar.org/lpf/_ref/index.htm.

01 Old teak trees (*Tectona grandis*) ready for harvest in Perum Perhutani plantations in Cepu, Indonesia.
Photo by Christian Cossalter

02 Teak plantation in Bangsal, East Java, Indonesia.
Photo by Philippe Guizol

03 Measuring mangrove areas in the Hutan Bakau Pantai Timur reserve, Indonesia.
Photo by Petrus Gunarso

Managing trade-offs between **conservation** and **development** at the landscape scale

Co-management for co-benefits

The Republic of Guinea has large tropical forests, but their future is uncertain. An expanding population, widespread poverty, the limited capability of the central government to manage natural resources—all have contributed to forest loss in recent years. However, a project that encourages local communities to jointly manage the forests with government agencies is helping to turn the tide of destruction, and at the same time improve rural incomes.

'The LAMIL project has been one of the most integrated resource management initiatives the team visited, since it has succeeded in integrating biodiversity, governance and livelihood improvement.'

USAID evaluation report

In 2008, the forest management committee in Souti Yanfou harvested 2.5 hectares of teak from a small plantation. With the proceeds, it built a secondary school and a community well, and replanted 10 hectares of teak.

'This was entirely a result of the co-management activities established by our project,' says CIFOR scientist Michael Balinga. 'When people who weren't members of the local forest management committee saw the benefits, they began to say, "if this is what co-management means, we want to join too".'

Souti Yanfou is one of four sites in the Fouta Djallon Highlands to benefit from the Landscape Management for Improved Livelihoods (LAMIL) project managed by CIFOR and the World Agroforestry Centre (ICRAF). LAMIL built on an earlier series of resource management projects, also funded by the United States Agency for International Development (USAID), which helped to establish the concept of forestry co-management in Guinea. These projects were successful in one sense: they improved forest protection in some areas. However, there was limited buy-in from local communities, whose involvement in managing and protecting the forests was marginal.

The new project, which began in 2005, assisted existing community groups to reorganise, encouraged greater participation of women, and helped to establish the institutions and regulations required for the co-management of four 'classified forests'. These are forests which are managed for a range of purposes, including conservation, timber production, agroforestry and farming.

While CIFOR concentrated on promoting and researching co-management and market enterprise development for non-timber forest products (NTFPs) within the classified forests, ICRAF encouraged farmers in the buffer zones to adopt

01 CIFOR researcher Michael Balinga in discussion with the management committee of Sincery-Orsa Classified Forest, Guinea. Photo by Terry Sunderland

02 Co-management committee meeting of the LAMIL project in Guinea. Photo by Mamadou Aliou Barry

03 Involving communities in participatory mapping. Photo by Kamano Prospere

new agroforestry technologies and plant higher-yielding varieties of their staple crops, especially cassava and groundnut. If farmers within the buffer zones could increase their yields and diversify their sources of income, there would be less pressure on the forests.

By increasing agricultural productivity and improving access to markets, LAMIL has helped to raise incomes and generate enthusiasm for the principle of joint forest management. Farmers who have adopted new agroforestry technologies and planted high-yielding varieties have significantly increased their earnings.

'Some of these beneficiaries have more than tripled [their] annual revenue and they are also helping to increase vegetation cover,' says Louis Corronado, the deputy director of USAID's Guinea mission. The increase in income has enabled farmers to buy livestock, establish orchards and pay for the education of their children. See 'Jagger gets satisfaction' on page 31.

According to CIFOR scientist Terry Sunderland, the technical adviser to LAMIL, the project was greatly assisted by the strong support and involvement of the ministries responsible for resource management. Forest management committees in the four LAMIL sites have signed co-management contracts with the Ministry of Agriculture, and staff from the Forestry and Water Directorate collaborated with researchers on the production of a co-management guide. Indeed, co-management has now been recognised by the directorate as an effective way of managing forests.

'Implementation of an integrated approach to landscape management has provided incentives for subsequent involvement of rural communities in conservation activities.'

Mahmoud Camara
Former Minister of Agriculture, Livestock, Environment, Water and Forests

The forest management committees have the right to manage the forests in partnership with the local offices of the Forestry and Water Directorate, and the right to exclude outsiders. Members of the local management committees can collect NTFPs, such as wild fruit, medicinal plants and fuelwood. But those who are not members must pay for this privilege.

In several areas, forest management committees have banned hunting and local reports suggest the bans are helping to restore wildlife populations.

A follow up to the LAMIL project, focusing on the border between Guinea and Sierra Leone, began in 2008.

'It is a measure of the success of the first phase that USAID was prepared to provide further support to promote forestry co-management in another area,' says Sunderland.

The project, which is known as the LAMIL-transboundary activity (LAMIL-TBA), takes place in an area that has experienced rapid population growth, caused by a combination of the exodus of refugees from Sierra Leone during the civil war, declining soil fertility and widespread forest loss.

Balinga says he learned some important lessons from LAMIL, and these lessons have influenced the approach taken in the transboundary project area.

'We found that some of the local government officials fought against co-management during LAMIL,' he explains. 'They feared that they would lose their authority to manage the financial revenues coming from the forests.'

To avoid tension in the project sites along the border, LAMIL-TBA held a series of workshops for government officials to explain what co-management entailed.

The concept was enthusiastically embraced both by government officials and by local villagers, to an extent that surprised the scientists. After 13 years of involvement in co-management, the forest management committee in Nyalama had 180 members. In contrast, the forest management committee established in Soya by LAMIL-TBA attracted over 465 members within a year. Over an 11-year period prior to LAMIL, the forest management committee in Nyalama raised 6.3 million Guinean francs (about US $1250) from membership and other revenues, and the same again during 2 years of LAMIL. In less than a year, its counterpart in Soya raised over 4.5 million Guinean francs (US $900) from membership fees alone.

The LAMIL projects have combined research with development, and the findings in Guinea will help to inform a comparative study of co-management which will draw on CIFOR's work in Cameroon, Ethiopia and Zambia. The LAMIL-TBA study site has now become one of the research sites for the Landscape Mosaics project, also jointly managed by CIFOR and ICRAF.

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Jagger gets satisfaction

Aboubacar Bangoura, or Jagger as he is known in the village of Kindia, Guinea, used to make a modest living as a small-scale trader, and later as a disc jockey, but now he is a farmer of some distinction. He first learned how to manage a tree nursery in the late 1990s, having received training from a USAID-funded resource management project in Souti Yanfou classified forest. In 2001, Jagger sold 2133 citrus seedlings, earning enough to send his two eldest daughters to school. He continued to expand his nursery, learning new skills such as grafting, when the LAMIL project began in 2005. The following year, he earned almost US $300 from his seedlings. He was able to send his third daughter to school and buy some sheep and goats. Two years later he supplied over 7000 seedlings to a mining company, earning over US $1000. He bought a new motorbike, cultivated over 3 hectares of rice and planted 1 hectare of citrus trees. Jagger is one of hundreds of farmers who have benefited from the LAMIL project.

01 Women's farming cooperative sells locally produced garlic in Guinea.
Photo by Terry Sunderland

02 Women processing shea butter in Guinea.
Photo by Terry Sunderland

03 'Protecting our forests today is a warranty for our future,' reads this Nyalama forest co-management project signpost.
Photo by Kemoko Dioubate

Charting a course for collaboration

The places that are most celebrated for wildlife are frequently home to some of the poorest people on the planet. All too often, this leads to clashes between conservationists and local communities. Does this mean it's impossible for wildlife and people to flourish in the same place? Not necessarily. Recent experiences in Papua and elsewhere suggest they can —if conservation agencies work closely with local people. A research approach developed by CIFOR helps them to do that.

'Without MLA, it would have been much more difficult to reach the community conservation agreements.'

Neville Kemp
Conservation International

Mamberamo Basin covers some 8 million hectares in the Indonesian province of Papua. Over 95 per cent of the Basin is swathed with tropical forest, and recent surveys by Conservation International (CI) have identified hundreds of species new to science, including over 30 vertebrates. Despite the fact that only 12 000 people live there, Mamberamo's wildlife is threatened by logging, the trade in wildlife and proposals to develop dams and plantations. To counter these threats, CI hopes to create a biodiversity 'conservation corridor', a matrix of sustainable land uses that link existing protected areas and traditional reserves.

But conservationists can't do it on their own.

'CI recognised that if it was going to achieve its goals in Papua, it needed to get the support of local people,' says Manuel Boissière, an ethnobotanist seconded to CIFOR by the Centre de coopération internationale en recherche agronomique pour le développement (CIRAD). In 2004, CI invited CIFOR to work in two villages in Mamberamo. Here they introduced CI, local students and government staff to Multidisciplinary Landscape Assessment (MLA), a research methodology developed and refined by CIFOR in Indonesian Borneo.

MLA explores the links among livelihoods, biodiversity and culture, and helps to reveal what matters most to local people. The main objectives of the pilot phase in Papua were to identify the local areas that were important for wildlife and natural resources, and to identify local people's concerns and priorities. This was the first time that CI had investigated local attitudes to biodiversity, and the success of the pilot phase prompted CI to invite CIFOR to engage in follow-up activities in 2006. These included additional socioeconomic surveys in three villages and participatory mapping of traditional lands.

01 Settlement on the banks of the Mamberamo River, Papua, Indonesia.
Photo by Miriam Van Heist

02 Mapmaking in Papasena Village, Mamberamo, Papua.
Photo by Douglas Sheil

The mapping exercise enabled CI and the villagers to identify zones for conservation and zones for possible development.

'MLA helped us to find synergies between our goals of biodiversity conservation and the communities' goals,' says Neville Kemp, CI's former Mamberamo programme manager. This paved the way for CI and the villagers to establish community conservation agreements. These are being developed into village-based law that can be recognised by local government.

Traditionally, villagers in Mamberamo have viewed conservationists and other outsiders with a degree of suspicion. However, the MLA exercises enabled CI and the villagers to learn to trust one another.

'Without MLA, it would have been much more difficult to get the community conservation agreements, as we would have been working from our values, not theirs,' says Kemp. He believes that the MLA experience in Papua is one of the factors that led to significant changes within CI during the past year. CI's latest vision and mission statements talk in terms of protecting biodiversity and helping 'societies manage nature's assets for the equitable benefit of current and future generations'.

By early 2009, MLA had been used in eight villages in Papua, to develop plans for areas ranging in size from 70 000 to more than 300 000 hectares, and there are plans to use MLA in other areas too. For example, CI is about to begin using the methodology in southeast Papua to help mitigate negative impacts from a major new oil palm plantation development.

An independent evaluation of CIFOR's biodiversity research, conducted on behalf of the European Commission, found that CIFOR's collaboration with CI in Papua has led to changes in behaviour among both CI staff and local government officials.

According to the evaluation, 'The MLA work added value to an initiative that would otherwise have been lacking a livelihoods and development focus.' The evaluation suggested that the MLA activities in Mamberamo will probably contribute to better food security and the alleviation of rural poverty. See http://ec.europa.eu/europeaid/where/worldwide/food-security/documents/cifor_finalreport_en.pdf.

Although CIFOR is no longer involved in MLA research, the methodology's popularity suggests that this is one of the best ways of establishing collaborative partnerships among conservation agencies, local governments and local people. More than 20 projects have undertaken MLA activities. Most of the early projects were in Indonesia, but in recent years MLA has been used as far afield as India and Bolivia, Vietnam and Mozambique.

'There is a reasonable probability that the MLA work will contribute to the communities' food security and rural poverty alleviation.'

Independent evaluation for the European Commission

Tracking change to find a balance

It is easy to track change in a field of crops; to measure, for example, whether certain practices are leading to higher yields or fewer pests. It is far harder to evaluate the impact of large-scale conservation programmes on the environment and people's lives. However, an approach initiated by CIFOR and developed by the World Wide Fund for Nature (WWF) offers a promising new way of assessing changes in landscapes where conservation, farming and development jostle one another.

'We've found that [LOAM] is a good way of getting people to share their understanding of landscape processes. It gets them on to the same wavelength, even if they start with very different visions about how they would like the future to be.'

Jeff Sayer
Science advisor, IUCN

WWF was among the first organisations to launch integrated conservation and development projects (ICDPs), which have the dual aims of furthering conservation and improving local livelihoods. While some ICDPs have been successful, others have run into trouble, often because of poor design.

'CIFOR research has shown that when designing these projects conservation agencies have often failed to recognise that there are important trade-offs to be made between biodiversity conservation and livelihood improvement,' says Bruce Campbell, CIFOR researcher.

Together with Jeff Sayer, formerly Director General of CIFOR and now science advisor to the International Union for the Conservation of Nature (IUCN), Campbell began to look for a new way of investigating the impact of conservation projects and making the trade-offs more explicit. The result was the Landscape Outcomes Assessment Methodology (LOAM), first tested in three African countries in 2003 and 2004, and now widely used by WWF.

LOAM provides a framework for tracking change by working with local organisations and individuals, who identify a range of indicators that can be used to measure change. The indicators are grouped into five categories, based on capital assets. These are human assets, such as access to education and healthcare; social assets, such as village environmental committees; economic assets, such as household income and access to credit; physical assets, which might include the quality of housing and access to clean water; and conservation assets, covering everything from biodiversity to environmental services, from forest quality to the availability of non-timber forest products.

'This is not a traditional monitoring and evaluation exercise,' says Sayer, 'it is a learning process, both for WWF and for all those who attend the workshops. The idea is to encourage people to develop a

01 Travelling to Mbeli-Bai by canoe, the Republic of Congo. Photo by Terry Sunderland

02 LOAM workshop in the Central African Republic. Photo by Terry Sunderland

shared understanding of what goes on in a landscape, and choose indicators that will enable them to track the impact of conservation and development programmes over time. We've found that this is a good way of getting people on the same wavelength, even if they have very different visions about how they would like the future to be.'

At many of the sites where WWF has been working there have been several rounds of workshops and assessments.

'We try to check what's happened since our last visit and adapt conservation interventions to take account of the findings,' says Sayer.

In some areas, LOAM has led to changes in the activities and outlook of government departments and conservation agencies. Take for example, the Tri-National de la Sangha Conservation Area (TNS) on the borders of Cameroon, the Republic of Congo and the Central African Republic.

Here, conservation organisations like WWF have used LOAM to investigate the relationship between forest conservation and local livelihoods in a large area which includes national parks, production forests, farmland and mining operations. A series of workshops enabled conservation agencies, government departments, local organisations and local forest users to share their ideas on the optimal balance between conservation and development. They agreed on their preferred scenarios for the future and worked out how to track progress towards their goals.

Sayer says that the research led to a better understanding of landscape dynamics and stimulated a vigorous debate about trade-offs between conservation and development. Conservation organisations working in TNS are working more efficiently as a result of the LOAM process. The discussions found that corruption was a major obstacle, with some local officials creaming off funds that should have gone to conservation activities designed to generate income for local people. A set of governance indicators, established at the workshops, shone a spotlight on this corrupt behaviour and led to increased civil society pressure to reduce corruption.

WWF is using LOAM to explore the impact of development projects. For example, in 2008 WWF facilitated two workshops in the Uruguayan pampas, bringing together representatives of a plantation company, farmers, teachers, local officials, unemployed people and rural workers. The aim was to assess the possible impacts of a major plantation programme. The workshops revealed how different interest groups viewed the prospect of development, and what kind of landscape they wanted in the future. An evaluation by WWF suggests that when LOAM is used like this it can help to defuse potential conflict.

Web links: http://www.ifc.org/ifcext/sustainability.nsf/AttachmentsByTitle/ref_Biodiversity_BACP_Case+Study_LandscapeOutcomes/$FILE/LandscapeOutcomesAssessmentMethodology.pdf


RTP-0035

Managing the impacts of globalised **trade** and **investment** on forests and forest communities

Research delivers return on investment

An analysis of the impact of CIFOR's research on Indonesia's pulp and paper sector suggests that it has helped to save about 135 000 hectares of natural rainforest from destruction. It is impossible to put an exact figure on the economic benefits, but a plausible estimate suggests it could be US $133 million. That's six times more than CIFOR's annual research budget.

'The Raitzer study represents the most significant attempt to incorporate environmental values into an epIA [ex post impact assessment] yet seen in the CGIAR.'

CGIAR Science Council report

In the late 1990s, CIFOR researchers identified a major problem for Indonesia's natural forests: pulp and paper companies were expanding their processing capacity at a much faster rate than they were bringing plantations online. To meet their fibre needs they were felling larger and larger areas of virgin forest. Research revealed that the industry was benefiting from a range of subsidies, including access to wood from state land at virtually no cost, as well as the use of the reforestation fund to finance pulp mill development. Massive loans from national and international investors were fuelling the expansion of the industry, with lenders accepting the companies' exaggerated claims that they would soon be able to satisfy their needs with plantation wood.

CIFOR's research, led by policy scientist Chris Barr, provided civil society organisations with the data and analysis they needed to campaign for reforms of the pulp and paper industry. They put pressure on foreign pulp buyers, some of whom withdrew their orders. These developments encouraged the Ministry of Forestry to introduce a decree to increase the rate at which pulpwood plantations were established. As a result of these and other measures, companies such as Asia Pulp & Paper (APP) and Asia Pacific Resources International Ltd (APRIL) began to increase the areas they set aside for conservation and to accelerate their plantation programmes.

These are good outcomes. But to what extent can they be attributed to CIFOR's research? And what were the economic benefits that flowed from changes in behaviour and policy?

For one thing, shifts in policy often take place as a result of a range of different activities and influences, making it difficult to identify the precise contribution of research. For another, shifts in stated policy can mean many different things on the ground.

'It's not like crop genetic improvement research, whose impact is relatively easy to measure, as adoption can be physically tracked, relatively unambiguously attributed and consistently linked to benefits,' explains CIFOR impact assessment scientist David Raitzer. 'For example, a study of research on the genetic improvement of wheat showed that it delivered economic benefits of

US $3 billion a year, and could do so based on secondary data sources.'

Other impact assessments of crop research conducted by the Consultative Group on International Agricultural Research (CGIAR), for example on rice improvement and the control of cassava mealy bug, were also able to provide precise figures of their considerable economic benefits.

Contrast this with a CGIAR Science Council review of 24 impact assessments of policy-oriented research projects conducted prior to 2006. Only three of these provided estimates of their economic benefits, which amounted to just US $200 million, or 25 per cent of a conservative measure of the entire CGIAR investment in policy-oriented research up to 2004. This lack of clear quantitative evidence prompted the Science Council to commission seven further case studies, including one by Raitzer on CIFOR's research on the pulp and paper industry.

Raitzer decided to investigate three main impact pathways: increases in the area of forest land set aside for conservation by companies; increases in the use of fibre from plantations; and the extent to which companies did not expand their processing capacity as a result of CIFOR's research. He interviewed 31 informants in the industry, government and civil society, and they confirmed that Barr's research has had a considerable influence.

For example, APP and APRIL have set aside large areas of forest land for conservation. They have also rapidly increased the amount of land under plantations, partially as a response to a ministerial decree, and partially as a response to the demands of buyers and creditors influenced by advocacy. APRIL officials credited CIFOR and advocacy by non-governmental organisations (NGOs) with virtually all improvements in sustainability made since 2001; and the NGOs confirmed that Barr's research was essential to obtaining environmental commitments from APP and APRIL.

The campaigns and policy reforms that benefited from CIFOR's research helped to save large areas of pristine forest from destruction, either directly through conservation commitments, or indirectly through the substitution of plantation wood for natural forest wood and the reduction in demand for wood from natural forests. This has protected biodiversity and valuable watershed services, such as the provision of clean water for agriculture and human consumption. It has also ensured that large quantities of carbon that would have been released into the atmosphere, had the forests been felled, remain safely locked up. Indeed, the main economic benefits of CIFOR's pulp and paper research largely derive from the reduction in carbon emissions through averted forest loss.

Putting a figure on this, as Raitzer points out, is exceptionally tricky.

'It all depends on the assumptions you make,' he says. For this study he came up with three scenarios of assumptions for everything from the contribution of research, to the effects of commitments made and the values of non-market benefits. Using the most conservative, he estimates that the research has generated benefits of US $19 million a year, equivalent to CIFOR's entire annual budget. At the other extreme, using the most liberal assumption, the benefits could be in the order of US $583 million a year. Using his main assumption, the benefits come to US $133 million a year. As the total cost of the research conducted by Barr and his colleagues comes to US $500 000 at most, this is an exceptional return on investment, even if we use the most conservative assumption.

Prior to Raitzer's study, Chris Barr did not have a clear idea of the precise impact of his research, in terms of avoided natural forest clearance and the financial benefits associated with it.

'It has been a real eye-opener for me to see the impact quantified,' says Barr. 'I think that this is a clear affirmation of the value of organisations like CIFOR working on trade and investment issues.'

See http://www.cifor.cgiar.org/publications/pdf_files/Books/BRaitzer0801.pdf.


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01 The pulp mill factory of PT Riau Andalan Pulp and Paper in Riau.
Photos by Ryan Woo

02 Harvested wood of the *Acacia mangium* tree at the PT Riau Andalan Pulp and Paper concession area in Kampar District, Riau, Indonesia.
Photo by Ryan Woo

'Even if you take the most conservative assumptions, the research has led to savings of US $19 million, and that alone would justify one year of the current expenditure on CIFOR.'

David Raitzer
CIFOR impact assessment scientist

Tracking the proceeds of crime

Illegal logging costs governments some US $15 billion a year in lost assets, lost revenues and unpaid taxes. Tens of thousands of people are involved in felling and transporting illegal timber, but most of the profits end up in the hands of a few big players, who launder their ill-gotten gains through the banking system. Research by CIFOR financial analyst Bambang Setiono has raised awareness about the close links between money laundering and forest crime.

'Effective anti-money-laundering legislation and preventive measures provide strong tools to detect the profits and investigate and prosecute the persons behind illegal logging and prevent financial markets from abuse.'

Bambang Setiono
CIFOR scientist

It has been clear for many years that the forestry laws in Indonesia, though adequate on paper, have failed to have a significant impact on the hugely profitable trade in illegal timber. Setiono recognised that a new approach was needed. Illegal loggers, like drug traffickers, need to convert the profits they make into assets that have a veneer of respectability, such as real estate, stocks and shares, or oil palm plantations. Working closely with Yunus Husein, head of the Indonesian government's Reporting and Financial Transaction Analysis Centre (PPATK), Setiono proposed that banks should be required by law to inform the government of any suspicious transactions. In 2003, the government introduced a new law, classifying forestry and environmental crimes as 'predicate offences' for money laundering charges.

In 2004, Setiono and Husein managed to get illegal logging onto the agenda of the Asia/Pacific Group on Money Laundering (APG).

'Before this, the APG had focused its attention on traditional money laundering offences, such as drug dealing, currency smuggling and people trafficking,' says Setiono. 'But at an APG workshop in Brunei, we highlighted the significant role money laundering plays in illegal logging.'

Following the workshop, the APG asked PPATK to organise a special working group on illegal logging. The aim was to help member countries in the region to introduce and enforce anti-money laundering laws.

The latest APG Typologies Report, published in 2008, includes a section on anti-money laundering and illegal logging

01 An Indonesian police officer stands guard as others check containers loaded with illegal wood at Tanjung Priok port. Indonesian police had confiscated 62 containers.
Photo by Mast Irham/EPA/Corbis

for the first time. The message is clear: 'Effective money laundering legislation and preventive measures provide strong tools to detect the profits and investigate and prosecute the persons behind illegal logging and prevent financial markets from abuse', says the report.

Besides influencing the APG, Setiono's research has had a significant effect on other organisations. For example, the World Bank is now taking the issue more seriously and the Indonesian Working Group on Forest Finance is helping to raise awareness about the significance of Indonesia's money laundering law. The law has been used by the Indonesian police and PPATK to investigate several cases of illegal deforestation, and in 2008 it led to the conviction of one of Indonesia's leading timber barons.

Sustainably managing **tropical production forests**

Sustaining Cameroon's forests

There was a time when logging companies in Cameroon plundered the forest—all eyes on profit rather than the future. Forestry reforms introduced by the government over the past decade sought to change this, and companies must now draw up management plans for sustainable harvesting. However, CIFOR research has revealed flaws in a key law governing forest management. Painstaking data crunching has convinced the government that it is time to revise the law.

'CIFOR's publication is a reference tool that clarifies the challenges of some requirements of forest certification.'

Caroline Duhesme
Bureau Veritas Certification

In the late 1980s, a severe economic crisis, sparked by the collapse of commodity prices, meant that Cameroon was obliged to seek support from the World Bank and the International Monetary Fund. In return, the Government agreed to reform its forestry policies. The 1994 Forest Law introduced measures to increase state revenues from the timber industry, share the benefits of forestry activities with local communities, and encourage sustainable management. Since then, there has been much to celebrate. Some environmental groups routinely claim that 50 per cent of the timber harvest in Cameroon is illegal, but research by CIFOR scientists Paolo Cerutti and Luca Tacconi found that the scale of illegal logging has fallen dramatically in recent years. See http://www.cifor.cgiar.org/Publications/Detail.htm?&pid=2108. But that's not to say that the timber, even when legal, is being sustainably harvested.

Since 2003, Cerutti has been gathering a wide range of data related to the timber industry.

'After a while, I realised that it would make sense for me to combine my data with the data that the government was gathering and analyse them together,' he recalls.

Cerutti sifted through data on timber production, trade, forestry taxes, the redistribution of forestry taxes to local communities and much more. It wasn't long before he discovered there was a serious flaw in Decree 0222/A/MINEF, which was designed to encourage sustainable forest management, and he was able to quantify its impact on timber production.

Decree 0222 governs the preparation of management plans. Logging companies must select timber species to which

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03 Logging and sawmill activities in Cameroon. Photos by Marieke Sandker

precautionary harvesting techniques will be applied, and these must account for 75 per cent or more of the total volume in the inventory for each concession. However, there is a loophole in the law: the companies are not obliged to select the actual species they intend to harvest. CIFOR's research revealed that in 2006 almost a quarter of the total production in the concessions studied was made up of valuable species that were not listed for sustainable harvesting in the management plans. In the worst cases, for *Assamela* and *Moabi*, all the timber was harvested as if no management rules applied. See www.ecologyandsociety.org/vol13/iss2/art36.

CIFOR's analysis was shared with the Ministry of Forests and Wildlife (MINFOF), as well as with a broad range of development agencies and local non-governmental organisations. The director of forests of MINFOF invited CIFOR to present its findings to Ministry staff, and he highlighted the importance of CIFOR's research at meetings of the Cercle de Concertations des Partenaires du MINFOF. The Ministry put the drafting of a revised decree high on its 2008 and 2009 annual work plans, and established a working group to do this, in consultation with the logging companies, CIFOR and other interested parties.

Had he not established good working relations with people within MINFOF, Cerutti would never have had the chance to collect data and discuss his findings with Ministry staff as often as he did.

'In Cameroon,' he says. 'CIFOR has shown that we're here to conduct long-term research, and I think we are trusted

to provide an objective, non-partisan analysis of what's happening in the forestry industry.'

Besides providing a detailed critique of Decree 0222, CIFOR has also examined the way in which forestry taxes are distributed to local communities living in or adjacent to logging concessions. Companies holding logging concessions pay an average of 2500 CFA (US $5) per hectare per year in taxes. Half of this goes to central government, and the other half is allocated to rural councils and local communities. The idea is that councils and villages who receive an annual forestry fee (*Redevance Forestière Annuelle*, RFA) will use it to promote economic development and alleviate poverty.

In 2006, the World Resources Institute (WRI) invited CIFOR to analyse the distribution of the RFA in four selected councils. The results were released in 2008. The study found that despite the large sums involved, the revenues have done little to improve local livelihoods and public services. CIFOR and WRI put forward a series of recommendations designed to make the system more transparent, accountable and democratic, so that taxes benefit the people who are supposed to benefit, rather than the rural elite, as they frequently do at present.

According to Cerutti, it is too early to judge the impact of this study, or a similar study commissioned by the World Bank also involving CIFOR scientists. However, the distribution of the RFA is now firmly on the political agenda. Using CIFOR's analysis, the Cameroon branch of the Network for Environment and Sustainable Development (NESDA) has begun campaigning for reforms of the decree regulating the distribution of forestry taxes. NESDA has sensitised government officials and members of parliament to the problem, initiated a dialogue with local councils, development agencies and NGOs, and it is currently collaborating with other civil society organisations to develop a road map for the design of a forest revenue monitoring and tracking scheme.

'This is a good example of the landslide effect some pieces of research can have,' says Cerutti.

Besides influencing government policy, Cerutti believes it is also important to work with others involved in the logging industry. For instance, CIFOR maintains regular exchanges about its research with logging companies, as well as certifying bodies.

'CIFOR's publication provides all concerned parties, and notably logging companies, with a reference tool that clarifies the challenges of some requirements of forest certification', says Caroline Duhesme, the Africa Forestry-Wood Department Manager at Bureau Veritas Certification, a certifying body. In the meantime, CIFOR will continue to work closely with the government to help reform its forestry laws so that they encourage better management and a fairer distribution of tax revenues.

Logging for biodiversity

Industrial timber production can have disastrous effects on biodiversity. However, it doesn't need to be like that. When sensitively and sustainably managed, production forests can yield a profit for timber companies without destroying biodiversity. The International Tropical Timber Organization's (ITTO) new biodiversity guidelines show how it can be done. CIFOR scientists helped to formulate and shape the guidelines.

Scientists believe that up to 80 per cent of the world's terrestrial species are found in tropical forests, thus making them tremendously important for wildlife. Over four-fifths of these forests lie outside protected areas, and much is likely to be lost to agriculture over the coming decades. However, a significant proportion is devoted to the extraction of timber. By ensuring that these forests are harvested sustainably, and other conservation measures are put in place, timber companies can make a major contribution to biodiversity conservation.

ITTO's first set of biodiversity guidelines was published in 1993, but much has changed since then. The Convention on Biological Diversity has had a considerable influence on both international and national policy making. At the same time, the science of conservation biology has matured. People's rights are now more clearly acknowledged than they were in 1993, and forest certification, little more than a glimmer in the eye of conservationists in the early 1990s, has an increasing influence on the management of large areas of forest.

On the downside, forest loss has continued at an alarming rate, with the world continuing to lose an area of forest about the size of Greece each year. These developments, both good and bad, have made it all the more important that forest managers are provided with sound advice on how best to conserve biodiversity in production forests—hence the new guidelines. See http://www.itto.int/direct/topics/topics_pdf_download/topics_id=104257&no=5.

The revision process was managed by ITTO and the International Union for Conservation of Nature (IUCN). They enlisted the help of other organisations with expertise in forest biodiversity, one of these being CIFOR.

'The guidelines were greatly enriched by CIFOR's *Life after Logging* book and by the participation of Robert Nasi and

'Bad forest management may be one of the world's greatest threats to biodiversity, but good forest management can provide a major contribution to conserving this biodiversity.'

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Logging in Iwokrama, Guyana. Photo by Douglas Sheil 01

L'Hoest's Monkey (*Cercopithecus lhoesti*). Photo by Douglas Sheil 02

Nepenthes, a rare flower species in Indonesia. Photo by Widya Prajanthi 03

Doug Sheil in the expert panels,' says Jeff Sayer, science adviser to IUCN. 'CIFOR also facilitated much of the fieldwork to get feedback from forest managers on the feasibility of the draft guidelines.' See *Life after Logging*: http://www.cifor.cgiar.org/publications/pdf_files/books/BMeijaard0501E0.pdf.

After a technical panel of experts drafted the revised guidelines, the scientists field tested them in Brazil, Cameroon, Guyana and Indonesia. Sheil helped to review the tests in Guyana. Petrus Gunarso, who worked with CIFOR at the time, did the same for Indonesia. The tests established how realistic and practical the guidelines were and how much they would cost to implement. National workshops were held in each of the four countries and an expert panel, including CIFOR scientists, finalised the guidelines.

The revised guidelines, accepted by ITTO in late 2008, have three parts. The first part provides background information on important biodiversity concepts; the second part is a set of 11 principles and 46 guidelines for maximising biodiversity conservation in production forests; and the third part discusses how to implement the guidelines, based on the field experience in the four test countries.

The new guidelines stress the importance of forest managers acquiring the skills needed to make good decisions about when to take measures that favour biodiversity. They also emphasise the need for forest managers to work closely with conservation organisations.

'In the past, timber harvesting was blamed for a lot of forest destruction, but if we are to protect large areas of forest, logging must also be part of our solution,' says Sheil, who now works for the Wildlife Conservation Society in Uganda. 'I am encouraged by the fact that the number of companies who are willing to log sustainably and who are looking for guidance is increasing.'

The guidelines were launched at the Food and Agriculture Organization of the United Nations' (FAO) World Forest Week, in Rome, in March 2009. ITTO and IUCN are planning to hold a session on the biodiversity guidelines at the World Forestry Congress, in Argentina in October 2009, to promote them to forest managers.

See: http://www.itto.int/en/policypapers_guidelines/.

Reforming the bushmeat trade

Hunting for food threatens the survival of many tropical forest species. But blanket bans against hunting could make life worse, not better, both for wildlife and for millions of people who depend on bushmeat for their survival. Instead, local people should be given the rights and responsibility to hunt the more resilient species at sustainable levels. This is a key recommendation of *Conservation and use of wildlife-based resources: the bushmeat crisis*, published by the Convention on Biological Diversity (CBD). CIFOR scientists contributed to the research and writing of the report.

In many countries, bushmeat hunting is ignored by policy makers and seldom accounted for in economic statistics. However, its importance is undeniable. According to the CBD report, the bushmeat trade in West and Central Africa is worth between US $42 million and $205 million a year. Hunting provides up to 80 per cent of the protein intake of rural households in Central Africa, and wildlife and fish make up at least 20 per cent of the animal protein in rural diets in 62 countries. See http://www.cbd.int/doc/publications/cbd-ts-33-en.pdf.

Bushmeat hunting is especially important for poor rural people, who suffer most when hunted species decline or disappear. And that is precisely what is happening in many areas.

'If current levels of hunting persist in Central Africa, bushmeat supplies will fall dramatically, and a significant number of forest mammals will become extinct in less than 50 years,' says CIFOR scientist Robert Nasi, one of the co-authors of the report.

This, in turn, will lead to greater hardship and higher levels of malnutrition among forest dwellers who rely on bushmeat, either to sell or to eat. This is one of the reasons why the 191 parties to the CBD took the decision, at a meeting in May 2008, to address the bushmeat crisis as a priority issue in future deliberations.

A variety of factors—including the growing population in rural areas, an increase in demand for bushmeat in towns, the introduction of more efficient weaponry and a lack of recognised user rights—is contributing to unsustainable levels of hunting. The species most at threat are large mammals with low rates of population growth, such as

'We need a new approach with a strong focus on poverty alleviation and development, and better governance of wildlife resources.'

Tim Christophersen
CBD Secretariat

Bush pigs, duikers, and monkeys for sale at a stall in Makokou market, Gabon. Photo by Nathalie van Vliet 01

Skinned antelope for sale, Guinea. Photo by Terry Sunderland 02

Hunting in Pando, Bolivia. Photo by Kristen Evans 03


01

'If current levels of hunting persist in Central Africa, bushmeat supplies will fall dramatically, and a significant number of forest mammals will become extinct in less than 50 years.'

Robert Nasi
CIFOR scientist


02


03

gorillas, chimpanzees and elephants. Fast-breeding species that can survive in a range of habitats are generally more resilient to hunting. These include small antelopes and rodents such as the grasscutter, which are often seen for sale along African roadsides.

Many conservation agencies have suggested that the bushmeat crisis should be tackled by dietary reform on the one hand, and better law enforcement on the other. But both proposed solutions have serious drawbacks. According to Nasi, satisfying local demand for protein by replacing bushmeat hunting with livestock farming would be counterproductive.

'The current bushmeat harvest in West and Central Africa is around 1 million tonnes a year, equivalent to 4 million head of cattle,' he says. 'Where would you raise them? You'd have to clear huge areas of natural forest.'

The CBD report also suggests that blanket bans on hunting, when applied outside protected areas, seldom work.

'What we need is a new approach with a strong focus on poverty alleviation and development, and better governance of wildlife resources,' says Tim Christophersen of the CBD Secretariat. The report suggests that governments in range states—countries in which these

mammals live—need to acknowledge the important role bushmeat plays in their local economies. This will involve removing the stigma of illegality and including wild meat consumption in national statistics and planning. The report also makes a strong argument in favour of giving local people the right to manage wildlife populations and harvest species that are more resilient to hunting.

'If local people are guaranteed the benefits of sustainable land-use and hunting practices, they will be willing to invest in sound management and negotiate selective hunting regimes,' says Frances Seymour, CIFOR's Director General.

To some conservationists, this is a red rag to a bull. Richard Leakey, a famous African conservationist, declared on his blog that he was 'incredulous' that CIFOR was suggesting bushmeat hunting be legalised.

'This position shows remarkable naïveté and totally fails to understand the realities on the ground,' he wrote.

Leakey implied that if the report's recommendations were put into practice, they could lead to the hunting of rare animals like the Cross River gorilla. However, the CBD report explicitly states that only common, fast-breeding species should be hunted. See http://richardleakey.wildlifedirect.org/2008/09/19/legalizing-bushmeat-hunting-will-not-solve-the-food-crisis/; http://www.newscientist.com/article/mg19926744.100-should-we-legalise-hunting-of-endangered-species.html; http://magblog.audubon.org/node/149.

Christophersen believes that one of the strengths of the report comes from its diverse parentage.

'In many ways, it was a very tough process as we brought together scientists from organisations which had different approaches to the problem,' he says. In the past, environmental NGOs like the Wildlife Conservation Society had taken a traditional conservationist stance, with a strong focus on protecting wildlife and repressing the trade in bushmeat. The Overseas Development Institute, in contrast, had always argued that the bushmeat crisis was a governance and livelihoods crisis as well as a crisis for wildlife. The final report reached a consensus: traditional blanket bans on hunting seldom work; giving local people the right to manage wildlife is probably the best way forward.

'We are not saying that it's ever going to be easy to manage bushmeat hunting in countries where there are low levels of governance and high levels of poverty,' says Brown. 'It will be difficult, but it is the best way forward.'

At the very least, says Brown, the CBD report has helped to stimulate debate and provided a developing country perspective of the bushmeat crisis—something that most analyses have failed to do in the past.


BLOC NOTES

Sharing knowledge with policy makers and practitioners

Publish or perish?

Most of the people who decide how to use forests have little or no access to scientific research that could help them make better decisions. This has serious consequences both for forest-dwelling people and for conservation. Research by Patricia Shanley and Citlalli Lopez explored why so many scientists are bad at sharing their knowledge, and what could be done to improve communication with policy makers and local communities.

'About 30 years ago, health workers realised that basic knowledge which could reduce disease and preventable deaths wasn't getting through to the people who needed it.'

Patricia Shanley
CIFOR scientist

Out of the loop: why research rarely reaches policy makers and the public describes the findings of a survey of more than 300 scientists from 29 countries. Forty-three per cent said other scientists were the most important audience for their research, with just 15.2 per cent saying that policy makers were their most important audience. A mere 7.4 per cent considered women and marginalised people to be their most important audiences. Only 0.5 per cent considered private sector organisations, such as timber companies, as their most important audience.

Fifty-four per cent of scientists surveyed considered research papers to be the most important factor in their performance assessment, yet only 11.4 per cent considered peer-reviewed journals, where they published their papers, as effective tools for promoting conservation and development.

'Part of the problem stems from the fact that many scientists are reluctant to form partnerships with non academics and plain language communicators, as they see this as posing a risk to their academic careers,' says Shanley. 'What matters to them, and their institutions, is getting articles into peer-reviewed journals, which often reach a tiny audience.'

Even scientists who are keen to share their knowledge face serious obstacles. Many have little knowledge or expertise about how to disseminate their findings, and in any case they often lack the funds to do so. As a result, an enormous amount of scientific knowledge fails to reach organisations and individuals who could use it to manage the environment better and improve their own lives.

The contrast with the health sector is striking.

'About 30 years ago, health workers realised that basic knowledge which could reduce disease and preventable deaths wasn't getting through to the people who needed it,' says Shanley.

Patricia Shanley talks to landowner Mangueira about the value of forest fruits and medicinal plants in the Brazilian Amazon. For the past 12 years, Shanley has asked Mangueira to keep track of the benefits he has derived from his forest, from fruits to medicines. While others have sold their forests to the logging companies, Mangueira leaves his unlogged.
Photo by Joel Sartore

'Since then, the health sector has done a lot of research on knowledge transfer. Conservation biologists, on the other hand, haven't figured out how to do this properly yet.' It is time they did.

Shanley and Lopez acknowledge the importance of the peer-review system, which guarantees rigour in science.

'But this shouldn't preclude packaging research findings in a way that reaches policy makers, forest communities and others who could benefit from them,' says Shanley. She believes CIFOR has made some good progress in recent years, and many of its scientists have begun to use manuals, maps, posters, videos and other materials to get their message across to a wider audience.

Shanley and Lopez propose a number of measures to promote better transfer of knowledge. Research institutions could restructure their incentive systems to encourage scientists to disseminate their research findings more widely.

Scientists and students could design their projects to support the co-production of knowledge to meet the needs of end users. Donors could require projects to include the sharing of research results in an accessible format at research sites, and dissemination to reach civil society and policy makers.

But it won't be easy.

'Many scientists recognise this dilemma of publish or perish,' says Shanley. 'But given the disincentives, few are likely to buck the system and devote the energy and time needed to sharing their research findings in a way which has real impact beyond the scientific community.'

Found in translation

To influence policy and practice, research must be presented in ways that reach the people who really matter, whether they are decision makers, environmentalists or community leaders. CIFOR produces a wide range of materials, from peer-reviewed journal articles and books to policy briefs and manuals, tailored for different audiences. It also benefits from the outreach activities of other organisations such as the Regional Community Forestry Training Centre for Asia and the Pacific (RECOFTC).

'We are now turning our attention to climate change, and we see CIFOR as a primary source of objective information.'

Yurdi Yasmi
RECOFTC senior programme officer

'When I arrived at RECOFTC, I was astonished by how much CIFOR material we were using for our training,' says Yurdi Yasmi, who spent nine years at CIFOR before joining RECOFTC in 2007 as a senior programme officer.

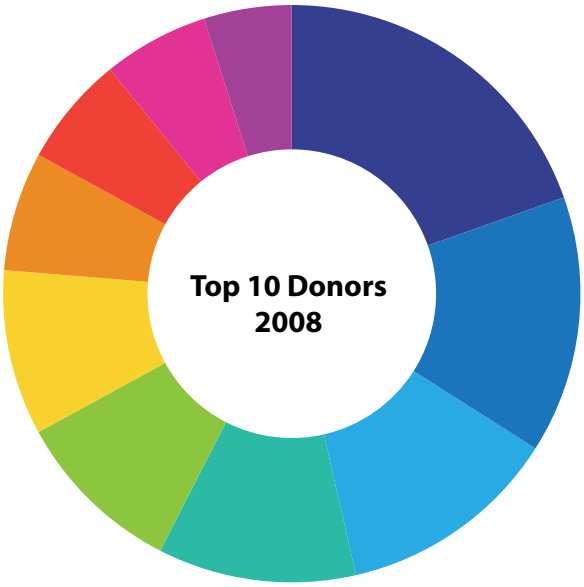
RECOFTC is an international non-governmental organisation (NGO) that specialises in capacity building for community forestry. It works with governments, research organisations, other NGOs, civil society, the private sector and local people to promote and improve community forestry across the Asia–Pacific region.

RECOFTC's recently established Regional and Country Analysis and Support Programme is responsible for analysing the key issues facing community forestry, both in the region and in individual countries. The emphasis is on demonstrating the lessons learned from previous experiences in community forestry and providing information to influence policy and practice. The programme also provides analysis and information for other units within RECOFTC.

'What we're trying to do is to bridge the gap between scientists who work for organisations like CIFOR and people on the ground,' says Yurdi. 'We do this by reshaping, repackaging and stripping out the jargon and academic terms—in other words, by making the research more readily accessible to the people who can use it in their own languages.'

Over a dozen CIFOR research projects have provided information which RECOFTC has used in one way or another. CIFOR's work on Criteria and Indicators (C&I) has been particularly useful, says Yurdi. The C&I toolbox, which helps forest users to analyse their progress towards better forest management, has been used and adapted in many training sessions related to community forestry. CIFOR's work on Adaptive Collaborative Management, which enables local people to take action together to solve their problems, has been widely used in RECOFTC training programmes. And RECOFTC has also made use of CIFOR research on non-timber forest products, conflict resolution, decentralisation and various other topics.

'We are now turning our attention to climate change,' says Yurdi, 'and we see CIFOR as a primary source of objective information.'



Donors and financial statements

Donors

SCHEDULE OF GRANT REVENUE

FOR THE YEARS ENDED 31 DECEMBER 2008 AND 2007 (in thousands of US dollars)

DONORS (UNRESTRICTED)	2008	2007
Australia	221	189
Binnacle Family Foundation	-	25
Canada	525	405
China	10	10
Finland	820	512
France	103	110
Germany	360	247
Indonesia	-	54
Israel	-	50
Japan	18	18
Netherlands	1,508	1,234
Norway	1,527	1,143
Philippines	-	9
Sweden	399	436
Switzerland	489	443
USA	1,000	1,000
United Kingdom	1,057	1,289
World Bank	1,280	1,150
SUB-TOTAL	9,317	8,324

DONORS (RESTRICTED)	2008	2007
African Forest Research Network (AFORNET)	-	13
African Wildlife Foundation (AWF)	(3)	-
Aristotle University of Thessaloniki	18	20
Association Intercooperation Madagascar (AIM)	(1)	3
Australian Agency for International Development (AusAID)	185	62
Australian Centre for International Agricultural Research (ACIAR)	169	244
Australian National University	36	-
Brazilian Agricultural Research Corporation (EMBRAPA)	12	7
Canada	104	(1)
Central African Regional Program for the Environment (CARPE)	(3)	-
French Agricultural Research Centre for International Development (CIRAD)	177	297
CGIAR Secretariat	31	24
Charles Stewart Mott Foundation	61	15
Chatham House	19	-
Christensen Family Foundation	26	-
Conservation International Foundation	-	18
Catholic Organisation for Relief and Development Aid (CORDAID)	95	93
Danish International Development Agency (DANIDA)	129	13
European Commission	2,875	2,688
Federal Office for the Environment (Switzerland - FOEN)	67	15
Finland	87	147
Food and Agriculture Organization of the United Nations (FAO)	664	152
Ford Foundation	429	395
France	-	343
German Agency for Technical Cooperation and German Federal Ministry for Economic Cooperation and Development (GTZ/BMZ)	509	288
Global Forest Watch (GFW)	(4)	-
Indonesia	4	-
INIA (Spain)	301	309
Innovative Resource Management (IRM)	14	10
National Institute of Natural Resources (Peru - INRENA)	-	(25)
International Centre for Research in Agroforestry (ICRAF)	5	14
International Development Research Centre (IDRC)	598	737

DONORS (RESTRICTED)	2008	2007
International Food Policy Research Institute (IFPRI)	5	35
International Fund for Agricultural Development (IFAD)	73	323
International Institute for Environment and Development (IIED)	36	48
International Institute of Tropical Agriculture (IITA)	3	6
International Tropical Timber Organization (ITTO)	11	5
Italy	15	44
Japan	224	270
Japan International Research Center for Agricultural Sciences (JIRCAS)	-	3
Korea	152	106
The John D. and Catherine T. MacArthur Foundation	152	95
National Central University	16	-
Netherlands	608	651
Netherlands Development Organisation (SNV)	1	-
Norway	296	115
Organisation Africaine du Bois (OAB)	3	-
Others	79	81
Overseas Development Institute (ODI)	54	40
Peruvian Secretariat for International Co-operation	-	28
PI Environmental Consulting	-	3
Rights and Resources Group (RRG)	11	-
Sweden	581	346
Sweden International Biodiversity Programme (SwedBio)	107	80
Swedish University of Agricultural Sciences	-	19
Swiss Agency for Environment, Forests and Landscape (SAEFL)	5	5
Switzerland	233	261
The David and Lucile Packard Foundation	387	100
The Overbrook Foundation	-	1
The Tinker Foundation Incorporated	70	33
Tropenbos International (TBI)	-	2
Tropical Forest Foundation (TFF)	101	70
United Kingdom - Department for International Development (DFID)	339	22
United Nations Educational, Scientific and Cultural Organization (UNESCO)	-	1
United Nations Environment Programme (UNEP)	182	167
United Nations Forum on Forests (UNFF)	-	28
United Nations Institute for Training and Research (UNITAR)	7	104
USA	360	310
United States Forest Service (USFS)	-	2
University of Freiburg	8	-
University of Wisconsin	11	-
Virginia Polytechnic Institute	-	13
Wageningen International	22	27
Wijma Douala S.A.R.L.	2	-
Wildlife Conservation Society (WCS)	-	10
Women Organizing for Change in Agriculture and NRM (WOCAN)	24	-
World Bank	350	410
International Union for Conservation of Nature (IUCN)	118	40
WorldFish Center	-	5
World Resources Institute (WRI)	-	31
World Wide Fund for Nature (WWF)	5	33
SUB-TOTAL	11,255	9,854
TOTAL	**20,572**	**18,178**

Financial statements

FINANCIAL POSITION

31 DECEMBER 2008 AND 2007 (in thousands of US dollars)

ASSETS	2008	2007
CURRENT ASSETS		
Cash and cash equivalents	6,704	10,353
Short-term time deposits	8,250	3,704
Accounts receivable		
Donors, net	2,512	3,116
Employees	274	170
Others	881	910
Prepaid expenses	522	253
TOTAL CURRENT ASSETS	19,143	18,506
NON-CURRENT ASSETS		
Property, plant and equipment, net	1,897	1,798
Other assets	1,035	1,030
TOTAL NON-CURRENT ASSETS	2,932	2,828
TOTAL ASSETS	**22,075**	**21,334**
LIABILITIES AND NET ASSETS		
CURRENT LIABILITIES		
Accounts payable		
Donors	6,085	7,160
Others	77	34
Accrued expenses	1,577	1,359
TOTAL CURRENT LIABILITIES	7,739	8,553
NON-CURRENT LIABILITIES		
Employee benefits obligation	3,007	2,714
NET ASSETS		
Unrestricted		
Undesignated	8,326	7,064
Designated	3,003	3,003
TOTAL NET ASSETS	11,329	10,067
TOTAL LIABILITIES AND NET ASSETS	**22,075**	**21,334**

ACTIVITIES

YEARS ENDED 31 DECEMBER 2008 AND 2007 (in thousands of US dollars)

	2008			2007
	UNRESTRICTED	RESTRICTED	TOTAL	TOTAL
REVENUES				
Grants	9,317	11,255	20,572	18,178
Other revenues	596	-	596	606
Total revenues	9,913	11,255	21,168	18,784
EXPENSES				
Programme-related expenses	6,325	11,255	17,580	14,893
Management and general expenses	3,382	-	3,382	2,875
	9,707	11,255	20,962	17,768
Indirect expense recovery	(1,056)	-	(1,056)	(890)
Total expenses	8,651	11,255	19,906	16,878
CHANGES IN NET ASSETS	**1,262**	**-**	**1,262**	**1,906**

CHANGES IN NET ASSETS

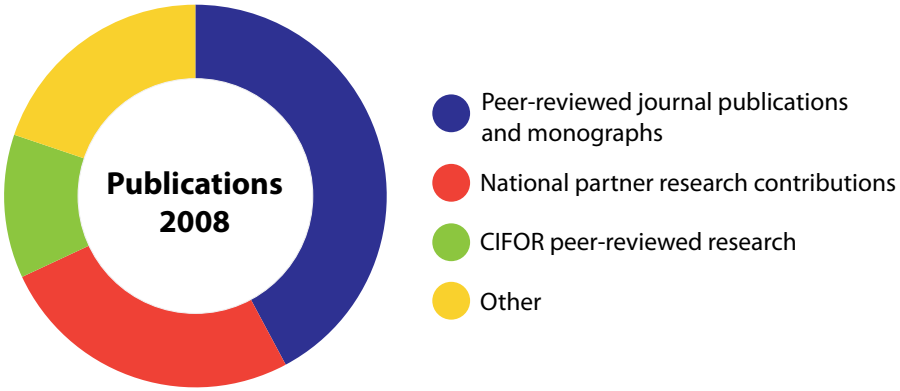
YEARS ENDED 31 DECEMBER 2008 AND 2007 (in thousands of US dollars)

	UNDESIGNATED	DESIGNATED		TOTAL
		Invested in property, plant and equipment	Reserve for replacement of property, plant and equipment	
Balance as at 31 December 2006	5,158	1,556	1,447	8,161
Depreciation for the year ended 31 December 2007	-	(314)	314	-
Additions of property, plant and equipment during the year ended 31 December 2007	-	581	(581)	-
Net book value of disposals of property, plant and equipment during the year ended 31 December 2007	-	(25)	25	-
Changes in net assets for the year ended 31 December 2007	1,906	-	-	1,906
Balance as at 31 December 2007	7,064	1,798	1,205	10,067
Depreciation for the year ended 31 December 2008	-	(343)	343	-
Additions of property, plant and equipment during the year ended 31 December 2008	-	444	(444)	-
Net book value of disposals of property, plant and equipment during the year ended 31 December 2008	-	(2)	2	-
Changes in net assets for the year ended 31 December 2008	1,262	-	-	1,262
Balance as at 31 December 2008	**8,326**	**1,897**	**1,106**	**11,329**

CASH FLOWS

YEARS ENDED 31 DECEMBER 2008 AND 2007 (in thousands of US dollars)

	2008	2007
CASH FLOWS FROM OPERATING ACTIVITIES		
Changes in net assets	1,262	1,906
Adjustments to reconcile changes in net assets to net cash provided by operating activities:		
Depreciation	343	314
Gain on the disposal of property, plant and equipment	(56)	(111)
Allowance for doubtful accounts	67	11
Changes in:		
Accounts receivable		
Donors	537	(445)
Employees	(104)	10
Others	29	(62)
Prepaid expenses	(269)	92
Other assets	(5)	13
Accounts payable		
Donors	(1,075)	3,423
Others	43	(18)
Accrued expenses	218	462
Employee benefits obligation	293	(264)
NET CASH PROVIDED BY OPERATING ACTIVITIES	1,283	5,331
CASH FLOWS FROM INVESTING ACTIVITIES		
Acquisition of property, plant and equipment	(444)	(581)
Proceeds from the disposal of property, plant and equipment	58	136
Placement of short-term time deposits	(4,546)	(579)
NET CASH USED IN INVESTING ACTIVITIES	(4,932)	(1,024)
NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(3,649)	4,307
CASH AND CASH EQUIVALENTS, BEGINNING OF THE YEAR	10,353	6,046
CASH AND CASH EQUIVALENTS, END OF THE YEAR	**6,704**	**10,353**



Publications

Peer-reviewed journal publications and monographs

*ISI Thomson**

Angelsen, A. 2008 REDD models and baselines. *International Forestry Review* 10(3): 465-475 doi:10.1505/ifor.10.3.465.

Asquith, N.M., Vargas, M.T. and Wunder, S. 2008 Selling two environmental services: In-kind payments for bird habitat and watershed protection in Los Negros, Bolivia. *Ecological Economics* 65(4): 675-684.

Ayres, E., Nkem, J., Wall, D.H., Adams, B.J., Barrett, J.E., Broos, E.J., Parson, A.N., Powers, L.E., Simmons, B.L. and Virginia, R.A. 2008 Effects of human trampling on populations of soil fauna in the McMurdo Dry Valleys, Antarctica. *Conservation Biology* 22(6): 1544-1551 doi: 10.1111/j.1523-1739.2008.01034.x.

Borner, J. and Wunder, S. 2008 Paying for avoided deforestation in the Brazilian Amazon: From cost assessment to scheme design. *International Forestry Review* 10(3): 496-511.

Bray, D.B., Duran, E., Ramos, V.H., Mas, J.F., Velazquez, A., McNab, R.B., Barry, D. and Radachowsky, J. 2008 Tropical deforestation, community forests and protected areas in the Maya Forest. *Ecology and Society* 13(2): 56 [online] URL: http://www.ecologyandsociety.org/vol13/iss2/art56/.

Cerutti, P.O., Nasi, R. and Tacconi, L. 2008 Sustainable forest management in Cameroon needs more than approved forest management plans. *Ecology and Society* 13(2): 36 URL: http://www.ecologyandsociety.org/vol13/iss2/art36/.

Cerutti, P.O. and Tacconi, L. 2008 Forests, illegality, and livelihoods: The case of Cameroon. *Society and Natural Resources* 21(9): 845-853 doi: 10.1080/08941920801922042.

Dennis, R.A., Meijaard, E., Nasi, R. and Gustafsson, L. 2008 Biodiversity conservation in Southeast Asian timber concessions: A critical evaluation of policy mechanisms and guidelines. *Ecology and Society* 13(1): 25 [online] URL: http://www.ecologyandsociety.org/vol13/iss1/art25/.

Dudley, R.G., Sheil, D. and Colfer, C.J.P. 2008 Simulating oil palm expansion requires credible approaches that address real issues. *Ecology and Society* 13(1): r1. [online] URL: http://www.ecologyandsociety.org/vol13/iss1/resp1/.

Engel, S., Pagiola, S. and Wunder, S. 2008 Designing payments for environmental services in theory and practice: An overview of the issues. *Ecological Economics* 65: 663-674 doi:10.1016/j.ecolecon.2008.03.011.

Frost, P. and Bond, I. 2008 The CAMPFIRE programme in Zimbabwe: Payments for wildlife services. *Ecological Economics* 65(4): 776-787.

Gambiza, J., Campbell, B.M., Moe, S.R. and Mapaure, I. 2008 Season of grazing and stocking rate interactively affect fuel loads in a Baikiaea plurijuga Harms woodland in northwestern Zimbabwe. *African Journal of Ecology* 46: 637-645 doi: 10.1111/j.1365-2028.2008.00951.x.

Garcia, C.A. and Lescuyer, G. 2008 Monitoring, indicators and community-based forest management in the tropics: Pretexts or red herrings? *Biodiversity and Conservation* 17(6): 1303-1317 doi: 10.1007/s10531-008-9347-y.

Garcia-Fernandez, C., Ruiz Perez, M. and Wunder, S. 2008 Is multiple-use forest management widely implementable in the tropics? *Forest Ecology and Management* 256: 1468-1476 doi:10.1016/j.foreco.2008.04.029.

German, L., Ayele, S. and Admassu, Z. 2008 Managing linkages between communal rangelands and private cropland in the highlands of eastern Africa: Contributions to participatory integrated watershed management. *Society and Natural Resources* 21(2): 134-151.

Guariguata, M.R., Cronkleton, P., Shanley, P. and Taylor, P.L. 2008 The compatibility of timber and non-timber forest product extraction and management. *Forest Ecology and Management* 256: 1477-1481 doi:10.1016/j.foreco.2008.03.038.

Idinoba, M., Idinoba, P.A., Gbadegesin, A. and Jagtap, S.S. 2008 Growth and evapotranspiration of groundnut (*Arachis hypogaea*) in a transitional humid zone of Nigeria. *African Journal of Agricultural Research* 3(5): 384-388.

Jagger, P. and Luckert, M. 2008 Investments and returns from cooperative and household managed woodlots in Zimbabwe: Implications for rural afforestation policy. *Land Use Policy* 25(1): 139-152 doi:10.1016/j.landusepol.2007.02.006.

Karsenty, A. 2008 The architecture of proposed REDD schemes after Bali: Facing critical choices. *International Forestry Review* 10(3): 443-457.

Karsenty, A., Drigo, I.G., Piketty, M.G. and Singer, B. 2008 Regulating industrial forest concessions in Central Africa and South America. *Forest Ecology and Management* 256: 1498-1508 doi:10.1016/j.foreco.2008.07.001.

* ISI Thomson is an information service that ranks peer-reviewed journals. The top-ranked journals are assessed annually based on how often their articles are cited, and the prestige of the journal of the citing article.

Kindermann, G., Obersteiner, M., Sohngen, B., Sathaye, J., Andrasko, K., Rametsteiner, E., Schlamadinger, B., Wunder, S. and Beach, R. 2008 Global cost estimates of reducing carbon emissions through avoided deforestation. *Proceedings of the National Academy of Science* 105(30): 10302-10307 doi:/10.1073/pnas.0710616105.

Knight, A.T., Cowling, R.M., Rouget, M., Balmford, A., Lombard, A.T. and Campbell, B.M. 2008 Knowing but not doing: Selecting priority conservation areas and the research-implementation gap. *Conservation Biology* 22(3): 610-617 doi: 10.1111/j.1523-1739.2008.00914.x.

Kusters, K., Ruiz Perez, M., De Foresta, H., Dietz, T., Ros-Tonen, M.A.F., Belcher, B., Manalu, P., Nawir, A.A. and Wollenberg, E. 2008 Will agroforests vanish? The case of *damar* agroforests in Indonesia. *Human Ecology* 36(3): 357-370.

Larson, A.M. and Soto, F. 2008 Decentralization of natural resource governance regimes. *Annual Review of Environment and Resources* 33: 213-239 doi: 10.1146/annurev.environ.33.020607.095522 URL: http://arjournals.annualreviews.org/eprint/bf7DFREBcp8iKdBvYz5D/full/10.1146/annurev.environ.33.020607.095522?cookieSet=1.

Laumonier, Y., Bourgeois, R. and Pfund, J.-L. 2008 Accounting for the ecological dimension in participatory research and development: Lessons learned from Indonesia and Madagascar. *Ecology and Society* 13(1): 15. [online] URL: http://www.ecologyandsociety.org/vol13/iss1/art15/.

Locatelli, B., Rojas, V. and Salinas, Z. 2008 Impacts of payments for environmental services on local development in northern Costa Rica: A fuzzy multi-criteria analysis. *Forest Policy and Economics* 10(5): 275-285.

Malleson, R., Asaha, S., Sunderland, T.C.H., Burnham, P., Egot, M., Obeng-Okrah, K., Ukpe, I. and Miles, W. 2008 A methodology for assessing rural livelihood strategies in West/Central Africa: Lessons from the field. *Ecological and Environmental Anthropology* 4(1): 1-12 [online] URL: http://eea.anthro.uga.edu/index.php/eea/article/view/57/52.

Meijaard, E. and Sheil, D. 2008 Cuddly animals don't persuade poor people to back conservation. *Nature* 454: 159 doi:10.1038/454159b.

Meijaard, E. and Sheil, D. 2008 The persistence and conservation of Borneo's mammals in lowland rain forests managed for timber: Observations, overviews and opportunities. *Ecological Research* 23: 21-34.

Meijaard, E., Sheil, D., Marshall, A.J. and Nasi, R. 2008 Phylogenetic age is positively correlated with sensitivity to timber harvest in Bornean mammals. *Biotropica* 40(1): 76-85.

Mertens, B., Liu Hua, Belcher, B., Ruiz Perez, M., Fu Maoyi and Yang Xiaosheng. 2008 Spatial patterns and processes of bamboo expansion in southern China. *Applied Geography* 28: 16-31.

Mertz, O., Wadley, R.L., Nielsen, U., Bruun, T.B., Colfer, C.J.P., de Neergaard, A., Jepsen, M.R., Martinussen, T., Qiang Zhao, Noweg, G.T. and Magid, J. 2008 A fresh look at shifting cultivation: Fallow length an uncertain indicator of productivity. *Agricultural Systems* 96: 75-84.

Murdiyarso, D., van Noordwijk, M., Puntodewo, A., Widayati, A. and Lusiana, B. 2008 District-scale prioritization for A/R CDM project activities in Indonesia in line with sustainable development objectives. *Agriculture, Ecosystems and Environment* 126(1+2): 59-66.

Mutegi, J.K., Mugendi, D.N., Verchot, L.V. and Kung'u, J.B. 2008 Combining napier grass with leguminous shrubs in contour hedgerows controls soil erosion without competing with crops. *Agroforestry Systems* (74): 37-49. doi 10.1007/s10457-008-9152-3.

Nasi, R., Koponen, P., Poulsen, J.G., Buitenzorgy, M. and Rusmantoro, W. 2008 Impact of landscape and corridor design on primates in a large-scale industrial tropical plantation landscape. *Biodiversity and Conservation* 17: 1105-1126.

Pham, T.T., Hoang, M.H. and Campbell, B.M. 2008 Pro-poor payments for environmental services: Challenges for the government and administrative agencies in Vietnam. *Public Administration and Development* 28(5): 363-373 doi:10.1002/pad.513.

Poorter, L., Hawthorne, W., Bongers, F. and Sheil, D. 2008 Maximum size distributions in tropical forest communities: Relationships with rainfall and disturbance. *Journal of Ecology* [early online] doi: 10.1111/j.1365-2745.2008.01366.x.

Putz, F.E., Zuidema, P.A., Pinard, M.A., Boot, R.G.A., Sayer, J.A., Sheil, D., Sist, P. and Vanclay, J.K. 2008 Improved tropical forest management for carbon retention. *Plos Biology* 6(7): e166 doi:10.1371/journal.pbio.0060166.

Raitzer, D.A. and Kelley, T.G. 2008 Assessing the contribution of impact assessment to donor decisions for international agricultural research. *Research Evaluation* 3(17): 187-199.

Raitzer, D.A. and Kelley, T.G. 2008 Benefit-cost meta-analysis of investment in the international agricultural research centers of the CGIAR. *Agricultural Systems* 1-3(96): 108-123.

Sandker, M., Campbell, B.M. and Suwarno, A. 2008 What are participatory scoping models? *Ecology and Society* 13(1): r2. [online] URL: http://www.ecologyandsociety.org/vol13/iss1/resp2/.

Savadogo, P., Tiveau, D., Sawadogo, L. and Tigabu, M. 2008 Herbaceous species responses to long-term effects of prescribed fire, grazing and selective tree cutting in the savanna-woodlands of west Africa. *Perspectives in Plant Ecology, Evolution and Systematics* 10(3): 179-195.

Shackleton, S., Campbell, B.M., Lotz-Sisitka, H. and Shackleton, C. 2008 Links between the local trade in natural products, livelihoods and poverty alleviation in a semi-arid region of South Africa. *World Development* 36(3): 505-526 doi:10.1016/j.physletb.2003.10.071.

Sheil, D., Wunder, S., Bongers, F., Dudley, R.G. and Jansen, P. 2008 Hope for Bohemian ecologists - comments on 'A possible role of social activity to explain differences in publication output among ecologists?' by Tomaš Grim, Oikos 2008. *Web Ecology* 8: 103-105.

Slik, J.W.F., Bernard, C.S., Breman, F.C., Van Beek, M., Salim, A. and Sheil, D. 2008 Wood density as a conservation tool: Quantification of disturbance and identification of conservation-priority areas in tropical forests. *Conservation Biology* 22(5): 1299-1308 doi: 10.1111/j.1523-1739.2008.00986.x.

Smith, P., Nabuurs, G.-J., Janssens, I.A., Reis, S., Marland, G., Soussana, J.-F., Christensen, T.R., Heath, L., Apps, M., Alexeyev, V., Jingyun Fang, Gattuso, J.-P., Guerschman, J.P., Yao Huang, Jobbagy, E., Murdiyarso, D., Jian Ni, Nobre, A., Changhui Peng, Walcroft, A., Shao Qiang Wang, Pan, Y. and Guang Sheng Zhou. 2008 Sectoral approaches to improve regional carbon budgets. *Climatic Change* [early online]: doi 10.1007/s10584-007-9378-5.

Sunderland, T.C.H., Ehringhaus, C. and Campbell, B.M. 2008 Conservation and development in tropical forest landscapes: A time to face the trade-offs? *Environmental Conservation* 34(4): 276-279.

Sunderlin, W.D., Dewi, S., Puntodewo, A., Muller, D., Angelsen, A. and Epprecht, M. 2008 Why forests are important for global poverty alleviation: A spatial explanation. *Ecology and Society* 13(2): 24 URL: http://www.ecologyandsociety.org/vol13/iss2/art24/.

Trabucco, A., Zomer, R.J., Bossio, D.A., Van Straaten, O. and Verchot, L.V. 2008 Climate change mitigation through afforestation/reforestation: A global analysis of hydrologic impacts. *Agriculture, Ecosystems and Environment* 126: 81-97 doi:10.1016/j.agee.2008.01.015.

van der Werf, G.R., Dempewolf, J., Trigg, S.N., Randerson, J.T., Kasibhatla, P.S., Giglio, L., Murdiyarso, D., Peters, W., Morton, D.C., Collatz, G.J., Dolman, A.J. and DeFries, R. 2008 Climate regulation of fire emissions and deforestation in equatorial Asia. *Proceedings of the National Academy of Science* 105(51): 20350–20355 www.pnas.org/cgi/doi/10.1073/pnas.0803375105.

van Valkenburg, J.L.C.H. and Sunderland, T.C.H. 2008 A revision of the genus *Podococcus* (*Arecaceae*). *Kew Bulletin* 63: 251-260.

van Valkenburg, J.L.C.H., Sunderland, T.C.H. and Couvreur, T.L.P. 2008 A revision of the genus *Sclerosperma* (*Arecaceae*). *Kew Bulletin* 63(1): 75-86.

Van Vliet, N. and Nasi, R. 2008 Hunting for livelihood in North East Gabon: Patterns, evolution and sustainability. *Ecology and Society* 13(2): [online] URL: http://www.ecologyandsociety.org/vol13/iss2/art33/.

Van Vliet, N. and Nasi, R. 2008 Mammal distribution in a Central African logging concession area. *Biodiversity and Conservation* 17: 1241-1249.

Van Vliet, N. and Nasi, R. 2008 Why do models fail to assess properly the sustainability of duiker (*Cephalophus spp.*) hunting in Central Africa? *Oryx* 42 (03): 392-399 doi:10.1017/S0030605308000288.

Van Vliet, N., Zundel, S., Miguel, C., Taberlet, P. and Nasi, R. 2008 Distinguishing dung from blue, red and yellow-backed duikers through noninvasive genetic techniques. *African Journal of Ecology* 46(3): 411-417 doi: 10.1111/j.1365-2028.2007.00879.x.

Veldkamp, E., Purbopuspito, J., Corre, M.D., Brumme, R. and Murdiyarso, D. 2008 Land use change effects on trace gas fluxes in the forest margins of Central Sulawesi, Indonesia. *Journal of Geophysical Research* 113: G02003(11p.); URL: http://dx.doi.org/10.1029/2007JG000522.

Verchot, L.V., Brienza, S., Jr., de Oliviera, V.C., Mutegi, J.K., Cattanio, J.H. and Davidson, E.A. 2008. Fluxes of CH_4, CO_2, NO, and N_2O in an improved fallow agroforestry system in eastern Amazonia. *Agriculture, Ecosystems and Environment* 126: 113-121 doi:10.1016/j.agee.2008.01.012.

Vermeulen, S., Nawir, A.A. and Mayers, J. 2008 Rural poverty reduction through business partnerships? Examples of experience from the forestry sector. *Environment, Development and Sustainability* 10: 1-18 doi: 10.1007/s10668-006-9035-6.

Wunder, S. 2008 Payments for environmental services and the poor: Concepts and preliminary evidence. *Environment and Development Economics* 13: 279-297.

Wunder, S. and Alban, M. 2008 Decentralized payments for environmental services:

The cases of Pimampiro and PROFAFOR in Ecuador. *Ecological Economics* 65(4): 685-698.

Wunder, S., Campbell, B.M., Frost, P., Sayer, J.A., Iwan, R. and Wollenberg, E. 2008 When donors get cold feet: The community conservation concession in Setulang (Kalimantan, Indonesia) that never happened. *Ecology and Society* 13(1): 12. [online] URL: http://www.ecologyandsociety.org/vol13/iss1/art12/.

Wunder, S., Engel, S. and Pagiola, S. 2008 Taking stock: A comparative analysis of payments for environmental services programs in developed and developing countries. *Ecological Economics* 65(4): 834-852.

Wunscher, T., Engel, S. and Wunder, S. 2008 Spatial targeting of payments for environmental services: A tool for boosting conservation benefits. *Ecological Economics* 65(4): 822-833.

Zomer, R.J., Trabucco, A., Bossio, D.A. and Verchot, L.V. 2008 Climate change mitigation: A spatial analysis of global land suitability for Clean Development Mechanism afforestation and reforestation. *Agriculture, Ecosystems and Environment* 126: 67-80 doi:10.1016/j.agee.2008.01.014.

*Non-ISI Thomson***

Assembe Mvondo, S. 2008 A review of States practice of sustainable forests management with regard to some international conventions. *Miskolc Journal of International Law* 5(2): 109-131.

Christophersen, T. and Nasi, R. 2008 Conservation and sustainable use of wildlife-based resources through the framework of the Convention on Biological Diversity (CBD): The Bushmeat Crisis. *Nature and Faune* 23(1): 32-39.

Christophersen, T. and Nasi, R. 2008 Conservation et utilisation durable des ressources fauniques dans le contexte de la Convention sur la Diversité Biologique (CDB): La crise de la viande de brousse. *Nature and Faune* 23(1): 35-42.

Dahal, G.R. and Adhikari, K.P. 2008 Trends and impact of forest tenure reforms in Asia: Cases from India, Indonesia, Lao PDR, Nepal and the Philippines. *Journal of Forest and Livelihood* 7(1): 19-26.

Evans, K., de Jong, W. and Cronkleton, P. 2008 Future Scenarios as a Tool for Collaboration in Forest Communities. *Sapiens* 1(2).

German, L., Ayele, S., Mazengia, W., Tsegaye, M., Abere, K., Bedane, K., Geta, E., Tolera, T. and Taye, H. 2008 Institutional foundations of agricultural development in Ethiopia: Drawing lessons from current practice for agricultural R&D. *Quarterly Journal of International Agriculture* 47(3): 191-216.

German, L. and Taye, H. 2008 A framework for evaluating effectiveness and inclusiveness of collective action in watershed management. *Journal of International Development* 20(1): 99-116.

Guariguata, M.R., Cornelius, J.P., Locatelli, B., Forner, C. and Sanchez-Azofeifa, G.A. 2008 Mitigation needs adaptation: Tropical forestry and climate change. *Mitigation and Adaptation Strategies for Global Change* 13(8): 793-808.

Guedes Pinto, L.F., Shanley, P., Cota Gomes, A.P. and Robinson, D. 2008 Experience with NTFP certification in Brazil. *Forests, Trees and Livelihoods* 18(1): 37-54.

Gyampoh, B.A., Idinoba, M. and Amisah, S. 2008 Water scarcity under a changing climate in Ghana: Options for livelihoods adaptation. *Development* 51(3): 415-417 doi:10.1057/dev.2008.46.

Kanel, K.R. and Dahal, G.R. 2008 Community forestry policy and its economic implications: An experience from Nepal. *International Journal of Social Forestry* 1(1): 50-60.

Larson, A.M. 2008 Indigenous peoples, representation and citizenship in Guatemalan forestry. *Conservation and Society* 6(1): 35–48.

Lee, Dukjae, Kim, Jong-Ho and Jeon, Jun-Heon. 2008 Participation intention of activity-oriented program of local residents of rural and mountain villages: Policy implication for the eco-mountain village project. *Journal of the Korean Institute of Landscape Architecture* 36(1): 1-11.

Lescuyer, G., Mbarga, H.N. and Logo, P.B. 2008 Use and misuse of forest income by rural communities in Cameroon. *Forests, Trees and Livelihoods* 18: 291-304.

Nasi, R. 2008 La faune sauvage dans la gestion des forêts en Afrique. *Nature and Faune* 23(1): iii-v.

Nasi, R. 2008 Management in Africa: Is wildlife taken into account. *Nature and Faune* 23(1): iii-v.

Pandit, B.H., McDougall, C., Belcher, B., Kumar, C. and Maharjan, M.R. 2008 Leveraging poor people's access to ownership and benefits of community-based forest enterprises: The role of an adaptive collaborative management approach. *Insight: Notes from the Field* (3): 45-55 [online] URL: http://www.recoftc.org/site/index.php?id=640.

Pierce, A.R., Shanley, P. and Laird, S.A. 2008 Non-timber forest products and certification: Strange bedfellows. *Forests, Trees and Livelihoods* 18(1): 23-35.

Raitzer, D.A. and Ryan, J.G. 2008 State of the art in impact assessment of policy-oriented international agricultural research. *Evidence and Policy* 1(4): 5-30.

** Non ISI Thomson are other peer-reviewed journals not in the ISI Thompson group.

Shanley, P. and Stockdale, M. 2008 Traditional knowledge, forest management, and certification: A reality check. *Forests, Trees and Livelihoods* 18(1): 55-67.

Sunderland, T.C.H., Balinga, M., Asaha, S. and Malleson, R. 2008 The utilization and management of African rattans: Constraints to sustainable supply through cultivation. *Forests, Trees and Livelihoods* 18: 337–353.

van Heist, M., Sheil, D., Bitariho, P. and Kasangaki, A. 2008 Financing forest conservation in Uganda. ETFRN News No. 49. Financing Sustainable Forest Management. *Financing Sustainable Forest Management*. 114-120. Wageningen, Netherlands, Tropenbos International.

Van Vliet, N. and Nasi, R. 2008 Using landscape approaches to improve the integration of wildlife in forest management plans. *Nature and Faune* 23(1): 10-15.

Van Vliet, N. and Nasi, R. 2008 Utilisation de l'approche paysage pour une meilleure intégration de la faune dans les plans d'aménagement forestier. *Nature and Faune* 23(1): 11-16.

Monographs

Allotey, P., Gyapong, M. and Colfer, C.J.P. 2008 The gender agenda and tropical forest diseases. *In:* Colfer, C.J.P. (ed.) Human health and forests: A global overview of issues, practice and policy. 135-160. London, UK, Earthscan Publications.

Arora-Jonsson, S., Ballard, H.L., Buruchara, R., Casolo, J., Classen, L., DeHose, J., Emretsson, M., Fortmann, L., Halvarsson, A.L., Halvarsson, E., Humphries, S., Long, J.W., Murphree, M.W., Nemarundwe, N., Olssen, A., Rhee, S., Ryen, A., Wilmsen, C. and Wollenberg, E. 2008 Conclusion. Conservation science and practice *In:* Fortmann, L. (ed.) Participation research in conservation and rural livelihood: Doing science together. 245-265. London, UK, Earthscan Publications.

Capistrano, D. 2008 Decentralization and forest governance in Asia and the Pacific: Trends, lessons and continuing challenges. *In:* Colfer, C.J.P., Dahal, G.R. and Capistrano, D. (eds.) Lessons from forest decentralization: Money, justice and the quest for good governance in Asia-Pacific. 211-232. London, UK, Earthscan Publications.

Colfer, C.J.P. 2008 Conclusions and ways forward. *In:* Colfer, C.J.P. (ed.) Human health and forests: A global overview of issues, practice and policy. 347-357. London, UK, Earthscan Publications.

Colfer, C.J.P. 2008 From understanding to action: Building on anthropological approaches to influence policymaking. *In:* Walters, B., McCay, B. J., West, P. and Lees, S. (eds.) Against the grain: The Vayda tradition in human ecology and ecological anthropology. 273-285. Lanham, MD, USA, AltaMira Press.

Colfer, C.J.P. 2008 Introduction. People and Plants International Conservation. *In:* Colfer, C.J.P. (ed.) Human health and forests: A global overview of issues, practice and policy. 1-10. London, UK, Earthscan Publications.

Colfer, C.J.P., Dahal, G.R. and Capistrano, D. (eds.) 2008 Lessons from forest decentralization: Money, justice and the quest for good governance in Asia-Pacific. London, UK, Earthscan Publications.

Colfer, C.J.P., Dahal, G.R. and Moeliono, M. 2008 Setting the stage: Money and justice in Asian and Pacific forests. *In:* Colfer, C.J.P., Dahal, G.R. and Capistrano, D. (eds.) Lessons from forest decentralization: Money, justice and the quest for good governance in Asia-Pacific. 1-14. London, UK, Earthscan Publications.

Colfer, C.J.P., Dudley, R.G. and Gardner, R. 2008 Forest women, health and childbearing. *In:* Colfer, C.J.P. (ed.) Human health and forests: A global overview of issues, practice and policy. 113-133. London, UK, Earthscan Publications.

Colfer, C.J.P. (ed.) 2008 Human health and forests: A global overview of issues, practice and policy. People and Plants International Conservation. London, UK, Earthscan Publications.

Cronkleton, P., Taylor, P.L., Barry, D., Stone-Jovicich, S. and Schmink, M. 2008 Environmental governance and the emergence of forest-based social movements. Occasional Paper No. 49. Bogor, Indonesia, CIFOR.

Cunningham, A.B., Shanley, P. and Laird, S.A. 2008 Health, habitats and medicinal plant use. *In:* Colfer, C.J.P. (ed.) Human health and forests: A global overview of issues, practice and policy. 35-62. London, UK, Earthscan Publications.

Dahal, G.R. and Chapagain, A. 2008 Community forestry in Nepal: Decentralized forest governance. *In:* Colfer, C.J.P., Dahal, G.R. and Capistrano, D. (eds.) Lessons from forest decentralization: Money, justice and the quest for good governance in Asia-Pacific. 67-81. London, UK, Earthscan Publications.

Dounias, E. and Colfer, C.J.P. 2008 Sociocultural dimensions of diet and health in forest-dwellers' systems. *In:* Colfer, C.J.P. (ed.) Human health and forests: A global overview of issues, practice and policy. *Human health and forests: A global overview of issues, practice and*

policy: 275-292. London, UK, Earthscan Publications.

Efransjah, Gunarso, P., Hassan, Che Hashim and Santosa, K.D. 2008 Consultative planning for effective forest governance: Case studies from Malaysia and Indonesia. *In:* Colfer, C.J.P., Dahal, G.R. and Capistrano, D. (eds.) Lessons from forest decentralization: Money, justice and the quest for good governance in Asia-Pacific. 133-147. London, UK, Earthscan Publications.

German, L., Kidane, B. and Mekonnen, K. 2008 Watershed management to counter farming system decline: Towards a demand driven system oriented research agenda. *In:* Menon, S. and Pillai, P.A. (eds.) Watershed management: Concepts and experiences. 71-86. Hyderabad, India, Icfai University Press.

Guariguata, M.R. 2008 Participatory monitoring in tropical forest management: A review of tools, concepts and lessons learned. Bogor, Indonesia, CIFOR.

Ibarra, E., Romero, M. and Gatter, S. 2008 Análisis del marco legal para el manejo forestal por pequeños productores en la Amazonia ecuatoriana. Quito, Ecuador, CIFOR.

Iwan, R. and Rhee, S. 2008 Malinau villagers' relationship with CIFOR: High hopes, unmet expectations and trusted confidence. Conservation science and practice *In:* Fortmann, L. (ed.) Participatory Research in Conservation and Rural Livelihoods. 178-194. New York, USA, Wiley-Blackwell.

Locatelli, B., Kanninen, M., Brockhaus, M., Colfer, C.J.P., Murdiyarso, D. and Santoso, H. 2008 Facing an uncertain future: How forest and people can adapt to climate change. Forest Perspectives No. 5. Bogor, Indonesia, CIFOR.

Locatelli, B., Pedroni, L. and Salinas, Z. 2008 Design issues in clean development mechanism forestry projects. *In:* Streck, C., O'Sullivan, R., Janson-Smith, T. and Tarasofsky, R.G. (eds.) Climate change and forests: Emerging policy and market opportunities. 107-121. Royal Institute for International Affairs. London, UK.

Lopez, C. and Shanley, P. (eds.) 2008 Riches of the forest: Food, spices, crafts and resins of Asia [Japanese]. Bogor, Indonesia, CIFOR.

Lopez, C., Shanley, P. and Fantini, A.C. (eds.) 2008 Riquezas da floresta: Frutas, plantas medicinais e artesanato na América Latina. Bogor, Indonesia, CIFOR.

Martínez Montano, J. 2008 Marco legal para el manejo forestal por pequeños productores y comunidades en las tierras bajas de Bolivia. Santa Cruz, Bolivia, CIFOR.

Michon, G., Nasi, R. and Balent, G. 2008 More than just small-scale forest management. *In:* Buttoud, G. (ed.) Small-scale rural forest use and management: Global policies versus local knowledge. 149-158. AgroParisTech-ENGREF.

Moeliono, M. 2008 The geography of Malinau. *In:* Moeliono, M., Wollenberg, E. and Limberg, G. (eds.) The decentralization of forest governance: Politics, economics, and the fight for control of forests in Indonesian Borneo. 25-34. London, UK, Earthscan Publications.

Moeliono, M. and Limberg, G. 2008 New experiments shaping government and society interaction. *In:* Moeliono, M., Wollenberg, E. and Limberg, G. (eds.) The decentralization of forest governance: Politics, economics, and the fight for control of forests in Indonesian Borneo. 263-276. London, UK, Earthscan Publications.

Moeliono, M., Wollenberg, E. and Limberg, G. (eds.) 2008 The decentralization of forest governance: Politics, economics and the fight for control of forests in Indonesian Borneo. London, UK, Earthscan Publications.

Murdiyarso, D. and Kanninen, M. 2008 An outlook for Asian forest in the new climate regime. *In:* Loh, C., Stevenson, A. and Tay, S. (eds.) Climate change negotiation: Can Asia change the game. 74-87. Hong Kong, China, Civic Exchange.

Nasi, R., Brown, D., Wilkie, D., Bennett, E., Tutin, C., van Tol, G. and Christophersen, T. 2008 Conservation and use of wildlife-based resources: The bushmeat crisis. CBD Technical Series No. 33. 50p. Montreal, Canada, Secretariat of the Convention on Biological Diversity and CIFOR.

Nawir, A.A. and Murniati, Rumboko, L. (eds.) 2008 Rehabilitasi hutan di Indonesia: Akan kemanakah arahnya setelah lebih dari tiga dasawarsa? Review of Forest Rehabilitation: Lessons from the Past. Bogor, Indonesia, CIFOR.

Ojha, H., Timinsa, N.P., Kumar, C., Banjade, M.R. and Belcher, B. (eds.) 2008 Communities, forests and governance: Policy and institutional innovations from Nepal. 247p. New Delhi, India, Adroit.

Ojha, H., Timinsa, N.P., Kumar, C., Belcher, B., Banjade, M.R., Chhetri, R. and Nightingale, A. 2008 Community-based forest management programmes in Nepal: An overview of contexts, policies, practices and issues. *In:* Ojha, H.R., Timinsa, N.P., Kumar, C. Banjade, M.R. and Belcher, B.M. (eds.) Communities, forests and governance: Policy and institutional innovations from Nepal. 25-54. New Delhi, India, Adroit.

Sabogal, C., Nalvarte, J. and Colan, V. 2008 Análisis del marco legal para el manejo forestal por pequeños productores y comunidades en la Amazonia peruana. Belem, Brazil, CIFOR.

Taylor, P.L., Cronkleton, P. and Barry, D. 2008 Association of Forest Communities of the Petén (ACOFOP Asociación de Comunidades Forestales de Petén). Linking conservation and poverty reduction: Landscapes, people and power. London, UK, Earthscan Publications.

Wollenberg, E., Iwan, R., Limberg, G. and Moeliono, M. 2008 Locating social choice in forest comanagement and local governance: The politics of public decision making and interest. *In:* Sikor, T. (ed.) Public and private in natural resource governance: A false dichotomy? 27-43. London, UK, Earthscan Publications.

Wollenberg, E., Iwan, R., Limberg, G., Moeliono, M., Sudana, I.M., Uluk, A., Anau, N. and van Heist, M. 2008 From participation to partnership: Devolution, forest communities and CIFOR in Malinau, Indonesia. Conservation science and practice. *In:* Fortmann, L. (ed.). Participatory research in conservation and rural livelihoods: Doing science together. 162-177. New York, USA, Wiley-Blackwell.

Wollenberg, E., Moeliono, M. and Limberg, G. 2008 Between State and society: Decentralization in Indonesia. *In:* Moeliono, M., Wollenberg, E. and Limberg, G. (eds.) The decentralization of forest governance: Politics, economics and the fight for control of forest in Indonesian Borneo. 3-24. London, UK, Earthscan Publications.

Wollenberg, E., Moeliono, M. and Limberg, G. 2008 Riding the rapids: Synthesis and conclusion. *In:* Moeliono, M., Wollenberg, E. and Limberg, G. (eds.) The decentralization of forest governance: Politics, economics, and the fight for control of forest in Indonesian Borneo. 281-299. London, UK, Earthscan Publications.

Yoo, Byoung Il. 2008 Forest fire management and autonomy in the Republic of Korea. *In:* Colfer, C.J.P., Dahal, G.R. and Capistrano, D. (eds.) Lessons from forest decentralization: Money, justice and the quest for good governance in Asia-Pacific. 101-115. London, UK, Earthscan Publications.

Yuliani, L., Indriatmoko, Y., Heri, V., Ernawati, S., Prasetyo, L.B. and Zulkiflie, M.S. 2008 Promoting good governance in managing Danau Sentarum National Park through adaptive collaborative management approach. *In:* Manos, B. and Papathanasiou, J. (eds.) Governance and ecosystem management for the conservation of biodiversity. 191-194. Thessaloniki - Perea, Greece, EU funded Gemconbio project.

National partner research contributions

Adnan, H. and Neldysavrino. 2008 Adaptasi kelembagaan dan aksi kolektif masyarakat terhadap program transmigrasi. *In:* Adnan, H., Tadjudin, D., Yuliani, L., Komarudin, H., Lopulalan, D., Siagian, Y. and Munggoro, D. (eds.) Belajar dari Bungo: Mengelola sumberdaya alam di era desentralisasi. 321-347. Bogor, Indonesia, CIFOR.

Adnan, H., Tadjudin, D., Yuliani, L., Komarudin, H., Lopulalan, D., Siagian, Y. and Munggoro, D. (eds.) 2008 Belajar dari Bungo: Mengelola sumberdaya alam di era desentralisasi. 465p. Bogor, Indonesia, CIFOR.

Albano, A., Pandit, B.H., Kumar, C. and Belcher, B. 2008 Developing community-based forest enterprises in Nepal. Livelihood Brief No. 10. Bogor, Indonesia, CIFOR.

Albano, A., Regmi, B., Kumar, C. and Belcher, B. 2008 Increasing forest benefits through the leasehold forestry and livestock programme: Improving its implementation and effectiveness. Livelihood Brief No. 9. Bogor, Indonesia, CIFOR.

Albano, A., Tiwari, B.K., Lynser, T. and Kumar, C. 2008 Developing forest-based enterprises in Meghalaya. Livelihood Brief No. 11. Bogor, Indonesia, CIFOR.

Allotey, P., Gyapong, M. and Colfer, C.J.P. 2008 The gender agenda and tropical forest diseases. *In:* Colfer, C.J.P. (ed.) Human health and forests: A global overview of issues, practice and policy. 135-160. London, UK, Earthscan Publications.

Asquith, N.M., Vargas, M.T. and Wunder, S. 2008 Selling two environmental services: In-kind payments for bird habitat and watershed protection in Los Negros, Bolivia. *Ecological Economics* 65(4): 675-684.

Asquith, N.M. and Wunder, S. (eds.) 2008 Payments for watershed services: The Bellagio conservation. 28p. Santa Cruz de la Sierra, Bolivia, Fundación Natura Bolivia.

Awang, S.A., Widayanti, W.T., Himmah, B., Astuti, A., Septiana, R.M., Solehudin and Novenanto, A. 2008 Panduan pemberdayaan lembaga masyarakat desa hutan (LMDH). vii, 158p. Montpellier, France, French Agricultural Research Centre for International Development (CIRAD), CIFOR, Pusat Kajian Hutan Rakyat, Universitas Gadjah Mada.

Blanco, J.T., Wunder, S. and Navarrete, F. 2008 La experiencia colombiana de pagos por servicios ambientales. *In:* Ministerio de Ambiente, Unidad Administrativa del Sistema de Parques

Nacionales Naturales, WWF, The Nature Conservancy. Reconocimiento de los Servicios Ambientales: Una Oportunidad para la Gestión de los Recursos Naturales en Colombia. 109-71.

Borner, J. and Wunder, S. 2008 Paying for avoided deforestation in the Brazilian Amazon: From cost assessment to scheme design. *International Forestry Review* 10(3): 496-511.

Bray, D.B., Duran, E., Ramos, V.H., Mas, J.F., Velazquez, A., McNab, R.B., Barry, D. and Radachowsky, J. 2008 Tropical deforestation, community forests, and protected areas in the Maya Forest. *Ecology and Society* 13(2): 56 [online] URL: http://www.ecologyandsociety.org/vol13/iss2/art56/.

Carvalheiro, K. de O., Sabogal, C. and Amaral, P. 2008 Análise da legislacao para o manejo florestal por produtores de pequeña escala na Amazônia brasileira. Belem, Brazil, CIFOR and IMAZON.

Chahweta, C. and Mandondo, A. 2008 A weighted decision and tenurial niche approach to analyzing adaptive learning in the social forests of northeastern Zimbabwe. *In:* Mandondo, A., Matose, F. and Prabhu, R. Coping amidst chaos: Studies on adaptive collaborative management from Zimbabwe. 91-119. Bogor, Indonesia, CIFOR.

Cunningham, A.B., German, L., Paumgarten, F., Chikakula, M., Barr, C., Obidzinski, K., van Noordwjik, M., de Koning, R.G., Purnomo, H., Yatich, T., Svensson, L., Gaafar, A. and Puntodewo, A. 2008 Sustainable trade and management of forest products and services in the COMESA region: An issue paper. Bogor, Indonesia, CIFOR.

Dahal, G.R. and Adhikari, K.P. 2008 Bridging, linking, and bonding social capital in collective action: The case of Kalahan forest reserve in the Philippines. CAPRi Working Paper No. 79. Washington D.C., USA, International Food Policy Research Institute (IFPRI).

Dahal, G.R. and Adhikari, K.P. 2008 Trends and impact of forest tenure reforms in Asia: Cases from India, Indonesia, Lao PDR, Nepal and the Philippines. *Journal of Forest and Livelihood* 7(1): 19-26.

Dahal, G.R. and Chapagain, A. 2008 Community forestry in Nepal: Decentralized forest governance. *In:* Colfer, C.J.P., Dahal, G.R. and Capistrano, D. (eds.) Lessons from forest decentralization: Money, justice and the quest for good governance in Asia-Pacific. 67-81. London, UK, Earthscan Publications.

de Jong, W., Pokorny, B., Sabogal, C., Louman, B. and Stoian, D. 2008 Antecedentes, realidad y oportunidades del manejo forestal comunitario en America Latina. Manejo forestal comunitario en America Latina: Experiencias, lecciones aprendidas y retos para el futuro. 37-76. Belem, Brazil, CIFOR.

Efransjah, Gunarso, P., Hassan, Che Hashim and Santosa, K.D. 2008 Consultative planning for effective forest governance: Case studies from Malaysia and Indonesia. *In:* Colfer, C.J.P., Dahal, G.R. and Capistrano, D. (eds.) Lessons from forest decentralization: Money, justice and the quest for good governance in Asia-Pacific. 133-147. London, UK, Earthscan Publications.

Gambiza, J., Campbell, B.M., Moe, S.R. and Mapaure, I. 2008 Season of grazing and stocking rate interactively affect fuel loads in a Baikiaea plurijuga Harms woodland in northwestern Zimbabwe. *African Journal of Ecology* 46: 637-645 doi: 10.1111/j.1365-2028.2008.00951.x.

Garcia-Fernandez, C., Ruiz Perez, M. and Wunder, S. 2008 Is multiple-use forest management widely implementable in the tropics? *Forest Ecology and Management* 256: 1468-1476 doi:10.1016/j.foreco.2008.04.029.

German, L., Ayele, S. and Admassu, Z. 2008 Managing linkages between communal rangelands and private cropland in the highlands of Eastern Africa: Contributions to participatory integrated watershed management. *Society and Natural Resources* 21(2): 134-151

German, L., Ayele, S., Mazengia, W., Tsegaye, M., Abere, K., Bedane, K., Geta, E., Tolera, T. and Taye, H. 2008 Institutional foundations of agricultural development in Ethiopia: Drawing lessons from current practice for agricultural R&D. *Quarterly Journal of International Agriculture* 47(3): 191-216.

German, L., Ayele, S., Tanui, J., Nyangas, S., Taye, H., Admassu, Z., Mazengia, W., Tirwomwe, W., Begashaw, L., Tsegaye, M., Alinyo, F., Mekonnen, A., Aberra, K., Chemangeni, A., Cheptegei, W., Tolera, T., Jotte, Z. and Bedane, K. 2008 Enabling equitable collective action and policy change for poverty reduction and improved natural resource management in the Eastern African highlands. CAPRi Working Paper No. 86. 48p. URL: http. // dx.doi.org/10.2499/CAp.RiWp.86.

German, L., Kidane, B. and Mekonnen, K. 2008 Watershed management to counter farming system decline: Towards a demand driven system oriented research agenda. *In:* Menon, S. and Pillai, P.A. (eds.) Watershed management: Concepts and experiences. 71-86. Hyderabad, India, Icfai University Press.

German, L. and Taye, H. 2008 A framework for evaluating effectiveness and inclusiveness of collective action in watershed management. *Journal of International Development* 20(1): 99-116.

Guedes Pinto, L.F., Shanley, P., Cota Gomes, A.P. and Robinson, D. 2008 Experience with NTFP certification in Brazil. *Forests, Trees and Livelihoods* 18(1): 37-54.

Gyampoh, B.A., Idinoba, M. and Amisah, S. 2008 Water scarcity under a changing climate in Ghana: Options for livelihoods adaptation. *Development* 51(3): 415-417 doi:10.1057/dev.2008.46.

Hadi, M., Komarudin, H. and Schagen, M. 2008 Kebijakan kehutanan, aksi kolektif dan hak properti: Sebuah pelajaran dari Bungo. *In:* Adnan, H., Tadjudin, D., Yuliani, E.L., Komarudin, H., Lopulalan, D., Siagian, Y.L. and Munggoro, D.W. (eds.) Belajar dari Bungo: Mengelola sumberdaya alam di Era desentralisasi. 365-387. Bogor, Indonesia, CIFOR.

Hasan, U., Irawan, D. and Komarudin, H. 2008 Rio: Modal sosial sistem pemerintah desa. *In:* Adnan, H., Tadjudin, D., Yuliani, E.L., Komarudin, H., Lopulalan, D., Siagian, Y.L. and Munggoro, D.W. (eds.) Belajar dari Bungo: Mengelola sumberdaya alam di Era desentralisasi. 135-156. Bogor, Indonesia, CIFOR.

Ibarra, E., Romero, M. and Gatter, S. 2008 Análisis del marco legal para el manejo forestal por pequeños productores en la Amazonia ecuatoriana. 88p. Quito, Ecuador, CIFOR.

Idinoba, M., Idinoba, P.A., Gbadegesin, A. and Jagtap, S.S. 2008 Growth and evapotranspiration of groundnut (*Arachis hypogaea*) in a transitional humid zone of Nigeria. *African Journal of Agricultural Research* 3(5): 384-388.

Irawan, D., Hasan, U. and Komarudin, H. 2008 Penataan ruang untuk memperkuat hak properti masyarakat. *In:* Adnan, H., Tadjudin, D., Yuliani, E.L., Komarudin, H., Lopulalan, D., Siagian, Y.L. and Munggoro, D.W. (eds.) Belajar dari Bungo: Mengelola sumberdaya alam di Era desentralisasi. 388-403. Bogor, Indonesia, CIFOR.

Kanel, K.R. and Dahal, G.R. 2008 Community forestry policy and its economic implications: An experience from Nepal. *International Journal of Social Forestry* 1(1): 50-60.

Karsenty, A., Drigo, I.G., Piketty, M.G. and Singer, B. 2008 Regulating industrial forest concessions in Central Africa and South America. *Forest Ecology and Management* 256: 1498-1508 doi:10.1016/j.foreco.2008.07.001.

Knight, A.T., Cowling, R.M., Rouget, M., Balmford, A., Lombard, A.T. and Campbell, B.M. 2008 Knowing but not doing: Selecting priority conservation areas and the research-implementation gap. *Conservation Biology* 22(3): 610-617 doi: 10.1111/j.1523-1739.2008.00914.x.

Lescuyer, G., Mbarga, H.N. and Logo, P.B. 2008 Use and misuse of forest income by rural communities in Cameroon. *Forests, Trees and Livelihoods* 18: 291-304.

Locatelli, B., Pedroni, L. and Salinas, Z. 2008 Design issues in clean development mechanism forestry projects. *In:* Streck, C., O'Sullivan, R., Janson-Smith, T. and Tarasofsky, R.G. (eds.) Climate change and forests: Emerging policy and market opportunities. 107-121. London, UK, Royal Institute for International Affairs.

Locatelli, B., Rojas, V. and Salinas, Z. 2008 Impacts of payments for environmental services on local development in northern Costa Rica: A fuzzy multi-criteria analysis. *Forest Policy and Economics* 10(5): 275-285.

Locatelli, B. and Salinas, Z. 2008 Preguntas frecuentes sobre impactos socioeconómicos y ambientales en proyectos forestales MDL. Serie tecnica. Manual tecnico No. 83. *In:* Salinas, Z. and Hernandez, P. (eds.) Guia para el diseño de proyectos MDL forestales y de bioenergia. 83-105. Turrialba, Costa Rica, CATIE.

Lopez, C., Shanley, P. and Fantini, A.C. (eds.) 2008 Riquezas da floresta: Frutas, plantas medicinais e artesanato na América Latina. Bogor, Indonesia, CIFOR.

Louman, B., Garcia-Fernandez, C., Sabogal, C., Ehringhaus, C., Salazar, M. and Villacres, D. 2008 Capacidades tecnicas y desafios del manejo forestal comunitario. *In:* Sabogal, C., de Jong, W., Pokorny, B. and Louman, B. (eds.) Manejo Forestal Comunitario en América Latina: Experiencias, lecciones aprendidas y retos para el futuro. 77-114. Belem, Brazil, CIFOR.

Malleson, R., Asaha, S., Sunderland, T.C.H., Burnham, P., Egot, M., Obeng-Okrah, K., Ukpe, I. and Miles, W. 2008 A methodology for assessing rural livelihood strategies in West/Central Africa: Lessons from the field. *Ecological and Environmental Anthropology* 4(1): 1-12 [online] URL: http://eea.anthro.uga.edu/index.php/eea/article/view/57/52.

Mandondo, A. and Matose, F. 2008 A comparative analysis of adaptive natural resources management in Zimbabwe. *In:* Mandondo, A., Matose, F. and Prabhu, R. (eds.) Coping amidst chaos: Studies on adaptive collaborative management from Zimbabwe. 119-132. Bogor, Indonesia, CIFOR.

Mandondo, A., Prabhu, R. and Matose, F. 2008 Coping amidst chaos: Studies on adaptive collaborative management from Zimbabwe. Bogor, Indonesia, CIFOR.

McDougall, C., Ojha, H., Banjade, M.R., Pandit, B.H., Bhattarai, T., Maharjan, M.R. and Rana, S. 2008 Forests of learning: Experiences from research on an Adaptive Collaborative approach to community forestry in Nepal. Bogor, Indonesia, CIFOR.

Mertens, B., Liu Hua, Belcher, B., Ruiz Perez, M., Fu Maoyi and Yang Xiaosheng. 2008 Spatial patterns and processes of bamboo expansion in Southern China. *Applied Geography* 28: 16-31.

Murdiyarso, D., Skutsch, M., Guariguata, M.R., Kanninen, M., Luttrell, C., Verweij, P. and Martins, O.S. 2008 How do we measure and monitor forest degradation? *In:* Angelsen. A. (ed.) Moving ahead with REDD: Issues, options and implications. 99-105. Bogor, Indonesia, CIFOR.

Mutegi, J.K., Mugendi, D.N., Verchot, L.V. and Kung'u, J.B. 2008 Combining napier grass with leguminous shrubs in contour hedgerows controls soil erosion without competing with crops. *Agroforestry Systems* (74): 37-49. doi: 10.1007/s10457-008-9152-3.

Mutimukuru, T., Prabhu, R., Matose, F., Nyirenda, R. and Kozanayi, W. 2008 Facilitating adaptive collaborative management in forested landscapes: The Mafungautsi case study. *In:* Mandondo, A., Prabhu, R. and Matose, F. (eds.) Coping amidst chaos: Studies on adaptive collaborative management from Zimbabwe. 15-64. Bogor, Indonesia, CIFOR.

Nambiar, E.K.S. (ed.) 2008 Site management and productivity in tropical plantation forests: Proceedings of Workshops in Piracicaba (Brazil) 22-26 November 2004 and Bogor (Indonesia) 6-9 November 2006. Bogor, Indonesia, CIFOR.

Nasi, R., Koponen, P., Poulsen, J.G., Buitenzorgy, M. and Rusmantoro, W. 2008 Impact of landscape and corridor design on primates in a large-scale industrial tropical plantation landscape. *Biodiversity and Conservation* 17: 1105-1126.

Nawir, A.A., Murniati and Rumboko, L. (eds.) 2008 Rehabilitasi hutan di Indonesia: Akan kemanakah arahnya setelah lebih dari tiga dasawarsa? Review of forest rehabilitation: Lessons from the past. Bogor, Indonesia, CIFOR.

Nemarundwe, N. and Mutamba, M. 2008 Action planning and adaptive management of natural resources in semiarid environments: Experiences from Chivi District, Zimbabwe. *In:* Mandondo, A., Prabhu, R. and Matose, F. Coping amidst chaos: Studies on adaptive collaborative management from Zimbabwe. 65-90. Bogor, Indonesia, CIFOR.

Ngakan, P.O., Komarudin, H. and Moeliono, M. 2008 Menerawang kesatuan pengelolaan hutan di era otonomi daerah. Governance Brief No. 38. Bogor, Indonesia, CIFOR.

Ojha, H., Timinsa, N.P., Kumar, C., Banjade, M.R. and Belcher, B. (eds.) 2008 Communities, forests and governance: Policy and institutional innovations from Nepal. New Delhi, India, Adroit.

Ojha, H., Timinsa, N.P., Kumar, C., Belcher, B., Banjade, M.R., Chhetri, R. and Nightingale, A. 2008 Community-based forest management programmes in Nepal: An overview of contexts, policies, practices and issues. *In:* Ojha, H.R., Timinsa, N.P., Kumar, C. Banjade, M.R. and Belcher, B.M. (eds.) Communities, forests and governance: Policy and institutional innovations from Nepal. 25-54. New Delhi, India, Adroit.

Pacheco, P., Ibarra, E., Cronkleton, P. and Amaral, P. 2008 Políticas públicas que afectan el manejo forestal comunitario. *In:* Sabogal, C., de Jong, W., Pokorny, B. and Louman, B. (eds.) Manejo Forestal Comunitario en América Latina: Experiencias, lecciones aprendidas y retos para el futuro. 201-230. Belem, Brazil, CIFOR.

Pandit, B.H., Albano, A. and Kumar, C. 2008 Improving forest benefits for the poor: Learning from community-based forest enterprises in Nepal. Bogor, Indonesia, CIFOR.

Pandit, B.H., McDougall, C., Belcher, B., Kumar, C. and Maharjan, M.R. 2008 Leveraging poor people's access to ownership and benefits of community-based forest enterprises: The role of an adaptive collaborative management approach. *Insight: Notes from the Field* (3): 45-55 [online] URL: http://www.recoftc.org/site/index.php?id=640.

Paudel, N.S., Banjade, M.R. and Dahal, G.R. 2008 Devolution challenges in Nepal's community forestry in the context of emerging market opportunities. Policy Brief. Nepal, ForestAction.

Phanbuh, S., Albano, A. and Darlong, V. 2008 Increasing benefits from forest: NERCORMP-IFAD'S forest-based livelihood interventions in Meghalaya, India. Shillong, India, North Eastern Region Community Resource Management Project for Upland Areas (NERCORMP).

Pokorny B., Sabogal, C., de Jong, W., Stoian, D., Louman, B., Pacheco, P. and Porro, N.M. 2008 Experiencias y retos del manejo forestal comunitario en América Tropical. *Revista Recursos Naturales y Ambiente* 54: 81-98.

Pokorny, B., Johnson, B., Medina, G., Nalvarte, J., Cayres, G., Gatter, S., Romero, M. and Olschewski, R. 2008 Estrategias de acompanamiento al manejo forestal comunitario. *In:* Sabogal, C., de Jong, w., Pokorny, B. and Louman, B. (eds.) Manejo Forestal Comunitario en América Latina: Experiencias, lecciones aprendidas y retos para el futuro. 231-278. Belem, Brazil, CIFOR.

Porro, N.M., Germana, C., Lopez, C., Medina, G., Ramirez, Y., Amaral, M. and Amaral, P. 2008 Capacidades organizativas para el manejo forestal comunitario frente a las demandas y expectativas oficiales. *In:* Sabogalm C., de Jong, W., Pokorny, B. and Louman, B. (eds.) Manejo Forestal Comunitario en América Latina: Experiencias, lecciones aprendidas y retos para el futuro. 163-199. Belem, Brazil, CIFOR.

Prabhu, R. and Matose, F. 2008 Adversity and the adaptive possibility of local communities: Setting the scene. *In:* Mandondo, A., Prabhu, R. and Matose, F. (eds.) Coping amidst chaos: Studies on adaptive collaborative management from Zimbabwe. 1-14. Bogor, Indonesia, CIFOR.

Sabogal, C., de Jong, W., Pokorny, B. and Louman, B. 2008 Manejo forestal comunitario en América Latina: Experiencias, lecciones aprendidas y retos para el futuro. Bogor, Indonesia, CIFOR.

Sabogal, C., Nalvarte, J. and Colan, V. 2008 Análisis del marco legal para el manejo forestal por pequeños productores y comunidades en la Amazonia peruana. Belem, Brazil, CIFOR.

Savadogo, P., Tiveau, D., Sawadogo, L. and Tigabu, M. 2008 Herbaceous species responses to long-term effects of prescribed fire, grazing and selective tree cutting in the savanna-woodlands of West Africa. *Perspectives in Plant Ecology, Evolution and Systematics* 10(3): 179-195.

Shackleton, S., Campbell, B.M., Lotz-Sisitka, H. and Shackleton, C. 2008 Links between the local trade in natural products, livelihoods and poverty alleviation in a semi-arid region of South Africa. *World Development* 36(3): 505-526 doi:10.1016/j.physletb.2003.10.071.

Shanley, P., Pierce, A.R., Laird, S.A. and Robinson, D. 2008 Beyond timber: Certification and management of non-timber forest products. Bogor, Indonesia, CIFOR.

Siagian, Y. and Neldysavrino. 2008 Aksi kolektif penguatan hak masyarakat atas lahan. *In:* Adnan, H., Tadjudin, D., Yuliani, E.L., Komarudin, H., Lopulalan, D., Siagian, Y.L. and Munggoro, D.W. (eds.) Belajar dari Bungo: Mengelola sumberdaya alam di era desentralisasi. 348-364. Bogor, Indonesia, CIFOR.

Sunderland, T.C.H., Balinga, M., Asaha, S. and Malleson, R. 2008 The utilization and management of African rattans: Constraints to sustainable supply through cultivation. *Forests, Trees and Livelihoods* 18: 337–353.

van Heist, M., Sheil, D., Bitariho, P. and Kasangaki, A. 2008 Financing forest conservation in Uganda. ETFRN News No. 49. *Financing Sustainable Forest Management*. 114-120. Wageningen, Netherlands, Tropenbos International.

Verchot, L.V., Brienza, S.Jr., de Oliviera, V.C., Mutegi, J.K., Cattanio, J.H. and Davidson, E.A. 2008 Fluxes of CH_4, CO_2, NO, and N2O in an improved fallow agroforestry system in eastern Amazonia. *Agriculture, Ecosystems and Environment* 126: 113-121 doi:10.1016/j.agee.2008.01.012.

Wollenberg, E., Iwan, R., Limberg, G., Moeliono, M., Sudana, I.M., Uluk, A., Anau, N. and van Heist, M. 2008 From participation to partnership: Devolution, forest communities and CIFOR in Malinau, Indonesia. Conservation science and practice *In:* Fortmann, L. (ed.). Participatory research in conservation and rural livelihoods: Doing science together. 162-177. New York, USA, Wiley-Blackwell.

Wunder, S. and Alban, M. 2008 Decentralized payments for environmental services: The cases of Pimampiro and PROFAFOR in Ecuador. *Ecological Economics* 65(4): 685-698.

Wunder, S., Borner, J., Tito, M.R. and Pereira, L.S. 2008 Pagamentos por serviços ambientais: Perspectivas para a Amazônia Legal. Estudos Series No. 10. Brazil, Ministério do Meio Ambiente (MMA).

Yuliani, L., Anggana and Novasyurahati. 2008 Kekayaan hutan Bukit Siketan. *In:* Adnan, H., Tadjudin, D., Yuliani, E.L., Komarudin, H., Lopulalan, D., Siagian, Y.L. and Munggoro, D.W. (eds.) Belajar dari Bungo: Mengelola sumberdaya alam di era desentralisasi. 174-189. Bogor, Indonesia, CIFOR.

Yuliani, L., Indriatmoko, Y., Heri, V., Ernawati, S., Prasetyo, L.B. and Zulkiflie, M.S. 2008 Promoting good governance in managing Danau Sentarum National Park through adaptive collaborative management approach. *In:* Manos, B. and Papathanasiou, J. (eds.) Governance and ecosystem management for the conservation of biodiversity. 191-194. Thessaloniki, Greece, Gemconbio.

CIFOR peer-reviewed research

Adnan, H., Tadjudin, D., Yuliani, L., Komarudin, H., Lopulalan, D. and Siagian, Y., Munggoro, D. (eds.) 2008 Belajar dari Bungo: Mengelola sumberdaya alam di era desentralisasi. Bogor, Indonesia, CIFOR.

Angelsen, A. (ed.) 2008 Moving ahead with REDD: Issues, options and implications. Bogor, Indonesia, CIFOR.

Bouda, Z.H. 2008 Textes et textes de loi sur la gestion des ressources naturelles au Burkina Faso. Bogor, Indonesia, CIFOR.

Contreras-Hermosilla, A., Gregersen, H. and White, A. 2008 Forest governance

in countries with federal systems of government: Lessons and implications for decentralization. Forests and Governance Programme Series No. 13. Bogor, Indonesia, CIFOR.
Contreras-Hermosilla, A., Gregersen, H. and White, A. 2008 Forest governance in countries with federal systems of government: Lessons for decentralization. Governance Brief No. 39. Bogor, Indonesia, CIFOR.
Cronkleton, P., Taylor, P.L., Barry, D., Stone-Jovicich, S. and Schmink, M. 2008 Governança ambiental e o surgimento de movimentos florestais de base. Occasional Paper No. 49. Bogor, Indonesia, CIFOR.
Cronkleton, P., Taylor, P.L., Barry, D., Stone-Jovicich, S. and Schmink, M. 2008 Gobernanza Ambiental y el surgimiento de movimientos forestales de base. Occasional Paper No. 49. Bogor, Indonesia, CIFOR.
Cronkleton, P., Taylor, P.L., Barry, D., Stone-Jovicich, S. and Schmink, M. 2008 Environmental governance and the emergence of forest-based social movements. Occasional Paper No. 49. Bogor, Indonesia, CIFOR.
Cunningham, A.B., German, L., Paumgarten, F., Chikakula, M., Barr, C., Obidzinski, K., van Noordwjik, M., de Koning, R.G., Purnomo, H., Yatich, T., Svensson, L., Gaafar, A. and Puntodewo, A. 2008 Sustainable trade and management of forest products and services in the COMESA region: An issue paper. Bogor, Indonesia, CIFOR.
Evans, K. and Guariguata, M.R. 2008 Monitoreo participativo para el manejo forestal en el tropico: Una revision de herramientas, concptos y lecciones aprendidas. Bogor, Indonesia, CIFOR.
Evans, K. and Guariguata, M.R. 2008 Participatory monitoring in tropical forest management: A review of tools, concepts and lessons learned. Bogor, Indonesia, CIFOR.
Ibarra, E., Romero, M. and Gatter, S. 2008 Análisis del marco legal para el manejo forestal por pequeños productores en la Amazonia ecuatoriana. Quito, Ecuador, CIFOR.
Kanninen, M., Murdiyarso, D., Seymour, F., Angelsen, A., Wunder, S. and German, L. 2008 Crecen los árboles sobre el dinero? Implicaciones de la investigación sobre deforestación en las medidas para promover la REDD. Forest Perspectives No. 4. Bogor, Indonesia, CIFOR.
Larson, A.M., Cronkleton, P., Barry, D. and Pacheco, P. 2008 Tenure rights and beyond: Community access to forest resources in Latin America. Occasional Paper No. 50. Bogor, Indonesia, CIFOR.
Locatelli, B., Kanninen, M., Brockhaus, M., Colfer, C.J.P., Murdiyarso, D. and Santoso, H. 2008 Facing an uncertain future: How forest and people can adapt to climate change. Forest Perspectives No. 5. Bogor, Indonesia, CIFOR.
Lopez, C. and Shanley, P. (eds.) 2008 Riches of the forest: Food, spices, crafts and resins of Asia [Japanese]. Bogor, Indonesia, CIFOR.
Lopez, C., Shanley, P. and Fantini, A.C. (eds.) 2008 Riquezas da floresta: Frutas, plantas medicinais e artesanato na América Latina. Bogor, Indonesia, CIFOR.
Mandondo, A., Prabhu, R. and Matose, F. 2008 Coping amidst chaos: Studies on adaptive collaborative management from Zimbabwe. Bogor, Indonesia, CIFOR.
Martínez Montano, J. 2008 Marco legal para el manejo forestal por pequeños productores y comunidades en las tierras bajas de Bolivia. Santa Cruz, Bolivia, CIFOR.
McDougall, C., Ojha, H., Banjade, M.R., Pandit, B.H., Bhattarai, T., Maharjan, M.R. and Rana, S. 2008 Forests of learning: Experiences from research on an adaptive collaborative approach to community forestry in Nepal. Bogor, Indonesia, CIFOR.
Mulyana, A., Adnan, H., Indriatmoko, Y., Priyono, A. and Moeliono, M. 2008 Belajar sambil mengajar: Menghadapi perubahan sosial untuk pengelolaan sumberdaya alam. Bogor, Indonesia, CIFOR.
Murdiyarso, D. and Kurnianto, S. 2008 Ecohydrology of the Mamberamo basin: An initial assessment of biophysical processes. Bogor, Indonesia, CIFOR.
Nambiar, E.K.S. (ed.) 2008 Site management and productivity in tropical plantation forests: Proceedings of workshops in Piracicaba (Brazil) 22-26 November 2004 and Bogor (Indonesia) 6-9 November 2006. Bogor, Indonesia, CIFOR.
Nawir, A.A., Murniati and Rumboko, L. (eds.) 2008 Rehabilitasi hutan di Indonesia: Akan kemanakah arahnya setelah lebih dari tiga dasawarsa? Review of Forest Rehabilitation: Lessons from the Past. Bogor, Indonesia, CIFOR.
Nkem, J., Idinoba, M., Santoso, H., Perez, C.J., Forner, C., Locatelli, B. and Kanninen, M. 2008 Prioritisation for adaptation in tropical forest ecosystems. Working Paper No. 44. Bogor, Indonesia, CIFOR.
Pacheco, P., Barry, D., Cronkleton, P. and Larson, A.M. 2008 The role of informal institutions in the use of forest resources in Latin America. Forests and Governance Programme Series No. 15. Bogor, Indonesia, CIFOR.
Pandit, B.H., Albano, A. and Kumar, C. 2008 Improving forest benefits for the poor: Learning from community-based forest enterprises in Nepal. Bogor, Indonesia, CIFOR.
Sabogal, C., de Jong, W., Pokorny, B. and Louman, B. 2008 Manejo forestal comunitario en América Latina:

Experiencias, lecciones aprendidas y retos para el futuro. Bogor, Indonesia, CIFOR.
Sabogal, C., Nalvarte, J. and Colan, V. 2008 Análisis del marco legal para el manejo forestal por pequeños productores y comunidades en la Amazonia peruana. Belem, Brazil, CIFOR.
Shanley, P., Pierce, A.R., Laird, S.A. and Robinson, D. 2008 Beyond timber: Certification and management of non-timber forest products. Bogor, Indonesia, CIFOR.
Shanley, P., Pierce, A.R., Laird, S.A. and Robinson, D. 2008 Más allá de la madera: Certificación y manejo de productos forestales no maderables. Bogor, Indonesia, CIFOR.
Taylor, P.L., Cronkleton, P., Barry, D., Stone-Jovicich, S. and Schmink, M. 2008 'Se Você Visse Isso com Meus Olhos': Pesquisa colaborativa e apoio ao manejo florestal comunitário na América Central. Forests and Governance Programme Series No. 14. Bogor, Indonesia, CIFOR.
Taylor, P.L., Cronkleton, P., Barry, D., Stone-Jovicich, S. and Schmink, M. 2008 Si lo vieras con mis ojos: Investigación colaborativa y cooperación con comunidades administradoras de bosques en Centroamérica. Forests and Governance Programme Series No. 14. Bogor, Indonesia, CIFOR.
Wertz-Kanounnikoff, S. 2008 Estimating the costs of reducing forest emissions: A review of methods. Working Paper No. 42. Bogor, Indonesia, CIFOR.
Wertz-Kanounnikoff, S. 2008 Monitoring forest emissions: A review of methods. Working Paper No. 39. Bogor, Indonesia, CIFOR.
Wertz-Kanounnikoff, S., Kongphan-Apirak, Metta and Wunder, S. 2008 Reducing forest emissions in the Amazon Basin: A review of drivers of land-use change and how payments for environmental services (PES) schemes can affect them. Working Paper No. 40. Bogor, Indonesia, CIFOR.
Wertz-Kanounnikoff, S., Kongphan-Apirak, Metta. 2008 Reducing forest emissions in Southeast Asia: A review of drivers of land-use change and how payments for environmental services (PES) schemes can affect them. Working Paper No. 41. Bogor, Indonesia, CIFOR.

Other

Albano, A. 2008 Forest enterprise development in Meghalaya: Lessons learned from SMES. *In:* Darlong, V., Barik, S.K., Tiwari, B.K., Khumar, C. and Phanbuh, S. (eds.) Livelihoods from forestry in Northeast India. 49-57. Shillong, India, North Eastern Region Community Resource Management Project for Upland Areas (NERCORMP).
Albano, A., Pandit, B.H., Kumar, C. and Belcher, B. 2008 Developing community-based forest enterprises in Nepal. Livelihood Brief No. 10. Bogor, Indonesia, CIFOR.
Albano, A., Regmi, B., Kumar, C. and Belcher, B. 2008 Increasing forest benefits through the leasehold forestry and livestock programme: Improving its implementation and effectiveness. Livelihood Brief No. 9. Bogor, Indonesia, CIFOR.
Albano, A., Tiwari, B.K., Lynser, T. and Kumar, C. 2008 Developing forest-based enterprises in Meghalaya. Livelihood Brief No. 11. Bogor, Indonesia, CIFOR.
Blanco, J.T., Wunder, S. and Navarrete, F. 2008 La experiencia colombiana de pagos por servicios ambientales. *In:* Ministerio de Ambiente, Unidad Administrativa del Sistema de Parques Nacionales Naturales, WWF, The Nature Conservancy. Reconocimiento de los Servicios Ambientales: Una Oportunidad para la Gestión de los Recursos Naturales en Colombia. 109-71.
CIFOR 2008 A summary of CIFOR's strategy 2008–2018: Making a difference for forests and people. Bogor, Indonesia, CIFOR.
CIFOR 2008 Adaptation at the interface of forest ecosystem goods and services and livestock production systems in Northern Mali. Infobrief No. 19. Bogor, Indonesia, CIFOR.
CIFOR 2008 Adaptive collaborative management can help us cope with climate change. Infobrief No. 13. Bogor, Indonesia, CIFOR.
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CIFOR 2008 CIFOR's strategy 2008–2018: Making a difference for forests and people. Bogor, Indonesia, CIFOR.
CIFOR 2008 Do trees grow on money? The implications of deforestation research for policies to promote REDD. Infobrief No. 14. Bogor, Indonesia, CIFOR.
CIFOR 2008 Financing REDD: Linking country needs and financing sources. Infobrief No. 17. Bogor, Indonesia, CIFOR.
CIFOR 2008 La cogestión adaptativa nos puede ayudar a enfrentar el cambio climático. Infobrief No. 13. Bogor, Indonesia, CIFOR.
CIFOR 2008 La gestion collaborative adaptative peut nous aider à faire face au changement climatique. Infobrief No. 13. Bogor, Indonesia, CIFOR.
CIFOR 2008 Measuring and monitoring forest degradation for REDD: Implications of country circumstances. Infobrief No. 16. Bogor, Indonesia, CIFOR.

CIFOR 2008 Medium-term plan 2009–2011. Bogor, Indonesia, CIFOR.
CIFOR 2008 Pengelolaan bersama secara adaptif dapat membantu kita menghadapi perubahan iklim. Infobrief No. 13. Bogor, Indonesia, CIFOR.
CIFOR 2008 The role of REDD in stabilising greenhouse gas concentrations: Lessons from economic models. Infobrief No. 18. Bogor, Indonesia, CIFOR.
CIFOR 2008 What is the right scale for REDD? The implications of national, subnational and nested approaches. Infobrief No. 15. Bogor, Indonesia, CIFOR.
Contreras-Hermosilla, A., Gregersen, H. and White, A. 2008 Forest governance in countries with federal systems of government: Lessons for decentralization. Governance Brief No. 39. 12p. Bogor, Indonesia, CIFOR.
Cunningham, T., German, L., Chikakula, M., Paumgarten, F., Barr, C., Obidzinski, K., Yatich, T., van Noordwijk, M., de Koning, R.G., Purnomo, H. and Puntodewo, A. 2008 Toward a strategy for sustainable trade and management of forest products and services in the COMESA region. Policy Brief. 6p. Bogor, Indonesia, COMESA and CIFOR.
Dahal, G.R. and Adhikari, K.P. 2008 Bridging, linking, and bonding social capital in collective action: The case of Kalahan forest reserve in the Philippines. CAPRi Working Paper No. 79. 23p. Washington D.C., USA, International Food Policy Research Institute.
de Jong, W. 2008 The tangled roots of forest conflict. *Arborvitae* 38: 7.
Feintrenie, L. and Levang, P. 2008 Is traditional knowledge a guarantee for best practices in forest management? The case of rubber agroforests in Jambi, Indonesia.
Gardette, Y.M. and Locatelli, B. 2008 Les marchés du carbone forestier. *Rendezvous techniques* 20: 52-57.
German, L., Ayele, S., Tanui, J., Nyangas, S., Taye, H., Admassu, Z., Mazengia, W., Tirwomwe, W., Begashaw, L., Tsegaye, M., Alinyo, F., Mekonnen, A., Aberra, K., Chemangeni, A., Cheptegei, W., Tolera, T., Jotte, Z. and Bedane, K. 2008 Enabling equitable collective action and policy change for poverty reduction and improved natural resource management in the eastern African highlands. CAPRi Working Paper No. 86. 48p. doi: http. // dx.doi.org/10.2499/CAp.RiWp.86.
Guariguata, M.R. 2008 Measuring and monitoring the flow of forest ecosystem services. *In:* Sandlund, O.T. and Saksgard, L. (eds.) Proceedings of the Norway/UN Conference on Ecosystem and People-Biodiversity for Development - The road to 2010 and beyond, Trondheim, Norway, 29 October - 2 November 2007. 80-82. Trondheim, Norway, Norwegian Directorate for Nature Management.
Guariguata, M.R. 2008 Tropical forest and climate change adaptation. ITTO Technical Series No. 30. Tropical forests and climate change: Report of the international expert meeting on addressing climate change through sustainable management of tropical forest. 27-28. Yokohama, Japan, ITTO.
Husselman, M. 2008 Beekeeping in Zambia. Livelihood Brief No. 7. 4p. Bogor, Indonesia, CIFOR.
Iskandar, H., Snook, L.K., Toma, T., MacDicken, K.G. and Kanninen, M. 2008 A comparison of damage due to logging under different forms of resource access in East Kalimantan, Indonesia. *In:* Moeliono, M., Wollenberg, E. and Limberg, G. (eds.) The decentralization of forest governance: Politics, economics and the fight for control of forest in Indonesian Borneo. 173-189.
Iwan, R., Limberg, G. 2008 Tane'Olen as an alternative for forest management: Further developments in Setulang village, East Kalimantan. The decentralization of forest governance: Politics, economics and the fight for control of forest in Indonesian Borneo. 193-202.
Jeon, Jun-Heon, Yoo, Byoung Il, Kim, Jong-Ho, Seong-il, Kim, Oh, Sun Hwa, and Lee, Duk-Jae. 2008 Development strategies for green tourism in mountain villages. Korea Forest Research Institute's Research Report: 08-03. 185p. Korea Forest Research Institute.
Kalame, F.B., Idinoba, M., Brockhaus, M. and Nkem, J. 2008 Forest policies and forest resources flow in Burkina Faso, Ghana and Mali: Conflicting or consistent for adaptation to climate change? TroFCCA Brief No. 1. Bogor, Indonesia, CIFOR.
Kalame, F.B., Idinoba, M., Brockhaus, M. and Nkem, J. 2008 Politiques forestières et utilisation des ressources au Burkina Faso, au Ghana et au Mali: Sont-elles compatibles avec l'adaptation au changement climatique. TroFCCA Brief No. 1. Bogor, Indonesia, CIFOR.
Komarudin, H., Siagian, Y. and Colfer, C.J.P. 2008 Collective action for the poor: A case study in Jambi Province, Indonesia. CAPRi Working Paper No. 90. 49p. URL: http://dx.doi.org/10.2499/CAp.RiWp.90.
Kone, M., Bassett, T.J. and Nkem, J. 2008 Up in smoke: Biomass burning, land cover change, and atmospheric emissions in the Sudanian savannas of Côte d'Ivoire. Research Brief No. S07-08-05-LEAP. 4p. The Norman E. Borlaug Leadership Enhancement in Agriculture Program (LEAP).
Kusters, K., Achdiawan, R., Belcher, B. and Ruiz Perez, M. 2008 Balancing development and conservation?

An assessment of livelihood and environmental outcomes of non-timber forest product trade in Asia, Africa, and Latin America. *In:* Hussain, A. Managing non-timber forest products: Global perspectives. Hyderabad, India, Icfai University Press.

Levang, P., Sheil, D. and Kanninen, M. 2008 Le palmier à huile, Dr Jekill pour l'énergie, Mr Hyde pour la biodiversité. Liaison énergie Francophone Numéro Spécial: 26-31.

Limberg, G. 2008 Impact of small timber harvest permits on villages in the Malinau watershed. *In:* Moeliono, M., Wollenberg, E. and Limberg, G (eds.) The decentralization of forest governance: Politics, economics and the fight for control of forests in Indonesian Borneo. 91-106.

Locatelli, B. and Salinas, Z. 2008 Preguntas frecuentes sobre impactos socioeconómicos y ambientales en proyectos forestales MDL. Serie tecnica. Manual tecnico No. 83. *In:* Salinas, Z. and Hernandez, P. (eds.) Guia para el diseño de proyectos MDL forestales y de bioenergia. 83-105. Turrialba, Costa Rica, CATIE.

Locatelli, B. and Schroeder, M. 2008 Preguntas frecuentes sobre adicionalidad en proyectos forestales MDL. Serie tecnica. Manual tecnico No. 83. *In:* Salinas, Z. and Hernandez, P. (eds.) Guia para el diseño de proyectos MDL forestales y de bioenergia. 11-15. Turrialba, Costa Rica, CATIE.

Medina, G., Pokorny, B. and Campbell, B.M. 2008 Favoreciendo el desarrollo local en la Amazonia: Lecciones de las iniciativas de manejo forestal comunitario. Livelihood Brief No. 8. Bogor, Indonesia, CIFOR.

Medina, G., Pokorny, B. and Campbell, B.M. 2008 Favouring local development in the Amazon: Lessons from community forest management initiatives. Livelihood Brief No. 8. Bogor, Indonesia, CIFOR.

Moeliono, M. and Limberg, G. 2008 Tenure and adat in Malinau. *In:* Moeliono, M., Wollenberg, E. and Limberg, G. (eds.). The decentralization of forest governance: Politics, economics, and the fight for control of forest in Indonesian Borneo. 222-240.

Nasi, R. 2008 Beyond timber: Making multiple-use forest management a reality in Central Africa.

Nasi, R., Brown, D., Wilkie, D., Bennett, E., Tutin, C., van Tol, G. and Christophersen, T. 2008 Conservation et utilisation des ressouces fauniques: La crise de la viande de brousse. 50p. Montreal, Canada, Secretariat of the Convention on Biological Diversity.

Nkem, J., Idinoba, M., Brockhaus, M., Kalame, F.B. and Tas, Adriaan. 2008 Adaptation to climate change in Africa: Synergies with biodiversity and forest. Environment brief No. 3. Bogor, Indonesia, CIFOR.

Nkem, J., Idinoba, M. and Sendashoga, C. 2008 Forests for climate change adaptation in the Congo Basin: Responding to an urgent need with sustainable practices. Environment brief No. 2. Bogor, Indonesia, CIFOR.

Pfund, J.-L., Koponen, P., O'Connor, T., Boffa, J-M., van Noordwjik, M. and Sorg, J-P. 2008 Biodiversity conservation and sustainable livelihoods in tropical forest landscapes. *In:* Lafortezza, R., Chen, J., Sanesi, G. and Crow, Th.R. (eds.) Patterns and processes in forest landscapes: Multiple use and sustainable management. Springer-Verlag.

Pokorny B., Sabogal, C., de Jong, W., Stoian, D., Louman, B., Pacheco, P. and Porro, N.M. 2008 Experiencias y retos del manejo forestal comunitario en América Tropical. *Revista Recursos Naturales y Ambiente* 54: 81-98.

Raitzer, D.A. 2008 Assessing the impact of CIFOR's influence on policy and practice in the Indonesian pulp and paper sector. Impact Assessment Paper Bogor, Indonesia, CIFOR.

Setiono, B. 2008 Forest finance in Indonesia. ETFRN News No. 49. 33-35. Tropenbos International.

Sheil, D., van Heist, M., Liswanti, N., Basuki, I. and Wan, M. 2008 Biodiversity, landscapes and livelihoods: A local perspective. *In:* Moeliono, M., Wollenberg, E. and Limberg, G. (eds.) The decentralization of forest governance: Politics, economics and the fight for control of forest in Indonesian Borneo. 61-90.

Tieguhong, J.C. and Betti, J.L. 2008 Forest and protected area management in Cameroon. *ITTO Tropical Forest Update* 18(1): 6-9 [online] URL: http://www.itto.or.jp/live/Live_Server/4075/tfu.2008.01(06-09).e.pdf.

VERIFOR. 2008. Verification du bois: vers une exploitation forestiere legale. Bulletin Afrique Centrale. April 2008. Cameroon, Verifor.

Wunder, S. 2008 Are direct payments for environmental services spelling doom for sustainable forest management in the tropics? *In*: Bhatnagar, M. Payment for environmental services: Some concepts and experiences. 81-99. Hyderabad, India, Icfai University Press.

Wunder, S. 2008 Necessary conditions for ecosystem service payments. 10p. Washington D.C., USA, Conservation Strategy Fund.

Wunder, S. 2008 Oil wealth and the fate of the forest: Linking resource booms, macroeconomics, and the environment. *In*: Brightman, Heath. (comp.). The social issues collection: Readers custom library for teaching. 10p. London, UK, Routledge.

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CIFOR Annual Report 2008: Thinking beyond the canopy

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ISBN 978-979-14-1287-2