CFA Newsletter

No.41 June 2008 ISSN 1463-3868

Contents:

CFA Newsletter
is the newsletter of the Commonwealth Forestry Association

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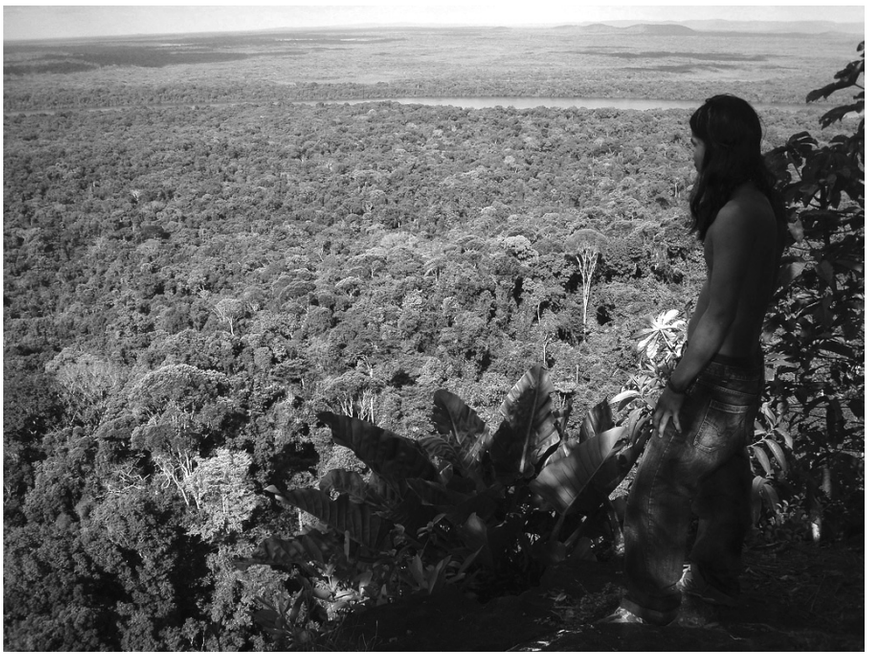
Driving capital to the rainforest canopy: A case study in Iwokrama, Guyana



Can we calculate a value for rainforests?

What is a forest worth?

Indigenous people, farmers, foresters and city dwellers all ascribe different values to forests,. However, years of research by ecologists and economists, leading up to the landmark Millennium Ecosystem Assessment (2005), have established the importance of biodiversity and associated environmental or ecosystem services (BES) to human well-being.

A new EU study, led by the Indian economist and banker Pavan Sukhdev, puts the cost of the continued loss of BES over the next 50 years at around €28 billion each year. When taking future losses into account, the EU estimates the net present value of services from forest ecosystems that are lost each year at between €1.3 trillion and €3.1 trillion (European Communities 2008).

From value to price

Efforts to quantify and value forest BES such as watershed protection, water filtration and sediment control have enabled their pricing through markets, donor programmes and government instruments. Regulation and corporate social responsibility have generated markets for biodiversity and wetland offsets, in which developers are permitted to damage certain habitats in return for conserving similar ones elsewhere. The need to mitigate climate change across all sectors has given rise to the possibility that a regulated market or fund will be

Publication of the CFA Newsletter is supported by the Commonwealth Foundation

created for avoided deforestation – called Reducing Emissions from Deforestation and Degradation (REDD) by the UN. While these trends give us cause for optimism, there are still many obstacles and concerns related to tropical forest conservation that need to be overcome.

Lost there, felt here

It is well known that the loss of local ecosystem services has a profound impact on indigenous and forest dependent communities and potentially jeopardises their ability to adapt to climate change. However, recent work suggests there is an under-application of the potential for forest loss to impact distant economies. For example, climate models suggest that expanding agribusinesses in the Amazon could eventually damage more established agribusinesses in the bread baskets of both North and South America by curtailing the rainfall exported from the Amazon on air currents (Werth and Avissar 2002, Da Silva et al. 2008). But since rainfall is a global public good, nations like Brazil have no right to charge foreign downwind beneficiaries for this service. Recent political and financial events may eventually change this status quo.

A price for all forests

One of the main sticking points during REDD negotiations at the UN Framework Convention on Climate Change is that some countries such as Costa Rica and India might not be compensated for past conservation of their forests, while others with low historical deforestation rates such as Guyana would not qualify for REDD payments. Unless carefully negotiated and constructed, therefore, REDD could create perverse incentives for these countries to deforest. The Commonwealth recognises these issues in the Lake Victoria Climate Change Action Plan, which calls for market-based mechanisms for countries with standing forests.

Da Fonseca and colleagues (2007) have proposed a system of preventive carbon payments for countries with high forest cover and low deforestation rates (HFLD), which therefore have low potential for REDD and afforestation and reforestation (A/R) payments. This would be a form of large-scale Payments for Environmental Services (PES) for the carbon stored in standing forests. The long-term aim of REDD should be to reduce deforestation to zero, at which point all payments will be for the maintenance of carbon stocks in standing forests.

If such a large-scale PES for ecosystem services such as rainfall and conserved carbon were to emerge and eventually succeed REDD, then early investors could stand to make a profit – having "bought low and sold high". This is the gamble which has been made by a group of high-net-worth individuals in a bid to help protect the Iwokrama Reserve in Guyana.

Driving capital to the rainforest canopy

In a deal announced at the Biodiversity and Ecosystem Finance Conference in New York in March 2008, these investors bought into a private equity company called *Canopy Capital*, which in turn has paid for the rights to market the ecosystem services produced by the 371,000 ha Iwokrama rainforest. According to the deal, these services include rainfall generation, climate regulation, biodiversity maintenance and water storage. Given to the Commonwealth for research into sustainable forest management, the reserve lies at the heart of the Guiana Shield, one of the four intact rainforest systems left in the world.

Funds already secured from *Canopy Capital* will be used to continue the management of the Iwokrama forest in accordance with its philosophy of conservation through sustainable best practice, providing livelihoods and business partnerships for the 7,000 Makushi people living in the forest and the surrounding area. Income from the deal will help to make Iwokrama financially independent of institutional donors by 2010 in accordance with the reserve's business and research plans. In the longer term, 90% of any investment profit will go to Iwokrama.

Canopy Capital is exploring various approaches to securing substantial investment in ecosystem services. In particular, it is looking at marketing them through an 'Ecosystem Service Certificate' attached to a 10-year tradable bond, the interest from which will pay for the maintenance of the Iwokrama forest.

Future potential and needs

The Canopy Capital/Iwokrama deal opens the way for financial markets to price the 'utility value' of rainforests. However, in order for such markets to work on a large scale, governments must step in to design the rules of the game. The discussions over whether and how to include avoided tropical deforestation within the UN Framework Convention on Climate Change (UNFCCC) have been lengthy and tortuous, which does not bode well for the creation of a separate mechanism revolving around the trading of global ecosystem services. However, the Convention on Biological Diversity (CBD) could provide the right platform for countries like Guyana to place their natural capital on the global accounting book.

The key scientific issues to overcome are to demonstrate the value of regional and global forest services such as rainfall generation and to create methods to monitor them. Politically, nations must be convinced of the need to create a mechanism for pro-active investment in the ecosystem services delivered by standing forests that will be cheaper than dealing with the costs if they are lost.

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Association News

New Regional Coordinator for the Americas and Caribbean

Shashi Kant, the Professor of Forest Resource Economics at the Faculty of Forestry, University of Toronto, Canada, has recently succeeded John Innes as CFA Regional Coordinator for the Americas and Caribbean. Before joining University of Toronto, he was a member of the Indian Forest Service, and also worked as a faculty member at the Indian Institute of Forest Management, Bhopal, India. He specializes in forest resource economics and forest management systems with emphasis on extending the boundaries of forest economics beyond the neo-classical paradigm. He has published more than 80 refereed papers, is the Editor-in-Chief of a book series on "Sustainability, Economics, and Natural Resources" and is Associate Editor of the Journal of Forest Economics, and the Canadian Journal of Forest Research. He has been the Guest Editor of two Special Issues of Forest Policy and Economics.

In 2004, he received Ontario's Premier's Research Excellence Award (PREA) for his research on Economics of Sustainable Forest Management. In 2005, he received the International Union of Forestry Research Organizations (IUFRO) Scientific Achievement Award and in 2007 the Canadian Institute of Forestry (CIF) Scientific Achievement Award for his overall contribution to the profession of forestry and forest economics.

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A new advisory service for foresters

AA International Ltd was created in 2005 by Dr Ian Robinson as a University of Wales spin-out company, utilising the knowledge and experience of Ian and other consultants from, variously, CAZS-NR (formerly Centre for Arid Zone Studies) Bangor University; Aberystwyth University; ACORD (formerly Euro Action Acord) and Dulas Ltd to offer technical assistance services in marginal, disaster prone and conflict/ post conflict zones world-wide.

To augment its regular technical assistance services, AA International has recently established a new concept in extension called **TechTalk©**.

TechTalk© is a personalised, web-based, E-advisory service designed to give project managers, farmers, land managers and others involved in the management of natural resources, rapid access to an expert practitioner who will answer their individual technical questions. **TechTalk©** advisors all have long practical experience together with access to the latest research, allowing the very best information to be made easily available to users who subscribe to the service.

TechTalk©, which was originally conceived in response to the lack of reliable information readily available for those engaged in natural resources management overseas, is a web and E-mail based subscription service designed for users world wide. Described simply, users subscribe then present their queries using a simple, standardised format. The question is matched to an advisor selected, by **TechTalk©** staff based in Aberystwyth, from a data base of specialists chosen for their proven experience, who is an expert in that specific field and the advice sent back to the subscriber, written in plain English, within 5 days. A typical question is no more than 200 words and it is envisaged that answers need not exceed 800 - 1000 words and may well be less, depending on the question. A small fee is payable to experts for each question that they answer.

Each subscriber will have a personalised access web page where a library of answers can be built up. The web site also presents the experts' answers to FAQs to all users.

AA International Ltd's links to the Tropical Agriculture Association enable them to draw on experts in natural resources, farming, forestry and rural development, with experience from around the globe. Of particular interest in this regard are members who are no longer field-active but wish to ensure that their extensive knowledge is shared with the new generation of NGOs and COs presently active in rural development.

AA International Ltd would be happy to welcome experienced members of the CFA onto their panel of experts. You can view the website at www.techtalk-international.com. For more information about this service, please contact Heather Pitcher, AA International Ltd, Technium,Y Lanfa, Aberystwyth, Ceredigion SY23 1AS, Wales, UK, Tel 00 +44 (0)1970 613460/1, email heather@aainternational.co.uk

Honorary doctorate award to Jeff Burley by CATIE

The Centro Agronómico Tropical de Investigación y Enseñanza – CATIE- at Turrialba, Costa Rica, recently awarded the degree of Doctor honoris causa to Professor Jeff Burley, for his services to international forest research and education. Jeff Burley is a Vice-President of the Association and Director-emeritus of the Oxford Forestry Institute. The award was presented by the newly appointed Director General of CATIE, Dr Jose Campos Arce, supported by a Director of Research and Development, Dr John Beer, both of whom were Professor Burley's students in Green College and in the Oxford Forestry Institute. CATIE is one of the world's leading forestry and agroforestry research and educational institutes with particular focus on Central and South America; over a period of nearly half a century many staff of the OFI had worked in the region and several at CATIE itself, mainly financed by the British Government's Department for International Development or its predecessors.

Professor Burley flanked by John Beer on his right, and Jose Campos on his left.

Forest scenes

Forestry in the Shetland Islands

What does a small, wind- and salt-swept archipelago one hundred miles north of mainland Scotland have to do with forestry? Even now, some inhabitants of the Shetland Islands shake their heads and say gloomily: "Trees can't grow here." Or more defiantly: "Trees spoil the view!" "You might as well plant them at the North Pole!"

Shetland offers a challenging environment for tree establishment

There is certainly no great tradition of forestry; most efforts at tree planting in what is, admittedly, a remarkably treeless landscape, were done until the early twentieth century by the wealthy lairds and merchants, while the vast majority relied on subsistence agriculture and fishing to eke out a comparatively harsh existence. Probably the gentry's efforts were viewed with a sceptical if not cynical eye.

After the Second World War, the Forestry Commission and Department of Agriculture planted experimental shelterbelts using Sitka spruce (*Picea sitchensis*) with shore pine (*Pinus contorta* var. *contorta*) as a nurse crop. These actually grew successfully on peat and podsols, but now they are severely affected by windthrow, not having been thinned, and anyway by now reaching the end of a normal timber rotation

Land that is suitable for planting is not in great supply. Where it would have been acceptable to plant fifty years ago, on Shetland's extensive deep peatlands, a different sort of forest is now proposed – of towering wind turbines. Forestry's carbon footprint is known, and forbidden in such areas.

Most efforts recently have been concentrated on the "in-bye" land of crofters, who benefited for a few years from a generous government subsidy for planting. Crofts are really smallholdings, and so these woodlands are proportionately small as well – none more than 2 hectares. Careful attempts were made to integrate them into landforms, and to avoid wetland and other florally sensitive sites, and archaeological remains. Shetland Amenity Trust (SAT), which conserves and promotes woodland, produced an information note on selecting sites and trees, which included a table of suitable species and provenances.

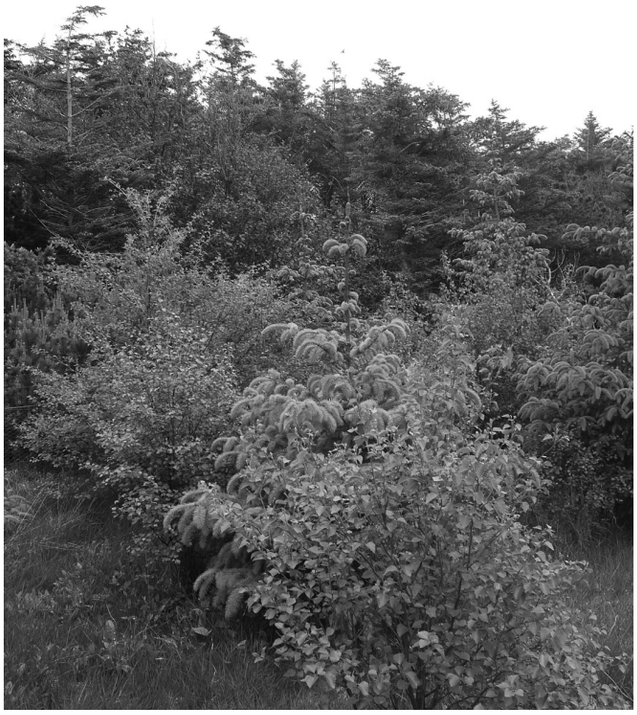
Provenance selection has proved to be of crucial importance for most tree species. A combination of high latitudes and maritime climates generally gives favourable results, especially when creating shelter. Being on the same latitude as Bergen, and with Faroe and Iceland as near neighbours, we have been fortunate to receive both advice and propagation material not available on the UK market, through an affiliation to the Nordic Arboretum Committee. That is not to discount excellent co-operation with woodland groups in Orkney, the Western Isles, and northern Scotland. The Highland Conservancy of the Forestry Commission, and Scottish nurseries that propagate native stock, have also been of great value.

Was Shetland always barren of woodland? One might be tempted to say "yes", but there is ample evidence below ground - and sometimes beneath the sea – to tell us otherwise. Most people who have cut peat for fuel can tell you of branches of birch, complete with bark, they have found in the lower regions of their peat bank. Scientists equipped with microscopes and carbon-dating equipment inform us that, between the last ice age and until about five thousand years ago, there was extensive birch woodland, with hazel, alder, aspen, rowan, willow, and possibly even ash, oak and elm.

Furthermore there are a few – very few - relicts of aspen, birch, hazel, rowan, and willow to be found in remote and inaccessible places. Two crab apples were recently discovered on eastern cliffs – perhaps these were courtesy of migrant birds from Norway?

Why and how did Shetland lose its tree canopy? A rapid decline in tree pollen about 5,000 years ago coincides with the arrival of settlers who no doubt, as elsewhere in the world, cleared woodland for fuel and pasture. At the same time a rise in the quantity of heather pollen indicates peat formation, as a result of a change in climate from continental to oceanic. My own (unscientific) feeling is that once the evapotranspiration potential of tree-cover was lost, the balance tipped in favour of precipitation.

What is obvious now is that trees can grow in Shetland, and not only on the most fertile soils (nor on deep peat). A good example of tree growth can be found at the plantation of Sullom, which was first planted as a shelterbelt experiment in the 1950s. This is on a shallow peaty podsol and was ridged and furrowed before planting. The surrounding area is relatively flat and exposed hill land, which was simultaneously



Growth at Sullom provides hope for other areas

being re-seeded with grass. The belt is on an east-west axis.

Shore pine of British Columbian (Lulu) provenance was first used, but had to be almost completely replaced with a more northerly provenance and with Sitka spruce. The belt is comparatively narrow (30m) and by 1990 maximum canopy height was approx 11m.

Unfortunately by this time several parts were going down from wind blow. Loosened root plates swayed above pools of water – evidence of the high water table.

In 1995 Forest Research initiated with SAT an experimental planting on either side of the belt, to test a variety of broadleaves in a matrix of conifers which would act as nurse crop. The ground was drained and sub-soiled.

After some teething (!) problems with rabbits, the extensions really began to gain in height, so that now a dense mixed woodland surrounds the original belt which can be progressively cleared of windblow, thinned and replanted.

The extensions also are in need of thinning, especially of nurse crop species, and this will improve access for the public. The woodland is well used by the local community, and of course is rich in bird life.

New forestry grants are coming on-stream now, but integrated with agriculture into land management contracts. While it is good to see that these two land uses are potentially not in opposition, some funds are capped, and it may be a challenge for Shetland to compete for grants against areas

which are considered more favourable for growing trees.

Nevertheless there is a growing interest in tree growing among the Shetland public, and trends in agriculture have encouraged crofters to diversify. Meanwhile more recent efforts in woodland creation have shown by example that tree growing is not the uphill struggle it was once thought to be.

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Living plantation museums

Most of the world's plantation forests now being established are short rotation pulpwood crops. Because these crops require management that is little more than planting and then harvesting the silvicultural knowledge is minimal - the tree species, the initial spacing and the rotation. Where stand management directly affects wood quality (as in the growing of saw or peeler logs) silviculture or stand management is much more important.

Over 99.5% of New Zealand's wood harvest comes from 1.8 million hectares of plantation forest – nearly 90% of which are radiata pine (*Pinus radiata*). Radiata's dominance of the New Zealand plantation resource is not only because the tree species grows fast (outgrowing almost all other tree species) on almost all low to medium altitude New Zealand sites and can produce a versatile softwood product for sawing, peeling, reconstituting, pulping, etc but also because the tree species is very responsive to silviculture. Although initially considered an unacceptable species for plantations (probably because it was considered to grow too rapidly) a very small area of early plantings demonstrated the tree species potential. Over the last century a combination of experience and research has resulted in the evolution of silviculture and management tools (especially models that predict growth, tree and log sizes and volumes, wood quality, costs, returns, values, etc). There are few better global examples of the importance of silviculture in plantation management than radiata pine in New Zealand. Partly as a result of that century of experience most radiata stands in New Zealand are now managed on similar regimes. No longer are there existing examples of how radiata pine stands were managed in the past. Absent also is any demonstration of how the present radiata management systems evolved in New Zealand.

No longer is the State a significant New Zealand plantation owner (most of the State forests have now been sold). Also, forest research priorities have changed and radiata silviculture is no longer a priority. As well as having lost examples of past stand management practices we also have the prospect of losing much of the knowledge and understanding of the reasons why and how radiata silviculture changed.

The desire to have examples of past management practices that illustrate the evolution of radiata silviculture was my main motivation in advocating living Plantation Museums. With the support of plantation owners I have now established three Plantation Museums:

Brooklands (North Waikato - 4 Kilometres north of Waingaro Springs) and owned by New Zealand Forestry Group Ltd. The Museum was established in the winter of 2002.

Kaingaroa (on the volcanic plateau) in a plantation owned by Kaingaroa Timberlands and managed by Timberlands Limited. The Museum was established in the winter of 2004.

Tangoio (north of Napier – 7 kilometres north of the Whirinaki mill) and on land owned by Roger Dickie and Vern Paulus. The Museum was also established in the winter of 2004.

The arrangement for all three museums is the same. I am responsible for the Museum management with all expenses paid by the forest owner (who also retains ownership of the Museum). I am very grateful for the continuing support and interest of the plantation owners.

The Plantation Museums are not a trial of possible regimes- the primary Museum objective is to illustrate the evolution of radiata silviculture.

The layout of all three Museums is similar: Each begins with small plantings of 12 tree species - four indigenous and eight introduced tree species (including European Larch, Douglas fir, Tasmanian blackwood, Eucalyptus species, coastal redwood and radiata pine). Some tree species in all three examples have completely failed (this was typical of early plantation experience). The species comparison is to demonstrate that radiata pine was the most successful species and the most responsive to management. All other plantings in the Museum are of radiata pine.

Radiata treatments that illustrate the evolution of silviculture

Over the last century dozens of management regimes have been proposed for radiata pine. Many proposals were minor variations of other regimes and most were never practiced on any scale. It is impractical (and would serve little purpose) to include all of these regimes in the Museum.

The Museum is my personal interpretation of how the silviculture (management) of radiata pine evolved and includes examples of what I consider were the significant changes in our plantation management. The Museum is more about the philosophy supporting what has been done than about how we actually did/do things operationally. Because sawlogs have always been, and still are, the primary objective of plantation management, the Museum concentrates on the evolution of sawlog regimes, especially regimes that include pruning. Although it was advocated and practiced in the 1960s, pruning above 6 metres is now rare. None of the regimes in the Museum have any pruning above the first log. The Museum does not do justice to the very comprehensive research done on agroforestry in the 1970s and 1980s. Plantations and pastoral farming are practiced on the same property but most land owners now prefer to keep the two land-uses more or less separate; there appears to be little interest now in managing stands to maximise returns with a combination of trees and grazing.

Plot 1 - 1900.

The first State plantations were established in the late 1990s

and the first two decades of the 20th Century. These plantations were established at 6600 trees per hectare (1.2 metres, or 4 feet, square). In the Museum this planting was replicated with seedlings of either GF0 (broadcast sown) or GF11. As the original plantings were grown to maturity without any tending the Museum examples will be similarly treated *i. e.* the plots will be neither thinned nor pruned.

In 1920, probably because of the cost and because planting at a lower stocking meant a greater plantation area could be established with the same resources, the initial stocking was reduced to 3000 trees per hectare.

Plot 2 - 1920

Planted (again using poor planting stock) at 3000 trees per hectare (1.8 metres, or 6 feet, square). This plot is representative of radiata pine plantings at the beginning of the first planting boom of the late 1920s. Again the plot will neither be thinned nor pruned.

In the late 1940s and the early 1950s these maturing overstocked stands were dramatically "thinned" by the sirex wood wasp. Plantation managers realised they had to artificially thin **before** the thinning was done by nature. The sawing of mature untended plantation grown trees failed to yield any clearwood. Although stands had been closely planted and not artificially thinned there was no natural pruning. To yield clears, it was realised that trees would have to be pruned artificially.

Plot 3 (a, b and c) - 1949

Ure (1949), was the first forester to seriously propose a pruning and thinning regime for radiata. In the absence of a market for small thinnings, Ure proposed multiple pruning combined with early "thinnings to waste" (which he called "unproductive thinnings"). To be followed by two (later reduced to one) production thinnings (for pulp and pulp/sawlogs). All three examples of the Ure regime were established with seedlings of either GF0 or GF11.

3a will be pruned as proposed by Ure but left unthinned (to demonstrate that some selectively pruned trees can lose dominance if the stand is not also timely thinned).

3b will be thinned but not pruned (not actually practiced, but will demonstrate that without pruning radiata branches can become large).

3c will be pruned and thinned as prescribed by Ure (although in practice it was rare for the thinning(s) to be done on time).

The continuing failure of production thinning to be done profitably and the realisation that a higher stocking resulted in either smaller diameter trees at clearfelling or longer rotations, resulted in the research-based Direct Regime of Fenton and Sutton (1968).

Plot 4 1968

This example was planted (with seedlings of GF 11) at 1500 trees per hectare (3.7 x 1.8 metres), early pruning, early "thinning to waste" to a final crop stocking of 200 trees per hectare (without any production thinning).

Experience of the regime, especially on ex-farm sites, suggested that a higher stocking is now more profitable (there is now less emphasis on butt log diameter growth and more emphasis on the branch sizes above the pruned butt log and on total volume production).

The next plots are a comparison of different final crop stockings.

Plot 5 (a, b, c and d). A range of final crop stockings

5a, **5b**, **5c** and **5d** planted (with high quality GF stock), at 300, 600, 900 and 1200 respectively. To be treated on the Direct Regime to final crop stockings of 100, 200, 300 and 400 trees per hectare (cuttings and seedlings in alternate rows).

In the Brooklands and Tangoio Museums these tree stockings can be seen from one viewing site.

In 1999 Dyck and Thomson of Carter Holt Harvey Forests (CHHF) proposed planting superior container grown cuttings at a final crop stocking of 500 trees per hectare (there was to be no subsequent tending). They ignored research experience that establishment at very wide plantings did result in quality trees. The CHHF regime was tried with alternative planting stocks.

Plot 6 (a, b and c) - the CHH Millennium Regime

500 trees per hectare planted with no further treatment (but with three different tree sources).

6a - CHHF container grown cuttings,
6b - high quality cuttings (GF+), and,
6c – the poorest quality seedlings.

Pruning and thinning has already commenced in Brooklands and will begin as scheduled in the other two Museums. As the Museums age, greater differences between the radiata treatments will become apparent.

My vision of being able to demonstrate the evolution of silviculture by comparing different radiata regimes at the same age and on the same site is now a reality.

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Biofuels: environmental salvation or ruin

Last year's report from the Intergovernmental Panel on Climate Change (IPCC) put into stark clarity the problems that we will face if we continue to produce carbon dioxide and other greenhouse gases at current or higher levels. The effects will be seen in changes to our food and water supply, the functioning of ecosystems and the occurrence of extreme weather events. The Government's forthcoming Climate Change Bill is a valuable recognition of this, making the UK the first country in the world to have legally binding targets to reduce carbon emissions.

But the Climate Change Bill is only the first (albeit vital) step in the process of tackling climate change. With the legislation in place, we face an even bigger challenge in making these emissions reductions happen. We will have to seriously reconsider the way we use energy and where we get it from if we're to make significant reductions in carbon emission over the coming decades.

Transport is a particular issue because energy use and carbon dioxide emissions associated with transport have grown faster than in any other sector, with fuel use almost doubling between 1970 and 2000, making it the biggest final energy user of any sector. Although there have been gains in the fuel efficiency of vehicles, they have been offset by the vast increase in road traffic. Unless we are to stop driving cars then, we need to find another way of powering our vehicles. Government calculations have indicated that if biofuel use were to reach 5 per cent by 2010, the effect would be equivalent to taking about one million cars off the road.

Unfortunately the situation is not that straightforward. Biofuels are often considered to be carbon neutral because the carbon produced when they are burned is offset by the carbon the crops take in to make food while they are growing. To have a more realistic view of the role they can play in tackling climate change, we need to look at the entire delivery process – the whole lifecycle of the biofuels. We must evaluate both the direct and indirect impacts – how much energy is used in producing and transporting the fertilizer to grow the biofuels? What crops would have been grown on the land before the demand for biofuels and did they absorb more carbon dioxide? As well as the emissions of greenhouse gases, we need to beware of unforeseen social problems such as increasing food poverty or displacement of small-scale farmers by large-scale biofuel plantations. If increased production of biofuels leads either directly or indirectly to, for example, deforestation, soil degradation or increased emissions of nitrous oxide from the use of fertilizers, it would lead to the perverse outcome of increasing rather than decreasing greenhouse gas emissions. It is also important to ensure that increasing biofuel production globally does not lead to social problems such as increasing food poverty or displacement of small scale farmers by large-scale biofuel plantations.

While we must applaud the EU and UK for their leadership in recognising the need to reduce emissions, since the EU and RTFO biofuel targets were agreed, the scientific evidence base for the targets has changed. The scientific community and other commentators have recognised that while some biofuels are being produced in a sustainable manner it is also evident that others are not, raising concerns about the potential unsustainability of biofuels from food crops, especially the indirect effects.

That's why the UK government has commissioned the Renewable Fuels Agency, under Professor Ed Gallagher, to lead a review of the evidence on the economics and sustainability of biofuels. In particular, he has been asked to look at the potential displacement effects of growing biofuel corps instead of other crops. A report is due by the end of June 2008. This review, which will be critiqued by the Government's Chief Scientific Advisors, is designed to provide the evidence on which longer-term UK and EU biofuel policies will be based, and to consider whether these first generation biofuels can be sustainably produced in the quantities required to satisfy future targets. If the review concludes that first generation biofuels can be sustainably produced under certain conditions then it is critical that the EU develop and implement legally binding environmental and social sustainability standards for sourcing all biofuels. If the review concludes that it is not possible to sustainably produce biofuels in the quantities required, then current EU and UK policies and targets will need to be re-examined.

In the meantime, the UK, which is the world leader in demanding strict reporting standards for biofuels, must do everything possible to encourage transport fuel suppliers to ensure that all the biofuels they use to meet the initial modest obligations under the RTFO are environmentally and socially sustainable. The challenge is to ensure that the indirect effects are fully taken into account, not just the direct effects.

Before dismissing biofuels value in tackling climate change however we should remember that these are early days for the technologies. Second and third generation biofuels, including cellulosic ethanol and biomass to liquids technologies, promise to address many of the problems associated with first generation ones, though large scale commercial viability is a number of years away. An urgent challenge is to increase both public and private sector research and development into such future generation biofuels.

Once we get this right, there are could be many benefits from biofuels: as well as playing a major role in reducing greenhouse gases, energy from sustainable sources of biomass could also enhance energy security by reducing dependence on foreign oil and provide an additional source of income for farmers. The task ahead is to ensure that the biofuels mandated under the Renewable Transport Fuel Obligation (RTFO) and EU targets are environmentally and socially sustainable.

Robert Watson
Chief Scientific Advisor,
Department of Environment, Food and Rural Affairs,
UK

Coltan mining destroys forests in war-ravaged DRC

Situated in central Africa, the Democratic Republic of Congo (DRC) crosses the equator as its war torn existence crosses all humane boundaries. Conflicted in violence and corruption DRC has seen the loss of 5.4 million people, countless forest stands, and much of its wildlife since 1998. Further reported by the Independent Rescue Committee, 45,000 DRC lives are lost every month. Peace efforts are under way but strife continues as health conditions deteriorate and the people of DRC are left with little means of self-support and little physical ability to utilize those means. Starvation, disease, and violent crime are alive and well in DRC.

High demand and high dollar possibilities fueled violence as key players fought over strategic DRC mine locations and land rights. According to the World Rainforest Movement, coltan is said to be a main driving force in "the first African world war" as indicated by former U.S. Secretary of State, Madeline Albright. 2003 brought some hope as a transitional government developed following 2002 peace agreements. Major conflict has since settled but DRC is in no sense of the word, at peace.

Why the violence, war corruption, and disregard for life? Money, cell phones, and the electronics cherished in the developed world. How you ask? DRC is positioned atop a wealth of some of the world's largest mineral deposits. In addition to past violence centred on the diamond mining industry, DRC has struggled to survive amidst new-age greed at the heart of coltan mining and the electronic gadget craze.

In a 2001 United Nations report, investigations suggested rebel militia from Rwanda and Uganda ravaged DRC and smuggled "thousands of tons of coltan." These tons were exported around the globe with profits supporting the militias' activity. Research indicates a rise in coltan export in connection with the Rwanda/Uganda occupation of northeastern Congo pushing coltan exports close to 70 tons by 1999. A mere 2.5 tons were exported from Uganda prior to the conflict outbreak of 1997. Rising civil rights violations coincide with the occupation as farmers were driven off their lands during the occupation (Essick 2001).

"Coltan" is the short name for a mineral created by a columbium (also called niobium) and tantalite contraction. Rare, very hard, and corrosion resistant even at high temperatures; tantalite conducts electricity and heat and is used in microchip manufacturing and cell phone, laptop, and video game batteries. The rechargeable battery industry has long thrived on the business of coltan mining. Refining coltan produces tantalum, the revered mineral form supporting the electronics industry which uses 60% of worldwide production (http://www.mbendi.co.za/indy/ming/othr/p0005.htm). Tantalite's conduction cohort, columbium, is used as a metal alloying element in steels and super alloys. As reported by Mvemba Phezo Dizolele in Pambazuke News 316, consumer electronics demand drove unprocessed coltan's price up during 2001 from $30-$40 US dollars to $400 US dollars by the year's end. High prices were short lived as evidenced by a sharp decline due to overproduction. 2001 came to a close after a handful of international traders and warring militiamen made their fortunes, leaving behind a devastated trail of poor miners and a destroyed DRC.

A seemingly simple process, coltan mining is done by human hands digging through mud. Villagers work long hours, often sunrise to sunset, in heat and rain with no physical protection and do so for pennies a day. Mushangi mines find children sifting in danger of mud slides and falling rocks or crawling through dark, damp, unsupported, tunnels in search of coltan. Children often outnumber adults as they strive to make up for ill and aging parents' loss of income (Dizolele 2007). Mining camps have been constructed near forest regions where coltan deposits are high. Mineral transport routes replaced forest area where hunters and gatherers once found life supporting food, shelter, and natural goods. Logging for camp shelter poles has accelerated deforestation. The Ituri forest is no longer a viable human sustenance resource. Nor is it the gorilla and okapis reserve or elephant and monkey habitat it once was (http://www.wrm.org.uy/bulletin/69/AF.html). UN findings tell us of forced labor, civilian murder, and monopolized regimes associated with coltan extraction (Essick, 2001), although rebel forces tout denial reports and threaten those who shed light on these atrocities.

In the face of horrible working conditions, natural resource devastation, and poverty, villager-miners now contend with a coltan-exposure congenital connection thought to cause bandy legs in new-born children.

Water provides a cleaning system for panned-out earth deposits, making it important for mines to be near streams. Soil erosion and silted downstream pools result as mud slide injuries increase. Ian Redmond, Independent Consultant of the Ape Alliance, offers a host of environmental damages due to coltan mining in his Born Free "Coltan Boom, Gorilla Bust" report, including:

- Forest clearing to mine the growth bed
- Bare earth erosion
- Forest clearing for firewood
- Hunting bush meat to feed camp dwellers
- Wildlife injury from snare escape
- De-barking trees to make mining bowls
- Cutting lianas to make coltan baskets
- Animal disturbance due to large human camp populations
- Invertebrate loss and photosynthesis reduction in aquatic plant life
- Reproduction reduction of fish in lakes and rivers due to silting
- Ecological change from keystone species loss - elephants and apes
- Long-term watershed changes due to rapid run off in deforested regions

The World Rainforest Movement (WRM) quotes African journalist Kofi Akosah-Sarphong stating, "Coltan in general terms is not helping the local people. In fact, it is the curse of the Congo." Coltan's curse extends well beyond the mines. Processing hub Bukavu city is marked by poor road conditions, state failure to provide public services, and former militiamen, now armed constituents in the Forces Armees de la Republique Democratique du Congo (FARDC). Located in Bukavu neighborhood, Ibanda, Olive Depot is a

large coltan company housed in a two story home converted for business (Dizolele 2007). No high tech equipment, no fancy headquarters, just a house. Coltan isolation requires a rudimentary process beginning with a mine representative, negociant, selling black dirt from the mines. Coltan, iron ore, and other minerals are then hand separated by laborers who have no work contracts and no safety equipment. Dizolele reports that few have masks as the black mineral dust falls on their faces. These men line up, standing hopeful each morning praying they'll be chosen for work that day. Even the negociant operates with little to no profit. People involved in mining, selling, and sorting, continue working because there is no other income source. The larger coltan beneficiaries are international exporters and depot operators, though the price is shown at $8-$18 US dollars as of Dizolele's 2007 Bukavu report.

A fragile peace hangs on in DRC but conditions remain grave in war aftermath. DRC news tells of rising crime and Doctors Without Borders were treating cholera outbreaks in January 2008. The future is uncertain and consumers have no way to bring about real change except to bring attention to illegal trade and the damage done in the looting of DRC's resources and its viability. Electronics consumers can limit product use, learn about manufacturer practices, and be wise in purchasing. Political pressure to find resolution, replenish wildlife, and restore peace is crucial. The January 2008 Peace Deal in Kivu (IRC 2008) is a start to an end.

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Rebecca Arrington

Biodiversity restoration and community development in Guantánamo, Cuba

"Un mundo mejor es posible"- "A better world is possible" says the slogan painted on a wall by the Committee for the Defense of the Revolution in Guantánamo, Cuba. Despite the criticisms that one may offer on the political regime in Cuba, one thing is undeniable, this country has an idealism and vision which is unique in the world. In a country where scarcity is the basis of daily life and where families are in a constant struggle to make ends meet, there is a proud awareness that the values the Cuban people are fighting for are building the fabric of a more just and inclusive world.

A farmer in Guantanamo showing the old sugar cane field that will be restored during the life of the project.

Guantánamo, the most eastern province of Cuba, is most notorious for being home to the American naval base which has a reputation of human rights' abuses and is a lasting symbol of the history of American imperialism on the island. The small communities of La Cecilia, Sombrilla, and Paraguay are located only a few kilometers from the base. However, despite the international attention that the base receives, these communities are living in relative isolation. For almost a hundred years the main industry in the region has been sugar cane, whose cultivation has left the soils degraded and depleted. The arid conditions coupled with the salinated soil make agriculture very difficult in the area and local farmers are struggling to get by.

As the rains begin in Guantánamo, Cuba, this April, local farmers are hurrying to get the first seeds planted for their new nurseries. The farmers have spent the past season learning about Analog Forestry as a tool to support biodiversity restoration and community development in the xerophytic corridor of Guantánamo. Along with the support of the Cuban Forest Research Institute (Instituto de Investigaciones Forestales – IIF) and the Canadian Non-Governmental Organization, Falls Brook Centre, the farmers are working to improve the quality of life for their families, their communities, and the environment.

The goals of the project are to plant native species to help restore the ecological system and encourage the return of native birds and animals which have all but vanished from the area. A healthy environment is a basic necessity for a healthy community, so as the environmental conditions improve, so will the quality of life of the people who depend on the soil, water, and vegetation to support their family. Through the principles of Analog Forestry, the farmers are working with local forest technicians to design a landscape which is made up of native and productive species, and analogous in structure and function to the original climax ecosystem. Through using the techniques of Analog Forestry, the project

Farmers and trainers developing land map for analog forestry application in Cojjimar

intends to restore the native ecosystem while at the same time incorporating productive species which will be able to ensure an economic return for the families involved. As the farmers plant trees on their land, they will not only be restoring the soil and habitat, but also increasing their families' income and contributing to food security in the region. The project also aims to increase the institutional capacity of the Instituto de Investigaciones Forestales and give their professionals the skills and resources they need in order to extend this reforestation effort to other degraded areas of the country.

In Guantanamo, the farmers fall under the jurisdiction of the State Forest Company which owns their land and delegates the responsibility of planting trees and caring for holdings to the individual farmers. However, up till now, reforestation efforts have been slow, and the farmers are often only planting one or two varieties of pioneer species. Through Analog Forestry, productive species such as tamarind and mango will be incorporated into the design along with native species to ensure that the local people will reap economic and nutritional benefits from their reforestation efforts.

Through the support of experts of the International Analog Forest Network from Canada who visited the Guantanamo project this past February, local farmers and technicians were able to begin envisioning what the future of their land could look like. The first steps were to observe the land, and for farmers to map out water flow, topography, and existing species on their own land. The next step was to look for a mature forest system on which to base the reforestation design. Unfortunately, due to decades of sugar cane cultivation and human interference in the area, the only natural forest to be found in the area is under the Cuban Military buffer zone surrounding the American military base. As access to this zone is strictly prohibited, learning about the native vegetation which used to exist in this area is a challenge. By talking to elders and looking through historical documents the farmers and technicians are beginning to piece together an idea of what the natural ecosystem should look like. After completing designs of the farm land, the next step is to collect seeds and start the nurseries in time for the coming rainy season.

As it can take a whole lifetime for a forest to reach maturity, one of the most important aspects of this project is to ensure that the farmers and the community have a long-term vision for their land. By drawing maps the farmers can imagine what the future might be like for these areas and have a goal to work towards over the coming years, long after the project is officially over. Restoring biodiversity is about improving the land and quality of life for generations to come. Jean Arnold, Director of Falls Brook Centre in New Brunswick, Canada and Director of the Cuba – Canada biodiversity restoration and community restoration project explains that "This project is not only about reforestation, but about demonstrating that we can encourage a more positive model of the world in which

we want to live. The work in Guantanamo is to restore the land and create a viable livelihood for people who depend on the land, in contrast to all that the USA base in Guantanamo represents."

Jenny DeMarco
Falls Brook Centre
NB, Canada
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Russian export taxes add to rising prices for logs

Our neighbours continue to make billions of dollars out of Russia's forests. We, meanwhile, are doing little to develop our own wood processing industry. Vladimir Putin

Recent rises in prices for logs for export have been driven by a number of factors, including increasing demand from Asian countries and the wood deficit in that region; external pressure to reduce illegal logging and processing; the effects of Mountain Pine Beetle in British Columbia (described in *Commonwealth Forests Newsletter* of March 2008); and a growing demand for fuelwood for bio-energy, especially in Europe. But the most important is likely to be the planned increase in Russian export tax on softwood logs, from 6.5% in February 2007 – when the new tax was announced – to 25% in April 2008 and eventually to 80% in January 2009.

The aim of the new tax is to promote the domestic processing of wood products, by essentially stopping all roundwood exports. At present Russia's share of the global trade in processed wood is less than 3% in terms of foreign currency earnings, but it is 22% of the global round timber market. Exports of logs have increased in recent years, to 51 million m3 in 2006, making Russia the world's largest exporter of industrial roundwood. Imports of wood and paper products into Russia on the other hand, are now worth more than $US3 billion, according to (then) President Putin. This move to promote domestic wood industries, which presently have the capacity to process only 2% of the annual harvest, is in line with other aggressive actions recently taken to control the gas industry, for example.

Finland, Japan and China are the countries mainly converting Russian logs at present, and their forest industries, along with those of Sweden, will be hardest hit. Finland, which receives 80% of its round wood supply from Russian forests, and Sweden have been making representations to the World Trade Organisation, saying the Russia is in violation of the WTO Treaty it signed three years ago, when Russia said that it would not raise its taxes. But it is understood that their case is unlikely to be accepted, and that the best hope is that some big investments in the Russian wood processing industry may at least push back the date for full implementation of the tax.

But there are likely to be some who gain from the sudden tax hike. Companies with operations in other wood exporting countries, such as the USA, Canada, Germany and New Zealand, should gain. And, since logs may make up to 65% of plywood variable costs, those countries with their own veneer log supplies, such as Brazil, should gain. Equipment suppliers should gain too, as Russia increases investment in its domestic processing plant, and of course the Russian wood processing industry should gain. Even Finland should gain in the longer term, as it shifts to utilise its unused annual domestic surplus of standing timber. There remain, however, a few nagging doubts for international investors in Russian industry, largely concerning infrastructure (or its absence), security of the investment, and transparency.

This note has been drawn from *Russian Roulette*, by Chris Cann, in *International Forest Industries* of June 2008, and from *Russia Raising Export Tariffs*, by Timo Karjalainen and Anne Toppinen in *EFI News*, Vol. 15, #2 of June 2007 to both of which grateful acknowledgement is made.

Jim Ball
CFA Chair

Employment in forestry

An often-quoted justification for investment in the forestry sector is that it creates jobs, especially in rural areas, and thus contributes to sustainable livelihoods. I recently came across a publication[1] which gives I believe an authoritative, if slightly disappointing, picture of the world's formal jobs in forestry.

Table 1 shows the total formal employment in the forest sector, and as a proportion of the total labour force, by region, in 1990 and 2000.

[1] Trends and current status of the contribution of the forestry sector to national economies. FAO Working Paper FSFM/ACC/07, December 2004. Available also on http://www.fao.org/docrep/007/ad493e/ad493e00.htm

TABLE 1 *Total forest sector employment and forest sector employment as a proportion of the total labour force, 1990 and 2000*

Regions	Formal forest sector employment, full-time equivalent, thousands		Forest sector employment as % of total labour force	
	1990	2000	1990	2000
Africa	517	547	0.2	0.2
Asia	5,264	5,867	0.3	0.3
Europe	4,073	3,602	1.2	1.0
N & C America	1,712	1,734	0.9	0.7
S. America	716	1,029	0.6	0.7
Oceania	126	130	1.0	0.9
World	12,410	12,908	0.5	0.4

Global employment in the forestry sector increased by 4%, from 12.4 million in 1990 to 12.9 million in 2000, and there were in addition at least 3.5 million people employed in the furniture industry. All regions except Europe showed an increase in total forestry employment in this period.

But the proportion of people employed as a proportion of the total labour force declined from 0.5% in 1990 to 0.4% in 2000, with significant falls in Europe, North & Central America and Oceania.

Table 2 shows the breakdown of employment, into jobs in the forest growing trees and logging; the manufacture of wood into primary products, for instance in sawmilling; and the manufacture of paper and paper products.

TABLE 2 *Employment in forestry, the manufacture of wood and of paper and paper products*

Regions	Formal employment, full-time equivalent, thousands					
	Forestry, logging and related services		Manufacture of wood*		Manufacture of paper and paper products	
	1990	2000	1990	2000	1990	2000
Africa	202	202	190	218	126	128
Asia	1,510	2,346	1,812	1,583	1,941	1,938
Europe	1,141	905	1,673	1,700	1,259	997
N & C America	255	260	673	733	784	741
S. America	354	421	159	347	204	261
Oceania	37	40	59	66	40	24
World	3,500	4,173	4,566	4,647	4,344	4,089

* excluding furniture

Employment in the three sub-sectors was roughly equal at the global level in 2000, although employment increased in the forest and decreased slightly in the manufacture of paper and paper products between 1990 and 2000. There was approximately one person employed per thousand ha, and one job in the forest supports approximately 1.1 jobs in the manufacture of wood and just under one job in pulp and paper in 2000. But there was great variation in the multipliers between regions and sub-sectors; in North America there were seven jobs in forest processing for one job in the forest for example, while in developing countries the ratio was roughly one-to-one. In Western Europe one job in the forest leads to 4.4 jobs in forest processing, while in Eastern Europe the ratio is 1:2.

Employment in the forestry sector (that is, all three sub-sectors combined) varied between regions and countries; either it was declining, stable, or increasing. There was declining employment in the sector in Western and Eastern Europe and Japan. In Western Europe (especially the Nordic countries), increased labour productivity and capital investment in equipment has led to the replacement of manual labour with machinery, resulting in a decrease of eight percent in forestry sector employment over the last ten years. Eastern Europe (including the Russian Federation) on the other hand, had to cope with the transition from centrally planned to market economies; the resulting privatisation and closure of inefficient factories led to a significant drop in production, and thus a reduction in employment. Overall employment in the forestry sector in Eastern Europe fell by 0.3 million or ten percent over the period 1990 to 2000. Another reason for a decline in forestry sector employment may be decreasing production (in some cases, combined with a shift to higher levels of forest products imports), as seen in Japan, where the number of people employed in the forestry sector declined by

23% during the 1990s.

There was stable forestry sector employment in the 1990s in North America, Africa, Western and Central Asia, Australia and New Zealand. In some countries, the effects of increased labour productivity were offset by new employment opportunities in expanded plantation programmes (e.g. Australia and New Zealand and, to some extent, Chile). In North America, total employment in the sector has also not changed, but there has been a trend towards declining employment in the pulp and paper industry (due to increased labour productivity), counterbalanced by increased production and employment in the wood industry.

Stability in employment in Africa and Asia was largely due to the slow pace of development in the forestry sector in these regions – except for South Africa (which accounted for 30 percent of the total employment in the formal forestry sector in Africa). Total forestry sector employment in Africa remained at about 0.5 million to 0.6 million during the period 1990 to 2000, while in South Africa it increased from 140,000 to 170,000 during the period. The same trends were also observed for West and Central Asia, where forestry sector employment remained stable at about 0.4 million people (of which about 70 percent were employed in Turkey).

The two regions where forestry sector employment grew rapidly were the Developing Asia-Pacific and Latin American and the Caribbean regions. It is estimated that 1 million additional jobs were created in the forestry sector in these two regions from 1990 to 2000 and this growth occurred across all three sub-sectors. This increase can be explained by the increased production in these regions over the period, supported by the significant availability of forest resources, rapid economic growth and high levels of investment in the sector in many of these countries.

The trends in a few countries have had a significant impact on the global trends in forestry sector employment. For example, in Turkey and China, the numbers employed in the forest amount to 25 people/1000 ha and 10/1000 ha respectively, highlighting the contribution of forestry sector employment in both countries to poverty alleviation and livelihoods. These two densely populated countries account for 40% of global employment in forestry activities, but only for about four percent of the global forest area. Employment trends in China especially have had a major impact at the global level, since it accounted for 24% of global forestry sector employment in 2000. In the late-1990s, the Chinese government enforced an environmental protection initiative, which included a ban on logging in more than half of the area of national forests in the country. Following this, employment in China's forest industries dropped by 30 percent or nearly 1 million in 1998. but from 1997 to 2000, employment in forestry in China had increased by around 0.5 million, due to an expansion in afforestation.

These figures give an idea of what I described above as the slightly disappointing contribution of formal employment in the forestry sector to national economies. But as the publication points out, it does not include informal activities, such as the collection of fuelwood or non-wood forest products and the total is therefore under-estimated by an unknown but possibly significant amount. There are enormous hazards in obtaining reliable information on employment in the formal forestry sector – let alone the informal sector.

There is a wealth of information in this valuable publication, not only on employment but also on value-added, the contribution of the forestry sector to GDP, and forest products trade. I gratefully acknowledge the help of CTS Nair in pointing out it to me. I understand that it will be revised, with figures up to 2005, early in 2008.

Jim Ball
CFA Chair

Forestry in British Columbia: from outpost to world class

BC has always had a lot of trees, but it didn't always have a lot of industry. James Cook first landed on Nootka Island in 1778 and the dense west coast forest seemed impenetrable. But over the next 93 years, this colonial outpost grew to 36,000 Europeans. By 1886 the Canadian Pacific Railway was completed and Vancouver was a booming logging town. Forestry had come to BC—in force.

By 1909, British Columbians began to wonder if their forests could withstand this wholesale harvesting and the first Royal Commission of Forests was born. The Fulton Report, published in 1910, addressed a single issue: could the forest support such rapid exploitation? The answer was no and the Forest Act of 1912 was the result. William Ross announced to the Legislative Assembly that "Armed with that weapon [The Forest Act of 1912], forged by this honourable assembly, the Government of British Columbia will undertake the work of forest conservation." Unfortunately, the Great Depression and two world wars pushed the health of BC's forests to the back to most people's minds. But, in 1947, two years after the end of World War II the predecessor to the Association of BC Forest Professionals was founded. By that point, BC's population had skyrocketed to 1,044,000 and BC's forests were in need of an advocate.

Today, 230 years after James Cook set foot on BC's shores, the Association of BC Forest Professionals is the largest professional forestry association in Canada with more than 5,300 members. Unlike other forestry associations in Canada, as of 2003, the ABCFP regulates both professional foresters (RPF) and forest technologists (RFT). RPFs manage forest resources, while RFTs specialize in on-the-ground fieldwork and perform technical forestry functions. This unique situation broadens our membership and the scope of work performed by ABCFP members. Our new vice-president, Jonathan Lok is the first Registered Forest Technologist to serve on the council executive and next year, he'll be the first RFT to serve as president.

Providing leadership to a diverse membership is a challenge. To assist us, the ABCFP recently finished our 2008-2010 strategic plan. Our mandate comes from the *Foresters Act*

and while a significant amount of our work is in in the area of registration and Act enforcement, our council wanted to also focus on the areas where we have discretion and can provide extra value to our members and the public. The following are our key strategic areas:

- Leading in Professional Practice and Forest Stewardship
- Running a Highly Effective Organization
- Providing Excellence in Forest Policy Leadership
- Supporting the Development of New Forest Professionals

Within our strategic plan is a relatively new goal for the ABCFP to build relationships with BC's First Nations groups and to be recognized by First Nations as taking a leadership role on matters of professional practice and forest stewardship. As a first step in this direction, we are meeting with First Nations groups around the province and have recently formed the First Nations Task Group.

Despite the importance of forestry to BC, we still struggle with recruitment as do forestry associations across our nation. A significant step was made earlier this year when the BC Task Force on Forestry Recruitment was formalized. With 20 active members, this group's immediate goal is to secure multi-year funding from the provincial and federal governments to hire a provincial forestry recruitment coordinator. With this coordinator in place, the task force will then begin to implement a provincial recruitment strategy.

British Columbia has always been defined by its forests. While we are still famous for our trees, we understand that our forest values–community, economy and ecology–need to be managed with care and so the ABCFP continues to work to ensure diverse, healthy and sustainable forests in British Columbia.

Allan Balogh, RPF
President of the ABCFP

DFID Workshop on Forest Fiscal Regimes, 4 and 5 June 2008

On 4 and 5 June 2008 a workshop on forest fiscal regimes in West and Central Africa was held at DFID in London. It had been commissioned by Matthias Rhein of DFID, and organised by Alain Karsenty of Cirad in Montpellier. The participants were:

Leaders:

Matthias Rhein, Policy Adviser, Growth & Investment Group, Policy Division, DFID.

Alain Karsenty, Socio-Economist, Forest Resources and Public Policies, CIRAD (French Agricultural and Forestry Research Centre for International Development).

Others (in alphabetic order by surname):

Gregory Amacher, Virginia Tech, Virginia, USA.

Paolo Cerutti, CIFOR, Cameroon

Mikael Grut, Forest Economics Consultant, London.

Oscar Edgardo Melhado, Senior Economist, IMF, Washington.

John Palmer, Senior Associate, Forest Management Trust, Gainesville, Florida.

Ivan Ruzicka, Senior Project Associate, PADECO, Vovray-en-Bornes, France.

Klas Sander, Natural Resource Economist, World Bank, Washington.

Hugh Speechly, FLEGT Specialist, DFID.

Adrian Whiteman, Forestry Department, FAO, Rome.

Each of the above nine participants presented a half-hour paper, and there was time for questions, comments and discussion between the presentations. The following subjects dominated:

- Corruption, and how to reduce it.
- How to encourage sustainable forest management, where that is the objective.
- Concession allocation to the highest acceptable bidder.
- Problems of collusion; how to favour small local firms and communities.
- Concession rent, area fees, stumpage fees (royalties), log export duties.
- Pre-bidding inventories and management plans.

Concession allocation by bidding is prescribed in the forest legislation of many African countries, but it is seriously practised only in Cameroon, where in some cases it has resulted in a more than six-fold increase in the fees paid by the private sector to the government per cubic metre of wood harvested.

During the concluding session Matthias Rhein suggested to prepare a brief guide for policy-makers based on the findings and conclusions of this workshop. Some participants suggested that the preparation of the guide should be followed up with a workshop in West or Central Africa to which representatives of the ministries of forestry and finance should be invited.

It is the intention of the organisers that the papers presented during the workshop will be published, possibly in the International Forestry Review.

Mikael Grut

FAO Forestry Department updates its website

The FAO Forestry Department has updated its website, as part of an Organization-wide initiative to introduce a corporate look and feel. The FAO Forestry Web presence now sports the corporate blue-and-white colours throughout. At the same time it is hoped this will give a better browsing and reading experience. Click on http://www.fao.org/forestry/home/en/

Jim Ball
CFA Chair

The bigger picture of forest conservation: what is the demand for landscape approaches?

As the parties of the Ninth Conference of the Parties of the Convention on Biological Diversity took a break from their discussions for lunch, a group of representatives from leading conservation and research organisations debated the importance of landscape approaches to forest conservation and management. At the centre of this discussion was whether landscape approaches, which have been presented as potential solutions for mediating the trade-offs between conservation and development, are relevant and effective, and if so, for whom. And the question posed to the speakers by the host of the event, the Center for International Forestry Research (CIFOR), was what should research on landscapes address and who should be the recipients of the outputs of that research.

The discussions centred on tropical forest landscapes, which as the chair of the side event, Jeffery Sayer of IUCN, noted, are typically characterised by weak institutions for environmental governance in complex, changing landscapes of forests, agriculture and other land uses. The problems that affect these complex landscapes are not just biophysical, he stated, but social and cultural as well. Within these landscapes are multiple groups, often with conflicting interests on how these landscapes should be used and managed. In taking a landscape approach, he asked, whose vision of the landscape should prevail. In this context, the role of a conservation organisation should be to mediate these different visions in order to reach a shared, long-term goal for the management of the landscape.

The role of research in informing and achieving landscape level conservation was explored by Meine van Noordwijk of the World Agroforestry Centre and Joint CIFOR-ICRAF Biodiversity Platform and Alain Billand of the Agricultural Research Center for International Development (CIRAD). Meine van Noordwijk's presentation focused on the question of how research can alter the trajectory of landscapes that are moving from forests to intensive agriculture, especially in landscape mosaics, in order to preserve forest cover. Forest cover in these areas has functional, direct uses for local communities, as well as preserving connectivity between larger forest reserves and "sustainagility" - defined as the properties of and resources in a system that allow actors and agents to be agile, in this case referring to flora and fauna and their responses to climate and other environmental change. Using the example of the Landscape Mosaics Project, a collaboration between CIFOR and the World Agroforestry Centre, he demonstrated how a landscape approach to research at the landscape level can be conducted, that addresses biophysical and socio-economic issues and informs land-use planning processes.

Alain Billand, using examples from the Congo Basin, emphasised once again the need in landscape approaches to bring diverse stakeholders together for landscape management. An ideal future for landscape approaches would bring together different stakeholders to work together for the management of the landscape with the security of contractual agreements. Although he espoused the value of these agreements, he acknowledged that landscapes are also shaped by informal practices, which in order to address the issues require engagement with local communities and the monitoring of the uses of forest resources.

The panel discussion after the presentations complemented what the speakers had said with perspectives from different groups who have interests in forest resources. Gillian Shepherd of the Overseas Development Institute (ODI) and IUCN Commission on Ecosystem Management, representing the interests of local communities, described the multiple uses of landscapes and their resources for local communities, and stressed that landscape approaches should first understand local livelihoods and work up from there. Andre Kamden Toham from the WWF Central African Regional Programme Office in turn discussed his experiences with landscape approaches that normally involve, as the initial step, designing protection and production areas for forests. In order to ensure that good governance and management are in place, a significant level of engagement with local communities and private enterprises is needed. This engagement of local communities could be enhanced through potential market mechanisms such as the carbon markets that could provide payments for environmental services to these communities. Jane Carter of Intercooperation discussed the interests of donors, which would focus on the development of the rural poor more than conservation. She also stressed the importance of a multi-stakeholder approach that included partnerships between government agencies, civil society and local communities. Landscape approaches such as these were opportunities for basket funding for projects that bring together different government agencies that have overlapping interests and normally would not work with each other. Finally, Robert Nasi of CIFOR argued that landscape approaches were beneficial to the forestry sector as the

activities of land users beyond the forest concession can often impact on the forest in negative ways, such as pesticide use, which can affect certification status.

The most common theme that emerged from the side-event was the need for a multi-stakeholder approach, which develops a shared long-term vision of the management of the landscape, integrating multiple land uses ranging from conservation, forestry, non-timber forest products use, agroforestry and agriculture. While some speakers emphasised working from the local vision up, others demonstrated that as the scale of the landscape in focus increased, the need for higher-level coordinated agreements increased. Research in this field serves both to inform and facilitate, through participatory action research methods, processes that lead to negotiated multi-stakeholder agreements. The speakers acknowledged that the ideas behind landscape approaches are not new, but their application has not been consistent in conservation efforts, and the need for them is greater than ever.

John Watts
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cifor.cgiar.org/Research/ENV/Themes/Bio/biodiversity_platform.htm

Jobs

Faculty positions at UBC

The faculty position advertisements for the CRC Tier 1 in Natural Resource Economics and the Chair in Forest Hydrology are now available on the Forestry website under "Faculty & Staff -Job Postings". http://www.forestry.ubc.ca/FacultyStaff/JobPostings/tabid/675/Default.aspx

Editor - Forests, Trees and Livelihoods

Mike Philip is looking for a successor as editor of Forests, Trees and Livelihoods. He writes "I have enjoyed doing this job for the last 7 years - working about 10 hours a week. I have had great satisfaction in helping research workers in very many tropical countries publish their work, and enjoyed the opportunity to keep up with current work and maintain contacts overseas." Anyone interested should contact Mike at philipfor@aboyne93.wanadoo.co.uk and visit the journal's web site at http://www.foreststreesandlivelihoods.co.uk.

Around the world

UK: How is a tree valued?

A six-foot-wide plane in Berkeley Square, Mayfair, is thought to be the UK's most valuable tree. It has been valued at £750,000 under a new system that puts a "price" on trees. But how? The answer involves considering its size, unit value, number of people living nearby, its benefits and problems and its life expectancy.

So how are trees priced? Size is the biggest factor, followed by population density of the surrounding area (how many people enjoy the tree), the size of the canopy, its life expectancy, its impact (does it flower or drop annoying honeydew) and any special factors, such as Queen Victoria planting it.

The system has been trialed in London and is gradually being adopted by local authorities elsewhere, such as Bristol. There was a previous method of tree valuation called Helliwell but it measured the visual worth of a tree, says Jon Stokes of the Tree Council. This new system, devised by tree officer Chris Neilan, is complementary but different. "Ultimately the purpose is that more trees are saved, because you can say ,this tree has a relative value to this community'," says Mr Stokes. "It's not just a tree, it's something that is part of the estate of this local authority or this person, therefore you need to protect it."

Putting a price on a tree changes people's attitudes and if developers think in financial terms, then a community asset must be valued in the same currency, he says. So if a developer is in court for illegally destroying a tree, then the fine could be a reflection of the tree's value, says Mr Stokes. Or if a new development replaces a stock of trees then the builder could contribute to the community a sum equal to the value of that lost stock.

Under this system, plane trees like the one in Berkeley Square are the most expensive, mainly because they retain their full crowns. Cedars, on the other hand, lose theirs very quickly.

His calculation tries to assess a tree's replacement value and its outline is as follows:

- The basic value is the full cost of a newly planted tree in a given area, divided by its trunk area. There are two parts - the nursery gate price, expressed in terms of the cost of each square centimetre of stem (or unit area cost), and the planting cost (transport, planting, materials, immediate care and management costs, but not after-care)
- The CTI value is the basic value adjusted to take account of the population density and degree of use of the location. It may be multiplied by a factor of up to 250%, or reduced by up to 75% according to these factors
- This becomes the functional value when accounting for an expert assessment of the tree's functionality, including how big the crown is and what condition it is in
- After a surveyor's assessment of any special factors like heritage importance and whether it causes problems to residents or parked cars, you get an adjusted value
- The final value reflects the life expectancy. If it is greater than 80 years the tree retains 100% of its adjusted value; those with a life expectancy of less than 5 years lose 90%

news.bbc.co.uk

Rwanda: Forest corridor to evict settlers

Government officials recently disclosed the possibility of relocating people settled within an area set aside for a woodland corridor to link Gishwati and Nyungwe forests. Frank Rutabingwa, the head of national forestry project (PAFOR), said the plan on how the exercise will be carried out is ready.

He said that the Great Ape Trust/Earthpark, a US-based organisation, has already declared its intention to develop such a forest corridor in that area under the help of government. "What I know, the corridor will cover a small elongated piece of land in would-be designed areas for that" said Rutabingwa. The plan to have such a corridor was announced by the Great Ape Trust which intends to develop Gishwati Forest Reserve into a national conservation park. The body said that it considers creating a 30-mile (50km) tree corridor to connect the 15 Gishwati chimpanzees to Nyungwe National Park, home to different primate species.

The aim is to help them make contact with those in Nyungwe in order for them to enjoy a wider pool of prospective mates, and thus avoid inbreeding. The creation of a woodland corridor is perceived by Rutabingwa as a part of appropriate ways to come to the rescue of species threatened by human activities in the area. He said that PAFOR has already embarked on restoration of the area's ecosystem in the form of improved water quality, reduced soil erosion, flooding and fewer landslides. Adding that the reforestation for lost plants and devising how people should use them effectively means that ecosystem restoration can truly be sustainable.

Rutabingwa said that their efforts also aim at creation of protected forest tracts, which will help local people to start-up low-income activities like nature-based tourism practices. Generating income through ecotourism, investment opportunity and local employment is anticipated to change people's livelihoods while backing lives of wildlife in the

area.

Once the second-largest indigenous forest in Rwanda, Gishwati covered 8,800 hectares in the early 1900s, but resettlement of people after the 1994 genocide reduced it to about 1,000 hectares. According to reports from Ministry of Natural Resources, reforestation efforts during the past several years have increased Gishwati's forest with an additional 4,000 hectares.

allafrica.com

PNG: New Guinea forests shrinking faster than the Amazon

The lush tropical rainforests of Papua New Guinea are not the unspoilt haven that many believed till now. In fact, they are disappearing faster than those in the Amazon.

That's the conclusion of a team led by Phil Shearman of the remote sensing centre at the University of Papua New Guinea (PNG) in Port Moresby, who applied pattern recognition software to recent satellite images, and paired the results with map data from the 1970s to reconstruct the rate of forest loss.

Their study found that in 2002, 1.4 per cent of PNG's forests were cleared or degraded, increasing to 1.7 per cent in 2007. If the trend continues, more than half the forest that existed when PNG became independent from Australia in 1975 will be gone by 2021. The Brazilian Amazon is losing 0.9 per cent of its forests annually.

Nearly half the land was cleared for subsistence farming. The rest was lost to logging. "Malaysia is virtually completely logged out. Indonesia is nearly logged out, so in the last 15 years the logging companies have moved to PNG," says co-author Julian Ash of the Australian National University in Canberra.

PNG is the eastern half of the island of New Guinea, which is home to 6 to 8 per cent of the world's species. Much of that diversity is concentrated in the rainforests.

Until this report, out-of-date official information and anecdotal reports led many experts to believe that PNG's forests had been left largely undamaged by humans, says biologist Allen Allison at the Bishop Museum in Honolulu, Hawaii.

newscientist.com

World: FSC has 'Failed the world's forests' say critics

The Forest Stewardship Council (FSC) has come under increasingly harsh criticisms from a variety of environmental organizations. The FSC is an international not-for-profit organization that certifies wood products: its stamp of approval is meant to create confidence that the wood was harvested in an environmentally-sustainable and socially-responsible manner. For years the FSC stamp has been imperative for concerned consumers in purchasing wood products. Yet amid growing troubles for the FSC, recent attacks from environmental organizations like World Rainforest Movement and Ecological Internet are putting the organization's credibility into question.

Last week the World Rainforest Movement released a scathing press release calling a decision by the FSC to certify eucalyptus plantations in Brazil its "death certificate." The eucalyptus plantations are owned by Veracel, a partnership between Aracruz Celulose of Brazil and Stora Enso of Sweden-Finland, which has a shaky environmental record. The press release alleges that Veracel "has a very well known record of harmful actions, including violating local communities' rights over land, to environmental pollution, water depletion and ecosystem destruction." World Rainforest Movement's greatest concern, however, is that by certifying Veracel's eucalyptus plantations, the FSC is stating that large-scale monoculture plantations are environmentally sound, socially responsible, and beneficial to local people. Whereas research has shown that monoculture plantations support little biodiversity, result in CO_2 emissions relative to natural forests, and undermine the efforts of local people to manage forests in a sustainable manner. In calling this decision the FSC's "death certificate" the World Rainforest Movement asserts that "the certification of Veracel is not an isolated fact, but the last piece in a chain of failures."

As this press release emerged, the FSC was already under criticism by another environmental organization, Ecological Internet. In early March Ecological Internet began a campaign stating that the FSC's support for logging old-growth forests was completely at odds with its purpose. The campaign targets some of the world's most influential environmental and well-respected NGOs, asking them to withdraw their support from the FSC. These include Greenpeace, WWF, Rainforest Action Network, NRDC, Forest Ethics, Friends of the Earth and the Rainforest Alliance. Ecological Internet claims that, much like supporting monoculture plantations, the support of ancient forest logging diminishes biodiversity, causes net carbon losses, and harms the forest's ecology.

"It has become evident to environmentalists in the know that FSC has become an obstacle to ending ancient forest destruction, addressing climate change and biodiversity loss, and promoting desirable ecologically based practices in regenerating and planted forests," Ecological Internet founder Dr. Glen Barry told mongabay.com. "The organization is plagued with conflicts of interest, poor quality assurance mechanisms, and generally has failed the world's forests. As such, we are in the uncomfortable position of protesting greenwashing NGO FSC supporters, who are finding it quite difficult to acknowledge they have been critical in creating

and maintaining the FSC myth."

Dr. Barry's criticism of NGOs that support the FSC has touched off sharp debates within and without these organizations. The situation has become so tense that the Rainforest Alliance–usually a group that does the pro-forest campaigns–recently faced environmental protesters at a 'Green Leaders' cocktail party for their support of the FSC and old-growth logging. The Rainforest Alliance has said they will join in a debate regarding their support of old-growth logging.

Both of the reports emerged after face-saving efforts by the FSC in Indonesia where an inquiry by The Wall Street Journal last year prompted the organization to effectively revoke certification for a Singapore-based Asia Pulp & Paper Co. (APP) project on the Indonesian island of Sumatra. The admission, which environmentalists said showed the FSC had relaxed its certification standards to the point at which APP could qualify for the eco-label despite a poor environmental record, threatened to undermine the credibility of its labeling scheme.

A report released this week by the Environmental Investigation Agency (EIA) and Telepak on illegal logging in Southeast Asia has provided further trouble for the FSC. The report uncovered that corporations are getting away with lying about certification. Furniture companies YourPriceFurniture.com and Kybotech Ltd. both claimed that all their products were FSC certified when the claim was patently untrue. Both companies sell wood furniture that has never received FSC certification. According to the report, Kybotech Ltd. when pressed admitted that "certain furniture sets were not actually certified."

Such reports of FSC's difficulties–both globally and locally–are not being ignored. In what may be the beginning of a large-scale abandonment of the FSC, last Tuesday the Swedish Society for Nature Conservation (SSNC) withdrew its long-time support of the FSC. In a statement the SSNC said that the "FSC functions badly in Sweden. The standard is weak, the lack of observance is substantial and the forest companies will to improve FSC is weak." Sweden is not alone. Certification practices in the FSC in Ireland and the US have come under increased scrutiny, causing outcry amid many local environmental groups. Last year Norway went as far as banning use of all certified wood products in public buildings.

While its future seems increasingly precarious, the FSC still possesses widespread support from large environmental global players. Further no one has yet proposed a viable replacement should the organization not survive rising criticism.

In the meantime consumers are left increasingly in the dark when trying to purchase environmentally-sustainable and socially-responsible wood products. Caught in an environmental Catch-22, eco-conscious consumers who want to avoid supporting large-scale monoculture plantations and old-growth logging, seem forced to avoid both FSC certified and non-certified furniture.

mongabay.com

Indonesia: Palm oil firms pledge to stop clearing rainforests

Palm oil companies operating in Indonesia pledged to stop clearing forests for new plantations, reports *The Jakarta Post*. The move is a response to growing criticism that oil palm expansion is destroying biologically-rich rainforests and contributing to global warming.

Speaking in Jakarta at a seminar on climate change, agriculture and trade, Didiek Hadjar Goenadi, executive director of the Indonesian Palm Oil Association (GAPKI), said that palm oil companies would only develop "idle land", including former forest concession areas. "We realize the environmental impacts by opening all our forests so we will stop touching the forest and just concentrate on abundant lands which have not been cultivated yet," Didiek was quoted as saying.

Didiek estimates that Indonesia has some seven million hectares of idle land suitable for oil palm or rubber plantations. He added that while some companies are adopting "greener" practices set forth by the roundtable on sustainable palm oil (RSPO), many small farmers – accounting for nearly half of production – are unaware of such cultivation techniques. He called on the Indonesian government to educate small holders on RSPO regulations.

Indonesia is the world's largest palm oil producer, producing 17.2 million tons in 2007. About 6.7 million hectares of plantation are currently in the country. Environmentalists say oil palm expansion in Indonesia – especially on the islands of Sumatra, Borneo (Kalimantan), and New Guinea (Papua) – is fueling deforestation and threatening endangered species like the orangutan. The country lost more than 1.8 million hectares (4.7 m acres) of forest annually between 2000 and 2005. Scientists say the clearing of forest and peatlands is also releasing large amounts of greenhouse gases into the atmosphere.

mongabay.com

Canada: The beetle factor in a carbon calculus

Trees have been fighting climate change for ages, using photosynthesis to remove carbon dioxide from the atmosphere and sequestering it for the long term in their tissues. Most forests are considered net sinks of carbon dioxide, meaning they store more carbon than they give up.

But natural events can upset a forest's carbon calculus. Big fires, for instance, spew plenty of CO_2 into the atmosphere, and the dead trees that remain eventually decompose by microbial action, releasing more of the gas.

By killing trees by the thousands, widespread insect infestations can do the same thing. But rarely have insect blights been considered when determining a forest's carbon balance.

Now Werner A. Kurz of Natural Resources Canada and colleagues have calculated the impact of an infestation of mountain pine beetles on pine forests in British Columbia. The effect, they report in Nature, is startling: the forests are now a large carbon source, and will remain so at least until 2020, long after the infestation peaks.

At more than 32 million acres and counting, the pine beetle blight is at least an order of magnitude larger than any previous recorded infestation by the insect. And global climate change, Dr. Kurz said, is partly responsible: winter temperatures no longer get low enough to kill off the beetle, and warmer summers allow greater reproductive success.

Dr. Kurz has been studying the carbon balance in Canada's forests for years, and he developed a computer simulation that weighs many factors. The current work, he said, "is the first time I'm aware of that a study has been able to isolate the effect of the beetle." The results show that in the worst years, the amount of carbon released in British Columbia forests will be roughly three-quarters of the average annual amount of carbon released, largely through fires, in all of Canada.

Dr. Kurz said the study showed how climate change, by making the infestation worse, creates positive feedback on future climate change by affecting forests that once removed a lot of carbon dioxide from the atmosphere.

"This particular piece of real estate is not going to do that," he said. "To the contrary, it is actually adding to the burden."

www.nytimes.com

Australia: Industry moves to quell public outrage at forest burns

Forestry Tasmania and the Forest Practices Authority have moved to dampen public outrage over forestry burn-offs. Forestry Tasmania and Wine Industry Tasmania have agreed to talk when grape picking and forestry burn-offs coincide. "In the future, Forestry Tasmania will include nine regionally nominated Wine Industry Tasmania Ltd representatives in burn-off notification groups so they are informed of burns in the vicinity of vineyards," said FT executive general manager Hans Drielsma.

"The nominated WITL representatives will pass on information to other growers in their region. "It is understood that industry representatives will not have a veto over planned burns, but FT will take into account growers' concerns when deciding burn priorities. "FT's community liaison officers will be the point of contact for growers."

The wine sector wanted to limit potential for smoke damage to grapes after reports of damage from fires in Victoria. The Forest Practices Authority will implement mandatory procedures in 2009 for the controversial burn-offs.

Chief Forest Practices Authority officer Graham Wilkinson said an accredited officer would be required to make the decision on whether a burn should go ahead. He said the decision on burning would be made in conjunction with the Bureau of Meteorology. "The weather conditions would be taken into account to see whether a burn was likely to create a nuisance," he said. The time had come for an industry-wide set of standards, he said. Voluntary guidelines had been in place this year and their success would be evaluated before the mandatory procedures next year.

Mr Wilkinson said some burning was needed to manage fuel load and prevent savage fires in summer. But the Tasmanian Greens said the FPA had not gone far enough and they wanted forest burn-offs banned altogether. Greens spokesman for native forest logging Tim Morris said it was bitterly disappointing that the FPA's response was to codify the practice. "It is abundantly clear the forest industry does not operate by the reasonable rules that every other industry and individual has to," he said.

"No other industry would be allowed to spew millions of tonnes of pollution into the sky in a period of a few weeks." He said the community had expressed outrage over the pollution. "The response of the supposedly independent FPA is to move to codify and entrench the burning of forest residues instead of banning it altogether."

www.news.com.au/mercury

Brazil: Call for new laws on stolen logs

Suppliers of illegally logged timber could be prosecuted in the countries where it is sold, under new proposals. The move was tabled recently at a gathering in Brazil of legislators from the Group of Eight (G8) richest economies and five key developing countries.

It called for countries to pass domestic legislation making it a criminal offence to handle such timber. The risk of prosecution would make wholesalers pay attention to the origin of wood they supply, advocates argued.

One of the authors of the proposal is the British Labour MP Barry Gardiner, who is Prime Minister Gordon Brown's Special Envoy on Forests. He told BBC News that the consumer countries of tropical timber had a responsibility to reinforce the laws passed in producer countries, which are estimated to lose £8bn ($15bn) a year in revenues due to illegal logging, according to World Bank figures.

"If a tree was felled illegally, let's say in Ghana, and the wood from that tree ends up coming into the UK, then anybody who tries to sell that wood, who imports it or trades it in the UK, would be subject to a criminal prosecution," he said. "It would ensure that some of the poorest people in the world recapture the full value of the product that is being stolen from them at the moment. Illegal timber means stolen wood, and that's what we are trying to combat."

A step in this direction has already been taken in the United States, where an amendment to the so-called Lacey Act has been passed in the Senate, which would extend penalties currently applied to traders in illegally obtained wildlife to trees and plants harvested abroad. Similar measures are under consideration by the European Commission, and Mr Gardiner himself said he planned to propose legislation in the British House of Commons.

The executive director of Greenpeace UK, John Sauven, said the EU must act to crack down on the trade in illegal timber. "Greenpeace has repeatedly exposed how illegal timber continues to freely enter the UK and it is vital that European legislation is introduced to ensure that all timber products come from environmentally and socially responsible sources," said Mr Sauven. "As things stand today, companies who try to source timber responsibly are placed at a competitive disadvantage by others who choose not to question where their timber is sourced from. This situation is clearly unacceptable."

As the politicians put forward their proposals in Brasilia, the chief executives of 15 leading forestry companies issued a new "vision of tropical forestry for the year 2015", acknowledging the problems caused by deforestation and degradation of rainforests. It calls for the implementation of credibly certified forest management practices and greater collaboration between forest enterprises and local communities.

More effective protection of rainforests has taken on a new urgency in Brazil, following the publication of figures in April showing that deforestation in the Amazon had accelerated again in the final months of 2007, after three years of decline.

news.bbc.co.uk

Burma: Mangrove loss 'put Burma at risk'

Destruction of mangrove forests in Burma left coastal areas exposed to the devastating force of the cyclone Nargis, a top politician suggests. ASEAN secretary-general Surin Pitsuwan said coastal developments had resulted in mangroves, which act as a natural defence against storms, being lost.

Mr Surin, speaking at a high-level meeting of the Association of South-East Asian Nations (ASEAN) in Singapore, said the combination of more people living in coastal areas and the loss of mangroves had exacerbated the tragedy. "Encroachment into mangrove forests, which used to serve as a buffer between the rising tide, between big waves and storms and residential areas; all those lands have been destroyed," the AFP news agency reported him as saying. "Human beings are now direct victims of such natural forces."

His comments follow a news conference by Burma's minister for relief and resettlement, Maung Maung Swe, who said more deaths were caused by the cyclone's storm surge rather than the winds which reached 190km/h (120mph). "The wave was up to 12ft (3.5m) high and it swept away and inundated half the houses in low-lying villages," the minister said. "They did not have anywhere to flee."

Mangroves have been long considered as "bio-guards" for coastal settlements.

A study published in December 2005 said healthy mangrove forests helped save Sri Lankan villagers during the Asian tsunami disaster, which claimed the lives of more than 200,000 people. Researchers from IUCN, formerly known as the World Conservation Union, compared the death toll from two villages in Sri Lanka that were hit by the devastating giant waves. While two people died in the settlement with dense mangrove and scrub forest, up to 6,000 people lost their lives in a nearby village without similar vegetation. "Mangroves are a very dense vegetation type that grows along the shore," explained Jeffrey McNeely, chief scientist for IUCN.

"Where the saltwater and freshwater meet, that is where the mangroves grow; they often extend from several hundred metres to a few kilometers inland. "Especially in river deltas, mangroves prevent waves from damaging the more productive land that are further inland from the sea."

A recent global assessment found that 3.6 million hectares of mangrove forests had disappeared since 1980. The study carried out by the UN Food and Agriculture Organization (FAO) said that Asia had suffered the greatest loss, with 1.9 million hectares being destroyed, primarily as a result of land use change. It found that large-scale conversion of mangroves into shrimp and fish farms were among the main destructive drivers. Other pressures included new development to accommodate the growth in the tourism sector and rising

populations.

Mette Wilkie, a senior forestry officer for the FAO, said most of the mangroves in Burma had suffered as a result of being overexploited. "There are very limited areas that you would describe as pristine or densely covered mangrove in the Irrawaddy area," she said, referring to the region of Burma where Cyclone Nargis first made landfall. "There are some efforts in place to try to rehabilitate and replant mangroves, but we do know that the loss rate is quite substantial still. "During the 1990s, they lost something like 2,000 hectares each year, which is about 0.3% being lost annually. "But that does not give you the whole picture because the majority of these tidal habitats are being degraded, even if they are not being completely destroyed."

However, the global picture is not entirely bleak. The FAO assessment showed that the annual rate of destruction had slowed from 187,000 hectares during the 1980s to 102,000 hectares during the early 2000s. Some nations, such as Bangladesh, had actually increased mangrove cover, the FAO reported.

The role mangroves can play in reducing the devastation caused by extreme weather events was among the reasons behind Bangladesh's decision to protect one of the world's largest examples of the coastal habitat. The Sundarbans, located in the delta of the Ganges and Brahmaputra rivers, contain about 100,000 hectares of mangrove forest habitat. "This has been allowed to grow, or in part at least, because Bangladesh was really hammered by a typhoon that killed something like 300,000 people a couple of decades ago," Dr McNeely said. "They realised that if they did not have that mangrove buffer, another typhoon heading up the Bay of Bengal would cause even worse damage because the population is even more dense than it was then."

news.bbc.co.uk

Nigeria: Forests to disappear by 2020

Nigeria will lose all of its remaining forests in the next 12 years if the rate of deforestation remains unchecked, an environmental expert has warned. "Considering the rate at which trees are chopped down without any regeneration efforts ... all of Nigeria's forests will disappear by 2020," Mr. Kabiru Yammama told leadershipnigeria.com.

Yammama, who heads the National Forest Conservation Council (NFCCN), a body that acts as a consultant to the Nigerian government, said all forests in northern Nigeria have been depleted and deforestation is moving southwards. "The north has lost virtually all its forests. Our 1999 survey shows that the rate of deforestation in northern Nigeria alone stands at 400,000 hectares per annum," he said. Nigeria uses 40.5 million tonnes of firewood every year, he said, adding: "Imagine the depredation wrought on the vegetation in the last decade."

According to the most recent NFCCN report, released in 2007, 35 percent of arable land in 11 northern states has been swallowed by desert. This has affected the livelihood of over 55 million people, more than the combined population of Mali, Burkina Faso, Senegal and Mauritania.

Nigeria has the seventh-largest gas reserves in the world but has so far failed to harness them to produce affordable cooking gas, meaning the bulk of the population still relies on wood or charcoal for cooking. "Now that the forests in the north are gone, attention has shifted to southern Nigeria where trees are burnt for charcoal. This is more destructive than tree chopping because it is more rapid and kills all the flora and wildlife," Yammama further warned. "If this trend continues unchecked Nigeria will join the league of Ethiopia which has lost all its forests." He cited desertification, rain shortages and drought as some of the consequences of deforestation that northern Nigeria is facing.

Earlier this month, Nigeria's meteorological agency warned that the rainy season is getting shorter, particularly in the north, where it has dropped to 120 days from 150 days 30 years ago. Rain fell for even less than 120 days in the last crop season, which adversely affected yields and sent food prices up.

allafrica.com

Uganda: Locals, Wildlife Authority battle for Mt Elgon Forest

For 32-year-old Andrew Namasoko, staring death in the face is an everyday experience. A chill goes down his spine whenever he recalls that fateful day in October last year, when Uganda Wildlife Authority (UWA) guards confronted three of them for allegedly killing two young antelopes in Kapchorwa-Bugimotwa village of Mt. Elgon forest.

That morning, two armed guards got them unaware at the forest's extreme end, shot and instantly killed two of his friends: Alan Wofuba, 26, and Peter Nandila as they tried to flee from the scene of the crime armed with one gun and two bows and arrows.

"We were hunting and had got our biggest catch for the week when we were confronted by two guards. We struggled to escape, but unfortunately the guards caught up with us and opened fire, killing two of my trusted friends and shot me in the leg and arm. This made me crippled," he says, with tears welling up in his eyes.

Namasoko fell in the bush with his friends and he was left for dead. With the guards away from the scene, he could neither walk nor stand up. He crawled towards the nearest footpath in the dense forest, where he was rescued by another

poacher, who rushed him to the hospital. An amputation was recommended for his badly injured foot and arm. He now uses crutches to walk and his hunting life is no more.

The recent eviction of the Bennet from part of Mt. Elgon's protected area was the climax of the many clashes between the locals and UWA.

Namasoko, Wofuba and Nandila's lives are a representation of hundreds of poachers forced to hunt wildlife in Mt. Elgon to survive the biting poverty, hunger and disease - but poaching is like shaking death by the hand in the forest.

Forest guards roam the forest protecting it from illegal poachers, loggers and those engaged in cutting down trees for firewood and charcoal.

They target poachers because they believe they are destroying wildlife and confronting them is the only way to scare them.

Pushed to the wall by poverty, ignorance, and marginalisation, the poachers cannot afford basic needs like clothing and good shelter. That is why many people in the area have turned to poaching.

However, many people feel that UWA guards are heavy handed in dealing with the poor people. "UWA is so cruel. This is the only area for survival and livelihood, for our community. The forest is ours and we have depended on it for years without destruction from organisations like UWA."

"We have used it for hunting wild animals, collecting fuel wood and building materials. Why kill the people? We are hurt because UWA is using illegal ways to handle a simple problem. This is massacre and if nothing is done, the major conflict brewing between us will result into a fight for our forest, against the people who want to prevent us from using our resources," says Felix Beswa, a community leader of the area.

The poachers confess that going into the wilderness to hunt is dangerous but they cannot stop. "I only feel safe once am back home. But I cannot stop poaching because it will mean sleeping hungry. I would rather die while looking for food to survive than starve," adds Beswa.

Like Namasoko, other poachers like Martin Gambwa have not been that lucky. In 2006, Gambwa was shot in the right arm by UWA guards when he was caught red-handed felling a tree for timber.

In the scuffle which involved one guard, Gambwa wrestled him, but ended up sustaining a bullet wound when the guard pulled the trigger. Luckily enough, it was minor and he managed to flee for his life.

"I was almost killed but my strength helped me," he says. In Bugimotwa, some 20 kilometres away from Gambwa's home, the community is campaigning against the killings by UWA.

The community argues that UWA should arrest the culprits and the court be brought in to solve the situation, rather than shoot the suspects on sight.

According to Rev. Nathan Manana: "This is not the right method of protecting a forest which people use for their benefit. UWA needs to take the culprits to court and the due process followed, otherwise this is unethical and the community will fight to the end."

The Reverend advises that what UWA needs to do is to sensitise the forest community about the benefits of the forest.

Part of the problem is that UWA has excluded the people from the management of the forest. The community does not receive any benefits from the forest with UWA in charge and therefore feels isolated.

"We are very disappointed by UWA. We know this is our forest and we also know that we are entitled to the benefits from it. Unfortunately, since UWA started managing the forest in 1993, when it was gazetted into a forest reserve, cutting of trees for timber by rich people has accelerated, but UWA has not even constructed a simple hospital, road or even a mere borehole.

These are double standards. We are tired of this routine and soon we shall mobilise the population to bring our forest into local management," says Moses Wodi, the LC1 chairman of the area. But UWA denies the claims.

According to the chief warden Johnson Masereka these allegations are totally untrue and malicious. "Our guards are well-trained in handling civilians. UWA has never taken the law into its own hands. We shall never shoot anyone unless that person is armed and dangerous to our guards. We have a code of conduct and if there is a guard breaking the code, the law will apply to him or her."

Masereka adds that in fact there is maximum co-operation between the guards and the local people and that the local people are getting employment in UWA.

"We have employed their sons and daughters as forest guards, field officers and as a matter of accuracy, UWA involves itself in community projects like provision of water through improvement of wells, uplifting rural roads by providing a token to the areas we operate in at a local level. Therefore, it is totally untrue that we are doing nothing to help the population," adds Masereka.

According to James Woliba, a UWA guard and a son of the area: "The people who have been killed so far are bandits who trek from their homes to Kenya and steal cattle from there and end up exploiting forest resources in various ways like cutting down timber for wood. In most cases these are armed people who retaliate when we try to restrain them."

Woliba adds that the stakes are high in Mt. Elgon and the conflicting activities in the forest are on the increase.

In the Bennet area for example, people have defied UWA and continue to occupy the disputed 6,000 hectares of forest land and the environmental effects have increased, according to Masereka.

"The Ndorobo people have occupied a very big portion of the forest and efforts to remove them have hit a snag with the government allowing them to settle there until a court battle between them and UWA is cleared," says Masereka. "But the forest is reducing in size and its resources are fast dwindling through agriculture-slash and burn." But even in the midst of all this, there is hope.

According to Masereka in 2006, the poaching went down from 20% to 5%, mainly due to UWA efforts.

Woliba adds that the clergy and the community leaders have taken steps in encouraging environmental protection through planting of trees and encouraging agro-forestry.

allafrica.com

Sweden: Oldest living tree found

The world's oldest known living tree, a conifer that first took root at the end of the last Ice Age, has been discovered in Sweden, researchers say. The visible portion of the 13-foot-tall (4-meter-tall) "Christmas tree" isn't ancient, but its root system has been growing for 9,550 years, according to a team led by Leif Kullman, professor at Umeå University's department of ecology and environmental science in Sweden.

Discovered in 2004, the lone Norway spruce–of the species traditionally used to decorate European homes during Christmas–represents the planet's longest-lived identified plant, Kullman said.

The researchers found the shrubby mountain survivor at an altitude of 2,985 feet (910 meters) in Dalarna Province. The tree's incredible longevity is largely due to its ability to clone itself, Kullman said.

The spruce's stems or trunks have a lifespan of around 600 years, "but as soon as a stem dies, a new one emerges from the same root stock," Kullman explained. "So the tree has a very long life expectancy."

Bristlecone pines in the western United States are generally recognized as the world's oldest continuously standing trees. The most ancient recorded, from California's White Mountains, is dated to around 5,000 years ago. Bristlecone pines are aged by counting tree rings, which form annually within their trunks. But in the case of the Norway spruce, ancient remnants of its roots were radiocarbon dated.

The study team also identified other ancient spruces in Sweden that were between 5,000 and 6,000 years old. Trees much older than 9,550 years would be impossible in Sweden, because ice sheets covered the country until the end of the last Ice Age around 11,000 years ago, Kullman noted.

The research forms part of an ongoing study into how and when trees colonized Scandinavia after it had thawed. "Prior to our studies the general conception was that spruce migrated to this area about 2,000 years ago, so now you will have to rewrite the textbooks," Kullman said.

"Deglaciation seems to have occurred much earlier than generally thought," he added. "Perhaps the ice sheet during the Ice Age was much thinner than previously believed." The tree study may also help shed light on how plants will respond to current climate change, Kullman said. "We can see trees have an ability to migrate much faster than people had believed," he said. In fact, global warming made the ancient mountain conifers easier for the study team to find.

"For many millennia they survived in the mountain tundra as low-growing shrubs perhaps less than a meter high," Kullman said. "Now they are growing up like mushrooms–you can see them quite readily."

But climate change could also swamp these living Ice Age relics, he warned. The treeline has climbed up to 655 feet (200 meters) in altitude during the past century in the central Sweden study area, the team found. "A great change in the landscape is going on," Kullman said. "Some lower mountains which were bare tundra less than a hundred years ago are totally covered by forest today."

Mountains tend to provide a refuge for the planet's most venerable trees because of reduced competition from neighbors and other plants and because the sparser vegetation around the timberline is less vulnerable to forest fires, Kullman said.

Another factor is reduced human impacts such as logging, said Tom Harlan of the Laboratory of Tree-Ring Research at the University of Arizona. "Human activity lower down has demolished all sorts of things that could have been extremely old," he said.

Harlan says the newly dated Swedish spruce trees have "Quite an extraordinary age." "I have no great problems with them having a tree which has been growing there for more than 8,000 years," he said. "The date seems a little early but not out of line with other things we have seen." For instance, Harlan noted, dead remains of Californian bristlecone pines dating to about 7,500 years ago have been found up to 500 feet (150 meters) higher in altitude than any living bristlecones.

"So there was a time period then when trees were pushing aggressively into areas they had not been in before," he said.

Other tree clones may have an even more ancient lineage than the Swedish spruces, he added. Research suggests that stands of Huon pines on the Australian island of Tasmania possibly date back more than 10,000 years.

www.nationalgeographic.com

Liberia: Timber contracts issued

Under intense pressure from the timber industry – including many familiar faces from the past – the Forest Development Authority of Liberia has started to issue timber contracts. Yet key legislation on community rights is still in draft. International NGOs fear the rush to allow a timber trade with a poor track record of corruption and trampling on community rights raises the spectre of Liberia's forests once again undermining stability in this fragile country.

The full press release can be accessed from http://www.globalwitness.org/media_library_detail.php/637/en/rush_to_log_liberias_forests_will_jeopardise_the_reform_process

www.globalwitness.org

Indonesia: Failure to stop forest destruction

Indonesia is failing to halt the destruction of its peatland forests despite promising to do so during last year's climate change conference in Bali, according to Greenpeace who said its workers had witnessed two palm oil companies illegally clearing government-owned land on Sumatra island in March.

"Last month, a Greenpeace team revisited an area of Sumatra's Riau province where it had monitored palm oil expansion in 2007, to find that further large tracts of peatland forest had been destroyed inside (areas) which had not been granted permits," the group said.

Indonesia has one of the highest rates of deforestation in the world, driven by voracious demand for commodities and weak law enforcement. Large swathes of peatland forest are being cleared to make way for the booming palm oil industry. Emissions from deforestation, and in particular peatland -- which is made up of deep layers of semi-decomposed vegetation -- have made Indonesia the world's third-largest carbon emitter, behind the United States and China.

Greenpeace accused the government of sending out "mixed messages" on palm oil, saying forest destruction had been allowed to continue even though the agriculture minister had called for a halt to any new plantations on peatlands.

"We call on the government to give teeth to their Bali commitment to save the forests and tackle climate change by urgently putting in place measures to regulate the palm oil industry," said Greenpeace campaigner Hapsoro.

afp.google.com:80

Canada: B.C. forecast - drought, forest fires, storms

Climate change is already causing dramatic changes in B.C. and, if left unchecked, could threaten the province with increased drought, forest fires, storms and a variety of other challenges, says a new report quietly released by the federal government.

"[Climate change] is affecting us all now. It's occurring," said Ian Walker, associate professor in the University of Victoria's geography department, and one of the lead authors of the comprehensive national report's section on B.C. "There are a lot of people that still don't buy into the climate change message and I really don't think it's a message anymore, it's a reality," he added.

But while the B.C. portion of the report outlines potential scenarios ranging from water shortages to health threats such as the increased risk of red tides, Walker said he and the other authors tried not to overstate the potential impacts. "We really did try not to sensationalize the negative impacts too much and, where we could, show examples of good steps of adaptation," he said, adding the report documents some ways specific communities are beginning to adapt to climate change.

Walker added the report, From Impacts to Adaptation: Canada in a Changing Climate 2007, has been complete since October 2007. Despite that, the report was not released until recently when it was quietly posted to a section of the Natural Resources Canada website.

Environment Minister Barry Penner said the report "reinforces why it's so important for us to follow through on our climate change agenda in B.C." He added that in addition to taking measures to reduce greenhouse gas emissions, the province is also working on ways to adapt to the changes that are taking place, as well as those that may be on the horizon. For example, he said, the province has spent $620 million on projects related to the mountain pine beetle. He added the government also recently committed $100 million over 10 years to improve flood protection.

Among the key findings in the federal report is that climate change will make B.C. wetter during winter and spring, but drier during summer in the south and on the coast, with prolonged droughts and water shortages during peak demand periods across the province.

canada.com/vancouversun

Congo: Hundreds of villagers take part in huge mapping operation to save DRC rainforests

One of the biggest community-based rainforest mapping projects in Africa took place in early April as the Rainforest Foundation UK (RFUK) helped Forest Peoples protect six million acres of endangered rainforest in the Democratic Republic of Congo.

66 Congolese 'Master Mappers' – trained by RFUK – travelled by canoe and motorbike to the remote Inongo territory in the centre-west of the country to work with nearly 100 villages in the world's second largest rainforest.

During Congo's recent civil wars, illegal, uncontrolled and often violent exploitation of natural resources by militias and armies had a devastating impact on indigenous forest people. And now, after a period of relatively low rates of deforestation, DRC's forests are once again coming under growing pressure – this time from industrial logging companies.

The 660 villagers, who speak three different local languages and are mostly hunter-gatherers or subsistence farmers, were taught to use high-tech GPS (Global Positioning System) devices to produce digital maps to prove their existence to the government and to loggers.

Each community produced a sketch map of their area and then used the hand-held GPS units, to record accurately the important points on their maps. Once all the data from the field had been collected, it was transferred from the GPS units to a computer to produce a map of the entire territory.

RFUK hopes the map will prove to the government that these forest peoples exist, and that the forest needs to be protected for their use. The government has already allocated parts of the territory to 11 logging concessions, some of which are held by companies from as far afield as Germany, Belgium and Portugal.

But RFUK aims to get the digital territory map completed in time for a May 8 government meeting which will establish the basis on which Congo's vast area of forest is parceled up for various purposes, and which could largely determine the fate of the forest for decades to come.

Cath Long, RFUK Project Director said: "It is going to be the first time that anybody in DRC sees on paper that these forest-dependent communities exist. Their maps will be a vital tool for the communities to negotiate with the government. It will allow them to demonstrate that they are there, and that they need to be taken into account when decisions are made about the forest they live in."

Simon Counsell RFUK Director added: "The last great expanse of forest in Africa is under threat but there is still time to do something to save these forests from being lost and the millions of people who depend upon them being further impoverished.

"This is an issue that affects us all because not only are rainforests home to an estimated 50 million indigenous forest peoples and more species of plants and animals than all the earth's other ecosystems combined, but also because protecting the forests is essential in the fight against climate change".

www.rainforestfoundationuk.org

Indonesaia: Merrill Lynch - turning trees into money

Merrill Lynch is the first Wall Street bank to put money into protecting forests – a new front in global efforts to stem climate change. They have struck a deal to invest $9 million over four years to finance a project to protect 750,000 hectares of forest in Indonesia's Aceh province. Because trees store CO_2 and release the gas when burnt, global policymakers increasingly see their protection as an important way to reduce emissions.

Although small, the deal is notable because it's the first time a U.S. bank has signaled that it sees money in trees. In the 1990s, U.S. investors in forest conservation were largely big polluters like American Electric Power Co. that wanted to offset their own CO_2 emissions. But those deals dried up when Kyoto's framers a decade ago decided not to allow companies to balance their emissions with carbon credits generated from forest protection.

Since the U.N.'s Bali meeting in December last year the situation has changed. Forest destruction, largely to make way for agriculture, accounts for 20% of global CO_2 emissions; the meeting signaled it would allow companies to use forestry-based carbon credits to offset polluting activities elsewhere after Kyoto runs out in 2012.

Merrill is betting that money it puts into the Aceh project now will be a source of cheap credits that will become more valuable if forestry becomes part of the post-Kyoto landscape. The deal is brokered by Carbon Conservation, an Australian company. Some of the money from Merrill will go to local communities to encourage them not to log illegally. By protecting the area, the organizers estimate they can stop 3.4 million tons of CO_2 being emitted annually and generate $432 million in carbon financing over the next 30 years.

The success of the deal could also influence how much more money Merrill puts in to forestry. The bank is debating internally about raising a fund of up to $3 billion to protect global forests. A war chest like that could start to make a real impact on deforestation rates.

blogs.wsj.com/environmentalcapital

Indonesia: Papua signs REDD carbon deal to generate income from rainforest protection

The government of the Indonesian province of Papua has entered into an agreement with an Australian financial firm to establish a forestry-based carbon finance project on the island of New Guinea.

The project – which could involve more than one million hectares – aims to create "a perpetual financial base for local communities" through carbon credits generated by forest conservation.

"There is a high level of interest in establishing pilot projects for forest conservation based on carbon finance," David Brand, Managing Director of New Forests, a Sydney investment firm, said. "The project aims to deliver high-quality carbon credits to the voluntary market based on the government's decision to rescind the logging and agribusiness development status of the land."

Last December Papuan Provincial Governor Barnabas Suebu imposed a province-wide moratorium on logging in hopes that the emerging carbon market would offer better returns for the people of Papua. Logging and forest conversion for agriculture – especially oil palm and rubber plantations – are an important source of revenue for the province.

"Conversion of these spectacular forests to agribusiness would be a great loss," Governor Suebu said. "I hope this approach can provide a new development path for the forests and people of the Province of Papua."

The new agreement is based on Reduced Emissions from Deforestation and Degradation (REDD), a proposed policy mechanism that would compensate tropical countries for safeguarding their forests. Because deforestation accounts for around a fifth of global greenhouse gas emissions, efforts to reduce deforestation can help fight climate change.

While REDD was explicitly excluded from the Kyoto Protocol, policymakers meeting at climate talks in Bali last December signaled that forestry would play a role in future emissions mitigation schemes.

The Papua deal comes six months after New Forests announced an innovative plan to generate investment returns by protecting wildlife. The scheme will establish a wildlife habitat conservation bank to manage and rehabilitate the 34,000-hectare Malua Forest Reserve on the island of Borneo.

mongabay.com

The CFA

The Commonwealth Forestry Association

The Commonwealth Forestry Association (CFA) is the world's longest established international forestry organization, tracing its history back to 1921. Today it unites foresters, scientists, students, NGOs and policy makers throughout the world in a unique international network that provides professional support to its members and forms a key element of civil society.

The CFA supports the professional development of those working with trees and forests by promoting the conservation and sustainable management of the world's forests and the contribution they make to peoples' livelihoods.

The CFA is managed on behalf of the membership by the Governing Council, which is composed of representatives from all countries who have members. It is run on a day-to-day basis by a small UK-based Secretariat consisting of the Chair, Vice-Chair, Technical Director, Membership Secretary and Finance Manager. The Secretariat is advised by committees for Finance and General Purposes, and Publications. The Governing Council appoints one member from each region, the Regional Coordinators, to work closely with the Secretariat in the Executive Committee to implement the plans of the CFA in accordance with the overall objectives.

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