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CFA Newsletter

is the newsletter of the Commonwealth Forestry Association

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The views expressed are not necessarily those of the CFA.

Forests, climate change and the Commonwealth



Should we be planting or preserving?

“There is an urgent requirement for all countries to develop strategies and implement measures to adapt to climate change”. With these words Dr Mark Collins, Director of the Commonwealth Foundation, outlined the Commonwealth’s commitment to placing climate change firmly at the top of their agenda when he opened the conference *Preparing for Change - Adaptive Strategies for Climate Change and Disaster Management in the Commonwealth*, held from 9 to 12 October in Victoria, Mahé, Seychelles. The Commonwealth contains 27 Small Island Developing States (SIDS) amongst its 53 member countries and many others which are extremely susceptible to sea level rise or flooding/storm surges, or to increased drought/aridity. As such, the objective of the meeting was to bring together Commonwealth civil society organisations (CSOs) and international professional bodies working in relevant

sectors to identify effective practical strategies that can be implemented by civil society at the grassroots level in order to prepare for climate change.

In preparation for the meeting the Commonwealth Foundation consulted some 80 Commonwealth CSOs about the content and outputs of the Seychelles meeting of which more than 25 participated and prepared conference papers. In addition, the Climate Action Network (CLIMNET), International Federation of Red Cross and Red Crescent Societies (IFRC), United Nations Environment Programme (UNEP), and the Meteorological Offices of Kenya and Mauritius also attended and contributed.

Presentations were given by representatives of the Commonwealth professional bodies covering four broad themes: agriculture and forestry; health; education, awareness and the role of the media; and the built and urban environment. These were followed by all

day breakout sessions in which each theme was examined in detail, in order to highlight the salient lessons learned, identify best practice, and prepare and document adaptive strategies for the future. These strategies were then discussed in plenary, with a plan to re-circulate them to interested delegates, prior to going forward to the Second International Workshop on Community-based Adaptation (CBA) to Climate Change to be held in Dhaka, Bangladesh from 11 to 16 January 2007. Finally, it is planned that a programme of work will be submitted for consideration and endorsement at the Commonwealth Heads of Government meeting (CHOGM) in Uganda in November 2007. Endorsement by CHOGM means that the programme will have the explicit approval of each and every Commonwealth government.

Forests and climate change in the Commonwealth

Forests play a unique role in the climate change debate as they are intimately associated with both the causes and possible mitigation action that can be taken. Deforestation accounts for approximately 25% of all annual CO₂ emissions yet forests possess the ability to 'lock up' carbon in their biomass and thereby offer the potential to help reduce the effects of climate change. But it is also necessary to remember within this debate that forests play the equally important, and often overlooked, role of making natural systems more resilient. They provide stability to the critical ecosystem functions of water management and biodiversity conservation, as well as providing much needed social support through provision of livelihood services and security. In short, they can help reduce the vulnerability of people and environments to the effects of climate change. However, in order to do this sustainable forest management must be employed and governments must be supported to reduce unwise and illegal logging.

The role of the CFA

The importance of issues related to climate change in forestry has been recognised within the CFA for some time and both the Commonwealth Foundation and Commonwealth Secretariat have been made aware of our interest in this area. As such we were particularly pleased that our application for

full funding to attend the Seychelles meeting was accepted. Dr Fred Babweteera, the National Branch Chair of CFA Uganda, represented the Association and prepared a paper accordingly entitled *Plantation forest development as a mitigation for loss of biodiversity in tropical forests* (Published in the *Forest Scenes* section of the Newsletter).

Other presentations covered a wide range of climate- and disaster-related topics and the succeeding working groups provided a dynamic, and well-structured environment where organisations were able to highlight the actions they would like to see the Commonwealth take forward to CHOGM in 2007. All relevant information, including the final copies of papers and participants, will be posted on our website.

The Stern Review



Three weeks after the Commonwealth's climate change meeting in the Seychelles Nicholas Stern, the UK Government's chief economist published the eagerly awaited *Stern Review Report on the Economics of Climate Change* to the international community. The Review examines the evidence of economic impacts of climate change and considers the policy issues involved in changing to 'low-carbon' economies. Using a different approach to most climate change reports the review seeks to overturn conventional wisdom by insisting that fighting climate change will save, not cost, governments money.

Forest-related issues are referred to directly in less than one percent of the text and within that there is an emphasis on the need to reduce deforestation rates. However, it is disappointing to note that Stern takes the well-trodden route of promoting 'preservation' as the only means of achieving this without recognising that some land use change is inevitable in developing economies. Hopefully the Stern Review will be a milestone in supporting the sustainable management of forests, not another report about locking them up.

Alan Pottinger
CFA Technical Director

Association News

International Forestry Review rises in journal ranking

Part of CFA's mission is to publish up-to-date and relevant forestry research in our journal, the *International Forestry Review*. In this regard it was particularly pleasing to find that the 'impact factor' for the *IFR* has improved over the past 12 months from our initial rating in 2005 of 0.329 to our current figure of 0.924. The impact factor is the internationally recognised benchmark for judging the status of international scientific journals and a higher rating means that scientists are increasingly referring to

papers in the *IFR* which, in turn, will attract more authors to consider publishing with us. A key element in our success is the active role that our international Editorial Advisory Board has taken in creating and maintaining the quality control in the *IFR* and I look forward to working closely with them in the year ahead.

Alan Pottinger
Editor, International Forestry Review

Kay Nixon receives CFA Regional Award

Kay Nixon recently received the CFA Regional Award in recognition of her lifetime contribution to the South African Forestry Industry. There is little doubt that Kay's work on the genetic improvement of black wattle has built on the solid foundation laid by, among others, Dr Alan Moffett, and on which a vibrant Industry exists today.

Kay Nixon joined the Wattle Research Institute (WRI) on 1 August 1951 having completed her BSc (Hons) at Natal University the previous year. She completed her Masters thesis on „The revision of the genus *Sacciolepis*“ in 1952 and was duly appointed as assistant to Dr Moffatt, and upon the latter's retirement, she was made Head of Genetics.

Although Kay is a plant taxonomist by training, her research focused on the genetic improvement of black wattle. She worked at the Wattle Research Institute, later the Institute for Commercial Forestry Research (ICFR), and ended her career as manager of the Tree Improvement programme. It is in this role that Kay made her mark on the South African Forest Industry and on an understanding of wattle breeding in the world. The



Caption - L-R Prof. Colin Dyer (Director of the ICFR), Mike Edwards (CEO of Forestry South Africa), Kay Nixon and Prof Charles Breen (ICFR Board Chairman) at the presentation of the CFA Regional Award.

this work involved improvements in black wattle seed orchard technology, and in seed, provenance, progeny and clonal testing of black wattle.

Kay retired from the ICFR at the end of 1991 after forty years service to the Industry. However, after having been retired for 13 years, Kay still goes into the ICFR on a daily basis, and plays a role in their tree improvement research.

From ICFR newsletter 2006

Forest scenes

Can't see the river for the trees: riparian management in the Shropshire hills

Introduction

Situated between the Midland Plain and the uplands of Mid Wales, the Shropshire Hills are characterised by the 'whaleback' hills of the Wrekin, and the Stretton Hills, the plateaux of the Clun Forest and Long Mynd, the ridges of the Stiperstones and Wenlock Edge and the brooding Clee Hills. With significant areas of upland, it is not surprising that the area has almost 2000 kilometres of watercourse. Clearly, an area significant in terms of its landscape quality a major part (804 km²) is designated an Area of Outstanding Natural Beauty (AONB). Whether running along valley floor, or snaking up hillsides the linear woodlands of the AONB are a prominent landscape feature.

As well as their landscape significance, these woodlands

occupy a unique position in the ecology of the area; terrestrial and aquatic ecosystems overlap and interact to give habitats of outstanding significance, recognised as such by the provision of *Wet Woodland and Rivers and Streams* Biodiversity Action Plans (BAPs).

The dominant riparian tree of the Shropshire Hills is the common alder (*Alnus glutinosa*). Frequently occurring as pure stands, often over-mature and multi-stemmed, alder is the dominant organism influencing biodiversity, water chemistry, hydrology and river morphology.

Not too long ago, alder or *woller* as it is known locally was of huge economic significance, cut to fuel furnaces and lime kilns, and to produce charcoal, gunpowder and clog soles, the coppicing and processing of alder was a major employer in the area. As coppicing gangs moved through the area, the river

and its banks were opened up to create a mosaic of light and shade to be exploited by a wide range of wildlife.

Current situation

Now alder is not such an important crop, many of our rivers and streams are dominated by continuous canopy alder woodland, with the result that landscape quality, wildlife value and water quality has diminished. A generation or more has passed since coppicing of rivers has been widely practiced, so today our rivers are often dominated by over-mature alder, taking up to 95% of the available light. The result is that very little light actually reaches the river or its banks and a few shade tolerant species come to dominate.

Modern agricultural practices have also shaped the woodland; grazing to banktop has given a structurally simple woodland often lacking in understory and field layer. Furthermore, poaching by stock has exposed river banks resulting in increased erosion, leading to siltation of sensitive river gravels.

Siltation is a particularly onerous problem affecting a wide range of species. Voids between gravels and pebbles are blocked, damaging salmonid spawning areas and significantly reducing river invertebrate habitat. Increased sediment load damages pearl mussel beds, clogging the voids in which mussels establish, leading to eventual suffocation.

With land rising to over 500m, many of the AONB's rivers and streams are upland in nature and should be naturally oligotrophic. However, without a developed under-storey and field layer to buffer between the river and agricultural operations, nutrient input from fertilisers and faecal matter from stock has in some rivers resulted in eutrophication. Growth of filamentous algae particularly along sections lacking tree cover is notable. This in turn can reduce available oxygen, impairing respiration in sensitive invertebrates.

Alder dieback

Perhaps the most significant event in recent years is the dieback of alder. The historical record shows no evidence of any large-scale dieback, so something new must be happening. Dieback was first observed in 1993 and a previously unrecorded strain of the fungal pathogen *Phytophthora* was identified (subsequently named *Phytophthora alni*).

Since then the disease has continued its spread, and by 2003 it is estimated that 15.3% of the alders in southern Britain had been affected or killed by the disease. Incidence in the Shropshire Hills however appears to be above the national average at 24%, with some hot spots showing almost 100% of the alder affected.



Eroding riverbank - resulting from dead/dying alder - River Clun.

Analysis has identified that the disease is a hybrid of the native *P. cambivora*, known to affect a number of broadleaves and a fungus similar to *P. fragariae*, a disease of the strawberry family.

Outward signs of the disease are small, yellowing leaves, premature leaf loss leaving the crown largely bare in late summer. Tarry spots/bleeding cankers may also be observed near the base of the tree, indicative that the underlying tissue is dead. Over time the tree is effectively 'ring barked'. It takes a number of years for the tree to reach this stage, however once it has, death of the upper parts is rapid. Sometimes the base of the tree will continue to put out new growth for a number of years following the loss of the main stem. If coppiced, most trees will put out vigorous re-growth and survive the disease short-term. Inspection of stools coppiced in the late 1990's show that the majority of stools are

still healthy, whether this will still be case in future years is yet to be determined.

The disease is propagated in a number of ways; spores and infected plant material are dispersed by running water to infect new sites downstream. The zoospore is motile and can spread freely in wet soil, so can gradually move upstream. Spores are also spread to other catchments, by vehicle and stock movements, on the boots of walkers and by water abstraction. Unfortunately, the disease is now so widespread that eradication is no longer possible; control is therefore the only realistic option.

So what are we doing about it?

Clearly, the combined problems of over-maturity, dieback and pollution present a serious threat in terms of landscape but also to the ecology and water quality of our rivers and streams.

In the face of such change it is increasingly recognised that continued neglect and under-management is no longer an option if we are to improve habitat and water quality and also meet our commitment to EU directives such as the Water Framework Directive. Initiatives such as The Blue Remembered Hills Project, Countryside Stewardship, ESA and HLS agreements provide incentives



Alder disease - Tarry spots near base of mature alder.

for landowners and farmers to coppice riverside trees. However, with such an abundance of riverside alder in the Shropshire Hills the problem is particularly acute. One element of the Blue Remembered Hills Project is designed to engage with riparian owners and facilitate riparian management.

The project is helping with advice and practical support through grants, surveys and contractor management. Key to the project is the development of long-term management plans developed between landowner and the project to ensure that landscape implications of coppicing are properly considered and that habitats supporting rare and sensitive species are appropriately managed. To date the project has facilitated the management of 25km of riverbank and has under management plan 90km of riverbank

The benefits of coppicing for wildlife

The rivers of the Shropshire Hills support a number of Biodiversity Action Plan (BAP) species. Otter, Atlantic salmon, lamprey, white clawed crayfish and freshwater pearl mussel are all to be found in its rivers and streams.

Many species benefit from introducing light into the river, the resultant mosaic of light and shade encourages the regeneration of bankside and in-stream vegetation, particularly if the site is protected from grazing animals. Low water temperatures and low nutrient levels limit the productivity within the river so most of the energy budget is supplied from the terrestrial ecosystem, principally in the form of leaves and other vegetative matter and by bankside invertebrates that fall into the river from overhanging vegetation.

Overhanging bank-side vegetation and in-stream woody debris also provide shelter and opportunities to hide from predators, particularly important for juvenile salmonids. Regenerating vegetation also stabilises eroding riverbanks and acts as a silt trap to reduce the silt load of the river. A buffer strip is also created between the river and adjoining fields reducing inputs from agricultural operations.

Over time as the banks recover, the river deepens and narrows, water velocity increases to 'scour' the river bed, cleaning silted gravels and pebbles. Higher velocity also means higher dissolved oxygen, allowing the river to support some of our more sensitive invertebrate species. The result is a



Recently Coppiced alder stools - River Clun.



Healthy regenerating alder six months after coppice - River Redlake.

river much healthier in terms of water quality and wildlife.

Balancing conflicting needs - biodiversity

So, there are many reasons why it is important to undertake riparian management, however, management needs to be thought about before chainsaws are deployed. Some species particularly; crayfish and pearl mussels are temperature dependent and rely on high levels of shade to regulate water temperature, therefore, any coppicing needs to be done sensitively. Where there is a good woodland mix and alders are healthy, it is not too difficult to strike the right balance. By retention of canopy species such as ash, a percentage of young and veteran alder and understorey, moderate levels of shade can be retained.

If the site is stocked it is usual to fence the site to protect re-growth, however, within a short time the site can be overrun with Himalayan balsam (*Impatiens glandulifera*), undoing

all the good work. Wherever possible it is best to provide gated access and allow a short controlled period of grazing before seed is set. Providing grazing is not prolonged, alder will tolerate this and recover quickly.

Balancing conflicting needs - landscape

Sites with high levels of disease, and/or over-mature uniformly aged alder with little or no understorey can be more problematic. Left unmanaged, most diseased alder will die, and because many sites are grazed, there is little opportunity for natural regeneration. The best course of action therefore is to retain healthy trees where possible, coppice the diseased trees accepting that in the short term the site may look rather sparse. Given that without management, diseased alder is likely to die this really is the only available course of action.

Economic value of alder

With almost 2000km of watercourse there is plenty of alder to deal with, and you could regard this as a problem (too big, too costly to tackle). Alternatively, it could be viewed as an opportunity - a largely untapped timber resource waiting to be exploited. Clogs and gunpowder are unlikely to



Recently coppiced alder streamside near Bucknell - Milled for flooring.

make a big comeback, but for flooring, kitchens, and particularly woodfuel it is a different matter and there is always likely to be a demand.

Because most of the alder stock is neglected, much of the wood is only suitable for firewood. Fortunately, the area is well blessed with woodburning stoves so there is a ready market for the timber as firewood, and it is a perfectly suitable use for this carbon neutral renewable resource. Furthermore, the woodfuel sector is expanding and with the installation of increasing numbers of woodchip and log boilers alder is perfectly placed to feed this market.

As well as woodfuel, the project has helped convert timber for fencing and flooring and is currently working with a farmers, architects, joinery and cabinet making businesses to further expand the use of alder into the flooring and kitchen furniture markets. The project has also dipped its toe in other markets



Coppiced Guitar: Alder body with wild cherry and field maple neck, made locally.

and has supported a budding guitar manufacturing enterprise based solely on sustainable timbers. In the USA the renowned makers Fender, use alder for the bodies of their electric guitars.

Whilst woodfuel is likely to be the primary use for alder, products such as flooring illustrate that significant added value is possible from a previously unregarded timber. Given that an alder machines well, has attractive grain and colour, takes treatments and finishes well, it should perhaps be more widely available. Those looking for timber that is attractive, different, sustainable and local could do no worse than look at alder as an alternative to other hardwoods.

Mike Kelly

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Coastal protection in the aftermath of the Indian Ocean tsunami: What role for forests and trees?

FAO Regional Technical Workshop, Khao Lak, Thailand, 28 – 31 August 2006

Workshop summary

The “Coastal protection in the aftermath of the Indian Ocean tsunami: What role for forests and trees?” workshop was held in Khao Lak, Thailand, from the 28 to the 31 August 2006, under the auspices of the FAO Forestry Programme for Early Rehabilitation in Asian Tsunami Affected Countries, funded by the Government of Finland. The workshop aimed to contribute to improved coastal area planning, coastal forest management and disaster mitigation through increasing the knowledge and understanding of the role of trees and forests in protecting populations and assets from the most common and destructive natural hazards affecting coastal areas of Asia, namely cyclones, erosion, tsunamis, wind and salt spray.

After the 26 December 2004 Indian Ocean tsunami, the protective role of mangroves and other forests and trees received considerable attention, both in the press and in academic circles, and forest rehabilitation efforts were launched, citing coastal protection as the rationale. However, contrasting views on the effectiveness of forests in coastal protection arose; many eyewitnesses reported that coastal forests had saved lives and villages from destruction, but some people claimed that forests could not provide significant protection from hazards of a certain magnitude and others asserted that land elevation and distance of assets from the coast were more significant determinants of protection than forest cover. It became clear that a better understanding of the degree to which forests and trees could provide protection from tsunamis as well as other types of coastal hazards was needed to provide an improved basis for formulation of coastal management plans and disaster mitigation strategies.

The workshop provided a rare opportunity for multi-disciplinary analysis of this issue; coastal engineers and oceanographers, forest ecologists and managers, disaster management specialists, coastal planners and social scientists brought together their collective experience regarding the role of coastal forests against cyclones, erosion, tsunamis, wind and salt spray. The 63 participants included Government representatives from the eight tsunami-affected countries (Bangladesh, India, Indonesia, Malaysia, the Maldives, Myanmar, Sri Lanka and Thailand) and other experts from a total of 15 different countries and from national, regional and international organizations.

Major conclusions of the workshop may be summarized as follows:

- Forests and trees can act as bioshields that protect people and other assets against tsunamis and other coastal hazards, but whether they are effective and the degree of their effectiveness depend on many variables;
- Care must be taken to avoid making generalizations and creating a false sense of security that bioshields will protect against all hazards;
- The use of bioshields should be considered within the framework of disaster management strategies, which also include effective early warning systems and evacuation plans.

Coastal forests and trees can provide a wide range of services and benefits to local populations, among which – and under certain conditions – is the protection of lives and valuable assets against coastal hazards. However, bioshields may not be able to provide effective protection against all events or processes (e.g. extremely large tsunami waves, flooding from cyclones, and certain types of coastal erosion). The experts cautioned against making generalizations; the degree of protection bioshields offer depends on a number of variables, including the characteristics of the hazard itself (e.g. type, force, frequency), the features of the site, and the characteristics of the bioshield (type of forest or trees, width, density, height, etc.).

The experts recommended that the use of bioshields be considered within the framework of disaster management strategies, which also include effective early warning systems and evacuation plans. Where bioshields are not sufficiently effective, or are not viable, provisions should be made for other forms of protection, including “hard” engineering solutions, “soft” measures or a hybrid of “hard” and “soft” solutions. It may also be necessary to prevent further settlement and construction of valuable assets in vulnerable zones.

The experts highlighted the importance of carefully matching the species with the site. Some forest types and tree species cannot survive or thrive in areas exposed to certain coastal hazards. Developing a bioshield may not be possible in all situations (e.g. due to biological limitations, space constraints, incompatibility with priority land uses, prohibitive costs, etc.). In addition, many years may be required to establish and grow bioshields to a size and density that could offer protection against coastal hazards. Some advantages of bioshields are that they may be less costly than “hard” solutions and may provide additional environmental and social benefits.

The design of protective measures using trees and forests should take into consideration not only physical and biological features, but also economic, social and cultural characteristics of the site. The experts also stressed the importance of involving local people in the design of bioshields and also of using indigenous knowledge, where available.

The FAO workshop highlighted the need for increased research on the protective potential of coastal forests and trees, including the development of models on the interactions between physical and ecological parameters. Moreover, much more work is needed to “translate” scientific knowledge on the protective functions of coastal forests and trees into practical guidelines and technical information for use by forest managers and coastal land use planners and managers.

The full proceedings of the workshop may be found at www.fao.org/forestry/tsunami/coastalprotection.

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Increased production of the greenhouse gas nitrous oxide in our future forests

A new study points out the risk that European forests may constitute a strong future source of nitrous oxide (see article by P. Ambus, S. Zechmeister-Boltenstern and K. Butterbach-Bahl, *Biogeosciences*, 3, 135-145, 2006 www.biogeosciences.net/3/135/2006/)

Nitrous oxide, aka laughing gas, is a strong greenhouse gas, potentially *ca.* 296 times stronger than carbon dioxide. Increased human activity on the earth has elevated the atmospheric nitrous oxide concentration *ca.* 20% over the past 200 years, and a continued increase is expected to increase global warming further.

Nitrous oxide is produced by biological processes in forest and agricultural soils and oceans. The annual global emission of nitrous oxide is estimated to about 16 Tg (millions of metric ton) of which *ca.* 6 Tg is from forests.

In a recent trans-European study we have compared nitrous oxide production in 11 different forests across variable climatic regimes and forest types, ranging from Finland in the north to Italy in the south and Scotland in the west to Hungary in the East.

Generally we observed the highest nitrous oxide production in forests rich in soil nitrogen. In these forests microbial production of soil nitrate was high, which stimulated the production of nitrous oxide. The high nitrous oxide production was particularly linked to deciduous forests that produced approximately four times more nitrous oxide than coniferous forests.

Our study suggests that changes in forest composition in response to altered land management and global change may have implications for regional emissions of greenhouse gases. Replacement of temperate evergreen forest with broad leafed species may lead to more forest based production of nitrous oxide. Accelerated depositions of atmospheric nitrogen to forests, as predicted for Europe, may likewise lead to increased emissions of nitrous oxide from European forests.

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International Partnership for Forestry Education

Background

Post-secondary forestry education is facing serious problems related to enrolment in forestry schools, curricula and quality of graduates. While the magnitude and consequences of the specific problem(s) vary from one country to another, the issue has become a global concern. Many reports have shown that enrolment in forestry schools is declining in several countries, and that some schools are producing graduates with qualifications insufficient to steward and manage forest resources. Both public and private investments in forestry education have dwindled to seriously low levels. The reasons for such a decline are many, ranging from public perception of forests and foresters to economic decline in the sector to competition from other disciplines, such as informatics, in attracting young students.

As a reaction to declining enrolments, many post-secondary institutions have cancelled, suspended or down-sized their forestry programmes, while others have combined forestry with other natural resource management disciplines such as agriculture or soft sciences such as sociology and geography. Meanwhile, many popular education programmes have emerged purportedly to fill the void and there are fears that forest sciences and innovation would suffer, while the assault on forests continues unabated. Eventually, many government agencies and private industries may not be able to meet their staffing needs both in numbers and quality of professional foresters.

Notwithstanding the difficulties facing forestry education, there are serious national and global efforts to revitalise the sector mainly through identifying the challenges that have led to its decline and developing strategies that would enable revitalisation. One of the approaches to fill the gap created by the absence of global fora addressing forestry education is to establish an international partnership among concerned institutions.

The idea of developing a new partnership for forestry education emerged from discussions at the University of British Columbia's 50th anniversary celebrations in December 2001. At the XII World Forestry Congress in Canada (2003), a few universities, networks and international organizations discussed the issue and agreed to establish a mechanism for coordinating efforts to improve forestry education. Later in 2003 the International Partnership of Forest Education (IPFE) entered into its development phase through the support of World Bank Development Grant Funding which continued until the end of 2004. Broader consultation on the concept was sought in organized sessions and in open meetings at SILVA Meeting (2004), and at the UNFF 4 meetings in May 2004. During these sessions the IPFE's role to enhance forest education was further refined and developed into a means of supporting and complimenting existing institutions and partnerships. The model that emerged was that the partnership was a "network of networks" that linked different networks and their interests in forest education together under common themes.

The International Partnership on Forest Education (IPFE) was formally launched at an international meeting on forest education held at the FAO, Rome in April 2006. Future governance structure and next steps were the central issues at the meeting in Rome. Hosny El Lakany, Adjunct professor at the University of British Columbia, Faculty of Forestry was elected to Chair the IPFE initiative. Three Vice Chairs were also named: Paavo Pelkonen, Vice-Dean, Faculty of Forestry, and member of SILVA Network, University of Joensuu; August Temu, Leader, Training and Education Programme, ICRAF; Nairobi, Kenya; Finland and Osvaldo Encinas, Director, Postgrado Forestal, Universidad de Los Andes. Merida, Venezuela.

Mission

Helping institutions concerned with forestry education meet societies' needs, through facilitating forestry educators' and students' engagement with relevant knowledge and understanding among each other and with society.

Focus

Strengthening university-level education about forests and forestry worldwide by facilitating and supporting collaborations that capitalise on the comparative advantages of and synergies among the diverse institutions committed to education about forests and forestry. IPFE envisages such collaborations in various forms and scales, and for a variety of specific objectives.

IPFE acknowledges and seeks to draw on the many perspectives and the diversity of knowledge about forest and tree values, products and services, and management to sustain them. Thus, IPFE's scope includes the full range of topics and disciplines relevant to forests, their sustainable management, and their products and services.

Objectives

- Improve the quality and relevance of forestry education
- Raise the profile of forestry education nationally and

globally and

- Improve generation and dissemination of knowledge on forestry education among institutions, networks and concerned international organizations.

Development Phase

Currently the University of British Columbia in Vancouver, Canada and the University of Joensuu in Finland co-host the IPFE secretariat with some seed funds from the Canadian Forest Service and Finnish Government, respectively.

IPFE has strong linkages with the Global Forest Information System (GIFS) of IUFRO, SILVA Network, the International Forestry Students Association, and with the Forestry Department of FAO.

During this phase membership will be strengthened and an expanded multi-year proposal for funding will be prepared. Preparations are underway to convene a workshop on "Improving the quality of forestry education in Africa, to be co-hosted by World Agroforestry Centre (ICRAF), African Forest Research Network (AFRONET) and SILVA Network in Nairobi, Kenya.

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Nigerian forestry students tour Scotland

Introduction

The National School of Forestry, University of Central Lancashire (UCLAN), is currently hosting 21 Nigerian Forestry and Business Masters students from Yobe state in Northern Nigeria. The students are from a wide range of backgrounds ranging from agricultural engineering and building technology to maths and physics and have all been selected to build up their skills and experience in forestry and management to tackle issues of forest loss and land degradation which are typical of Sahelian Africa.

Having arrived in the UK in January this year a 5 day tour of Scotland was their first experience of UK forestry with the aim of exploring and illustrating some of the current and topical themes.

Central Scotland Forest Trust

The first day saw the group travel through the Scottish Borders via Moffat noting examples of upland plantation forestry and the notable absence of any natural woodland in a two hour drive to arrive in Shotts at the Central Scotland Forest Trust's (CSFT) offices. The students were met by the Trust's director Simon Rennie who provided an entertaining and illuminating



Nigerian study tour party in 'Big Tree Country'

overview of the CSFT's activities which have spanned 25 years. The CSFT has in many ways pioneered the concept of forests as a means of not only delivering land reclamation but as being an important vehicle for social cohesion and development in an area blighted by industrial decline and high unemployment (up to 29%). Linda McConaghie, a community liaison officer, also highlighted the success the CSFT has at using the woodlands as a community focus where often there is great distrust and few community representative groups. The formation of a community woodland residents' group often marks the first attempts of a community to come together and

work co-operatively to improve their own environments. She could also demonstrate that much of this success has been achieved by working with children who in turn have been able to inspire and involve their parents and indeed the experiences of children will be important in shaping the views of future generations.

From the students' view point it was a challenging start to the tour, to be shown forestry largely unconcerned with trees and timber but concentrating on the wider benefits that can be derived from a sense of place and better environments. The approach of CSFT challenges the traditional scientific and professional approach to forestry development and is

something many joint forestry management initiatives are attempting to come to terms with world wide.

Big Tree Country – the Tay Valley

The students moved on to the heart of Scotland's 'Big Tree Country' with the Forestry Commission's Tay District. The theme of commercial upland forestry and timber production was illustrated through the technical and economic difficulties of working on steep terrain, the problems of harvesting in remote areas, and the importance of Sitka spruce to the UK forest industry. The need for a variety of wood products and markets was stressed in order to ensure timber maximisation, with timber being transported to board manufacturers in Central Scotland, sawmills near Inverness and pulp as far as Irvine on Scotland's south west coast.

Community Forests and rural development - Abriachan Forest Trust and BSW

The third day began with a visit to the Abriachan Community Trust. Abriachan along with Laggan are the founders of Rural Community Forestry in Scotland, pioneering new ways of community action and woodland ownership. Suzann Barr outlined the history of the Trust from the early attempts of the community to secure access to a Forestry Commission woodland which had been proposed for sale to eventually buying the woodland and establishing a Trust who now manage the woods and employ a local labour force to manage it. The history of Abriachan Trust is also the history of the Forestry Commission's awakening to a new political movement in rural Scotland to acquire land and the capacity to exercise responsibility and control, which extends far beyond the traditional community consultation processes which previously passed for local involvement. Backed by political will and finance from within the Scottish Assembly and with a new outlook from Scottish Natural Heritage (Scotland's rural and environmental policy organisation) and the Forestry Commission, community forest trusts are burgeoning across the Highlands and providing opportunities for local rural development.

The afternoon saw the group in the industrious surroundings of BSW's Boat of Garten sawmill under the guidance of Northern Timber Buyer John Pargitter and his colleagues. The Boat of Garten mill is a small and relatively unmechanised mill employing about 60 staff. However, Musa Usman, the group's only forester was quick to point out that a mill of this scale in Nigeria would employ 2000 workers. Although the importance of Sitka spruce was evident the mill produced a number of niche products such as decking for the home housing and DIY market, which illustrated the need for diversification and the use of Scots pine in a location at the heart of Scotland's pine woods.

Community forests and rural development - Laggan Forest Trust and the RSPB

The fourth day of the tour provided an opportunity to see forestry, conservation and tourism combined at the Royal Society for the Protection of Bird's (RSPB) Abernethy reserve. The Osprey has become iconic in terms of UK conservation and closely linked to the RSPB activities, however, this is a bird which is a familiar resident to Nigeria. Not so the Capercaillie, which is equally linked with Abernethy's ancient pine woods and increasingly providing an important tourist attraction.

The magnificence of the pine woods was easy to appreciate

with veteran trees, a rich shrub and field layer of bilberry and heather, new regeneration and rotting hulks of deadwood. However, Richard Thexton, reserve warden for over 10 years, was able to demonstrate that this was not always the case on the reserve which has been expanding for over 50 years. Many pine woods had been managed as plantations or with mixed conifers. Richard demonstrated sites undergoing restoration through a two phased thinning operation over 10 to 12 years which by a mix of heavy thinning, selective felling and retention of groups of close spaced trees could mimic natural woodland. Those sites now complete and 10 years old already resembled pristine pine wood habitat although there was noticeably fewer broadleaved species, something the RSPB are gradually reintroducing. Deer management was also paramount to the successful restoration and stalking was a permanent feature of reserve management to keep red deer numbers down to the point that natural regeneration was not prevented. The importance of zoning activity and public recreation was also demonstrated and was vital to maintaining a successful visitor experience and conservation balance. The value of tourism to rural economies was evident to the Nigerians but there was a clear understanding that within developing economies where woodlands were declining from over demand of fuel wood and a need for forage and browse that conservation was seen as a luxury. However, others recognised that examples of international tourism in areas such as the Gambia, Kenya, South Africa, Namibia and some reserves in Nigeria were recognised as being major sources of foreign income and local employment.

Leaving Abernethy we travelled west to Laggan Community forest. In comparison to Abriachan there was a tangible feeling of remoteness and relative isolation that the community were trying to tackle. Providing local employment, retaining the local population and attracting new families and businesses was fundamental to everything the community was trying to achieve. Again in contrast to Abriachan the Laggan Forest Trust was also doing this in partnership with the Forestry Commission and had not pursued a community buy-out, although they were looking to acquire a small site to build a new visitor centre. The partnership had evolved from early attempts to ensure that forest maintenance and small scale harvesting activities were sourced within the community to the Trust now offering a contract management option for the Forestry Commission. However, it was evident that this was proving difficult to sustain from a single forest of 700 ha and most of the original trained contractors had either left the area or were reliant on work outside Laggan. However, since its inception in the mid 1990s the Forestry Commission and the Trust had developed a mountain biking centre and trail network which was supporting a bike hire business and café. There was also a new pony trekking trail network and this was being utilised by a trekking business in the community. There was a clear sense of businesses using the forest which was not clear at Abriachan and it was possible to envisage a sustainable future for the initiatives. That said, it was not clear how the Trust themselves were currently benefiting from the business use with the benefits in terms of rental income accruing to the Forestry Commission and the individual businesses. However with a new Community-owned visitor centre this looked likely to change. Like Abriachan the community was also planning new sustainable housing for local occupancy, these plans were advanced and there was an evident confidence in the Trust and the community to deliver. Thanks must be extended to Amanda Calvert, Ewan Campbell, Jim Langley of the Trust and Neil McInnes, Forestry Commission, for their relaxed and friendly hospitality.

The final day was a brief tour of the Royal Botanic Gardens in Edinburgh and a chance to spend a little time in the city. Accompanied by a cold east coast mist, known locally as the “haar”, our students had the chance to shelter in the Palm houses and identify plants closer to home from southern Nigeria. The students were also given an exclusive preview of the new Queen Mother’s garden with plants collected from around the Commonwealth including a number of medicinal shrubs from Nigeria.

Conclusions

The short tour provided a range of issues for our Nigerian students to consider with a focus on community involvement and rural development spanning tourism, conservation and timber. Scottish forestry is undoubtedly very different from Yobe state and Simon Rennie was careful to highlight the

relativity of social deprivation even in Central Scotland with that of parts of Nigeria. However, there are shared issues of maximising the benefits of forestry to the local and national populations. Traditional forest practice in Scotland may be seen by some to have disenfranchised local people and that their reengagement is paramount to make forestry relevant once more, but this needs to be achieved with a long term sustainable approach where businesses are part of a community partnership. Laggan perhaps more than any other example embodied this most clearly, political will exercised by state organisations working with and to the benefit of local communities and local businesses.

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Students looking at a commercial harvesting site with the Forestry Commission in the Tay district.

Plantation forest development as a mitigation for loss of biodiversity in tropical forests

Introduction

Tropical rain forests mitigate against global warming by storing thousands of tons of carbon. They also contribute to the livelihoods of many people in the developing world by providing subsistence and market income, and insurance in times of need. Despite their

economic and ecological importance, tropical forests are faced with a rapid rate of conversion to competing land uses. An estimated 5.8 million hectares are lost each year¹. The remnant forested areas are threatened by logging and other extractive uses. Overall, the chain of damaging consequences of these exploitations include the loss of ecological services (biodiversity, carbon sequestration and watershed protection),

¹ FAO 2005. *Global Forest Resource Assessment 2005*.

the loss of timber and non-timber forest products, and the loss of a means of existence for forest-dependant rural people.

Given the role of forests as a major carbon sink, their loss is predicted to trigger negative feedback mechanisms that will exacerbate the current threats to biodiversity conservation. For instance, as tropical forests get drier they become more susceptible to burning. Historically, fires are rare in moist tropical forests. However, those of anthropogenic origin have become much more frequent over recent decades². As a result, flora and fauna that are not adapted to fire prone ecosystems will be adversely affected by these changes.

Although there has been a slow down in the rate at which tropical forests are converted to competing land uses, the main concerns centre on human-induced changes of the remnant tropical forest landscapes. The major driving force for degradation of remnant forests is the increasing demand for wood products. Consequently, solutions to mitigate loss of tropical forests and their biodiversity should include the provision of alternative sources of wood. This paper examines the initiative to establish forest plantations in Uganda in a bid to ease pressure off the natural forests.

Background of forestry sector in Uganda

Over 90% of Uganda's 27m people depend on wood and wood products for their energy most of which is derived from woodlands and natural rain forests. This has undoubtedly caused the reduction in forest cover to less than 20% (from over 50% in 1900). The loss of forest cover has been blamed largely on political instability, de-motivated Forest Department staff, forestry being a low priority sector for government, among other factors. In particular, the plantation sector has been least developed with only 15,000 ha established in the 1960s, implying that the bulk of timber used is derived from natural forests. Given the fast growing economy³, the rate of timber consumption is expected to increase by approximately 2-3% over the next 20 years⁴. With the perspective that less than 25% of the plantations established in the 1960s still remain, it is inevitable that the heavily creamed natural forests will remain the sole source of timber for Uganda. Realising the desperate situation of the forest sector in Uganda, the European Union (EU) provided financial support to the Uganda Forest Department through the Forest Resources Management and Conservation Programme (FRMCP). Among the objectives of EU's support was to encourage the development of the plantation sector as a means of easing pressure off the natural forests. This culminated in the creation of the Sawlog Production Grant Scheme (SPGS) in 2004 which was aimed solely at the private sector tree planting.

SPGS entails a non-refundable grant to individual and corporate investors who meet strict standards for plantation establishment. Among the most important standards are: quality seed selection, proper management plan, achieving a minimum of 80% survival after planting; crop protection against weeds, animals and fires. The SPGS pays Ushs 600 000 (ca. US \$350) per hectare over the first three years of establishment.

This figure is based on 50% of the average establishment costs for timber plantations in Uganda. The money is paid after the investors have committed themselves by using their funds to make a start, and after a thorough inspection by technical staff of SPGS to ensure that the standards are maintained. The investors often use their own land or obtain a long-term lease for planting in one of the several state owned Central Forest Reserves. In addition to financial support, SPGS provides technical support to private tree planters.

Achievements of SPGS

Encouraging public response: Over the last two and a half years, 40 private tree planters have benefited financially from the SPGS scheme. In addition over 100 individuals have received technical advice from the scheme. Thirty thousand hectares of Central Forest Reserve land has been leased to over 180 private tree planters, the majority of whom acquired 20 -100 hectares.



Clearing land prior to planting

Area planted: Out of the targeted 5,000 ha to be planted over a three year period (2004-6), 3,661 ha of timber plantations have been established so far mainly using improved *Pinus caribaea* seeds imported from Australia and South Africa⁵. This is no mean achievement with the perspective that previously, several initiatives by the state owned Forest Department failed to establish substantial timber reserves.

Rural employment: In excess of 1.6 billion Uganda Shillings (ca. US\$ 860,000) has been paid out by the SPGS so far.

Approximately 50% of this is paid to the local communities that provide labour for the various management operations such as land preparation, planting, and weeding.

Challenges

Poor investment environment: Currently there is limited government support for investing in plantation forestry. In addition, financial institutions are not inclined to financing ventures whose pay back period is over 20 years. There is a need for government to provide financial and other incentives to the private sector to encourage investment in forestry. Moreover, the established forests provide public services and contribute to rural development.

Lack of skills: Over the past 30 years, there has been a heavy reliance on natural forests. Consequently, training institutions have focused on participatory management initiatives of natural forests. Plantation forestry demands unique skills that encompass detailed business plans and technical skills similar to those in commercial agriculture investments. There is a need for training institutions to realign their curriculum to match the changing needs of the forestry sector. Likewise, research focusing on tree improvement programmes and potential threats to plantation forestry should be initiated to provide a long-term backing.

² Cochrane M.A. 2003. Fire science for rain forests. *Nature* 421: 913-919

³ Uganda's economy has grown at an average of 6.7% over the past 10 years

⁴ Current annual consumption of sawn timber in Uganda is estimated at 270,000 m³ per year

⁵ Ultimate target is establishment of at least 65 000 ha to meet Uganda's timber demand

Small scale farmers: Currently the SPGS beneficiaries are mostly financially capable individuals or companies, thus excluding small scale farmers who might be interested in tree planting. Although the SPGS scheme offers free seedlings to communal groups, this initiative needs to be strongly supported by government and non-government institutions.

Low priority sector: For several decades, forestry and biodiversity conservation have been low on the priority list of government. The concept of sustainable development and the role of the forest sector in mitigating climate change is least emphasised. Much as the Government of Uganda is signatory to many international conventions including the Convention on Biological Diversity, government seems to be well behind the reality of the impacts of climate change on the loss of biological diversity. Consequently, anticipating a comprehensive commitment by civil society to initiatives aimed at mitigating effects of climate change are unlikely to have an impact as long as government support for the sector is not stepped up.

Opportunities

Land availability and conducive climatic conditions: There are vast areas of land both in Central Forest Reserve and public land that are suitable for tree plantations. The bi-modal rainfall over a large part of the country creates excellent conditions for commercial tree planting.



SPGS growers discuss pine silviculture

Market availability: The diminishing standing stock in forest reserves imply that tree planters have a potential domestic market to satiate. Currently, some products such as electricity transmission poles are imported from South Africa.

Good rate of return: Investment in commercial forest plantations offers an attractive rate of return (between 9 and 12%)⁶. In the past, investment in tree planting was regarded as a non-viable venture mainly due to the long pay back period. However, with advances in research culminating in high yield fast growing species (less than 20 years for some species), the prospects of forestry investments are good.

Compensation for environmental services: The Clean Development Mechanism (CDM) agreed at Kyoto in 1997 provides for developed countries to meet their carbon emission reduction targets by generating carbon credits from tree planting initiatives. Although tree planting projects by the private sector may be at a small scale to attract large multinational companies, there is need for a scheme that provides for compensating 'pooled' small-scale projects.

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Learning the new and the old

A forest is much more than just trees. If the forest is wisely managed, it provides us with a continuous source of wood, food and many other products. But the rapid rate at which the Zambia's forests are being cleared for farmland, charcoal and timber is an issue of great concern.

In July 2005 the Lusaka National Museum's Education Department in alliance with the CFA Zambia Branch compiled a team that embarked on sensitising the youth against the dangers of deforestation and the wanton destruction of our natural habitat through a series of workshops entitled 'They Lived Science'.

The workshops' whose main objective was to discourage deforestation and encourage the use of the forest's many resources had three main components; heritage, environment and skills empowerment were targeted at youths and



Victor Kawanga talks about the dangers of cutting down trees

pupils, and they attracted about 20 schools.

The heritage component was conducted by Charity Salasini from the Museum's education department, the environment section was conducted by forest scientist and CFA representative Victor Kawanga, while the skills training part was conducted by Mike Mwandila of Miapen Zambia Crafts Enterprises who instructed the participants in using the 'monkey orange', a fruit of the *Strychnos* species, to carve ornamental and useful items that can be used or sold to tourists.

This year's 'They Lived Science' workshops were held in rural Zambia rather than at the museum in order to take them to the people directly involved in the deforestation; the very people who can benefit from what their natural surroundings have to offer without having to damage them.

⁶ Hardcastle P.D. et al 2005. *Improving the Investment Environment for Private Sector Plantation Development in Uganda*.

Mpika, is a rural district in rural Zambia, about six hundred kilometres north of Lusaka along the Great North Road (GNR). The district was chosen because, as is the case with many others, it has carried out failed government-led environmental projects. This first series of workshops was held at Danger Hill Community School but unlike the Lusaka workshops they were not limited to pupils. Parents too had their own sessions, and according to Salasini who travelled ahead of the team, the workshops had to be divided into three segments because of the cultural structure in rural Zambia. "One important aspect in this area (Mpika) is that because of cultural values children, women and men can not mix in the same insaka (gathering); there is always a dividing line." said Salasini during the workshops. "How you address the children is not how you are going to address the women and how you address the women is not how you are going to address the men."

Salasini also said that the issue of dividing the participants into groups was not the only factor that slowed down the smooth beginning of the programme. Whereas the children were eager to participate, the menfolk demanded alcohol to the tune of 20 litres of (millet) wine beforehand. And neither did the womenfolk cooperate for nothing. The authors witnessed the women demanding **ukushikula**, a Bemba rite of offering money by placing money (or valuables) under a plate while lying on the bare floor clapping and chanting, before they would participate in the workshop. The rite is common before weddings and initiation ceremonies or when a younger person is seeking wisdom from an elder.

Mpika was an ideal setting for the workshops because the locals in that area still practiced the age-old chitemene agricultural system that involves the felling and burning of forests for farmland as well as charcoal burning and logging. In addition to this the 'monkey orange' grows in abundance, the most common types being called **utumunu**, **amasaye**, **amakome** and **amalungi**.

But it is the cutting of trees for charcoal that poses the greatest threat. And during the workshops Kawanga, a forestry scientist and ardent environmentalist warned the participants against the dangers of cutting down trees. "Take for instance strychnos species. It takes 5 trees to make one bag of charcoal.

This tree has a minimum of 300 fruits, but if you craft each of these fruits at a cost of K20,000 per fruit multiplied by 3,000, you get K1,500,000. Much more than a bag of charcoal costing K8,000," advised Kawanga.

But although Kawanga's statistics excited the participants, some had reservations. Samfolonsa Ndeni, admitted that the ideas given to them made a lot of sense but they were used to their traditional way of life which involves charcoal burning and chitemene. Speaking in **Bemba** (one of Zambia's local languages), she said that these have been their practices since time immemorial and also that they cannot afford fertilizer and that is why they opt for chitemene. Ndeni also revealed that very large parts of the forest had been cleared in their area and that when she was young the area had trees so large that it was impossible to place one's arms around them in an embrace. She concluded with a confession that their generation have not been considerate about future generations. She did

not know her exact age but she recalled that she was part of a group of women that blocked the Great North Road during the freedom struggle.

All of the sessions of the workshops were well attended, and most of the participants were eager to lay their hands on Mwandila's equipment to craft bracelets and cups. The message too of preserving their environment also appeared to sink in, but they do not possess the simple tools used to perform their newly-learned craft. Nevertheless, while the participants

learned new things, they were also reminded of old and forgotten customs by mingling with one another; an issue of learning the new and the old.

Apart from the CFA and Maipen Zambia Crafts Enterprise, in Mpika 'They Lived Science' engaged the collaboration of the Development Organisations for People's Empowerment (DOPE). DOPE have been on the ground in Chief Chikwanda's area and understand the people and environment well, they have also run a number of workshops and projects that are centred on criticising deforestation.

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Monkey fruit

Changing international markets for timber – what can African producers do?

Introduction

The last five years has seen rapid change and developments in the way that international trade is conducted. Buyer demands are changing, driven by NGOs, public and private sector policies and consumer concerns. Global concern has primarily shifted from the issue of deforestation to one of its many causes: illegal logging.

Illegal Logging and Market Change



Illegal timber is invariably cheaper than producing legitimate products, it distorts global markets and undermines incentives for sustainable forest management. World prices are currently depressed by between 7% and 16%

(depending on product) by the prevalence of illegal products in the market, as estimated by the American Forest and Paper Association in 2004.¹

Illegal logging is therefore a shared concern, for producer and consumer alike, and market-driven action is proving a valuable element in the global response. As a result in 2005 DFID and TTF co-funded some further research into such market changes, that culminated in a series of workshops in Ghana, Cameroon, Gabon and Congo-Brazzaville in collaboration with the Inter-African Forest Industries Association (IFIA) and its member organisations. These workshops drew together over 300 producers and EU traders to review market trends and discuss how producers can respond. This note summarises these findings. The full briefing packs, which include research into six EU and the four African markets, are available on-line at www.ttf.co.uk and www.illegal-logging.info.

Market Drivers of Change



Policy work on illegal logging originated in the G8 Action Programme on Forests of 1998-2002. Numerous initiatives have arisen at many levels – international, regional and national, and both public, private and NGO sectors.

The main consumer market drivers are:

- **FLEGT Regulation:** this new legislation will require partner countries to issue legality licences for all timber destined for the EU market, once Voluntary Partnership Agreements have been negotiated between the EU and partner producer countries.

- **Public Timber Procurement Policies:** many EU governments are developing policies that require public bodies to purchase only legal (and preferably sustainable) timber products
- **Private Sector Policies:** include codes of conduct (e.g. the UK TTF - see Box 1), purchasing policies and supply chain management (e.g. the Tropical Forest Trust – see Box 2) to ensure all timber from high risk countries is traceable and free of illegally sourced wood products, and subject to independent monitoring and auditing
- **Financial Sector Policies:** risk assessment of investment and lending, to ensure forest sector finance does not facilitate illegal logging², coupled with new money laundering and proceeds of crime laws.

Box 1: UK TTF Code of Conduct

From 2002, the UK TTF, has required all of its members to comply with a Code of Conduct, which commits members to “sourcing their timber and timber products from legal and well-managed forests” and notes that “members recognise that the independent certification of forests and the process chain is the most useful tool in providing assurances that the timber they deal in comes from legal and well-managed forests.” In 2004, the UK TTF finalised a Responsible Procurement Policy (RPP) to provide members with a tool to assist with implementation of the code of conduct.

Box 2: Tropical Forest Trust

The Tropical Forest Trust (TFT) approach links the supply chain from the forest to the consumer through its three membership categories: Producing, Supplying and Buying members through Supplying members – who manufacture and/or trade in wood products that are sold to Buying members. TFT members invest a fixed percentage of their product's gross margin to fund TFT activities tailored to suit their needs, based on the volume of uncertified timber they are currently trading in. Members get a return on their investment by securing a more ethical wood supply. Before the project achieves certification, members have some assurance that their supply chain originates in a project that is demonstrably moving towards certification with TFT assistance and monitoring. TFT members have the opportunity to secure a long-term supply of certified timber and wood products once the project is certified.

¹ AF& PA, November 2004, “Illegal” Logging and Global Wood Markets: The Competitive Impacts on the U.S. Wood Products Industry.

² HSBC Forest Land and Forest Products Sector Guidelines, May 2004

Europe's interest in legality and sustainability issues has helped boost demand for legal timber and increased pressure on suppliers – particularly from the tropics - to provide evidence of legal and sustainable sourcing. In order just to retain existing market share in Europe, it will become increasingly necessary for suppliers of African hardwoods to demonstrate commitment to independent legal verification and forest certification.

In 2005 the European Commission awarded € 3.5 million co-financing to fund an EU Timber Trade Action Plan (TTAP), in partnership with the Belgian Timber Importers Federation (FBCIB), the Netherlands Timber Trade Association (VVNH) and the UK Timber Trade Federation (TTF). TTAP aims to deliver verification of legality for 20% of tropical timber imports to the three timber trade federations by 2010, from the TTAP producer partner countries: Cameroon, Congo Brazzaville, Gabon, Malaysia and Indonesia. This will be done through the use of technical assistance to supply chain management, inputting to supporting policy, reviewing and developing codes of conduct, risk assessment tools, legality

standards and the development of a TTAP chain of custody (CoC) standard, including an assessment of CoC systems that can be used to meet the CoC standard.

Many forest companies in Africa have responded positively to these new market demands by implementing forest management plans and chain of custody systems that can be audited for legality and, in two recent cases, sustainability under the FSC Certification scheme. This response to environmental concerns, coupled with renewed interest in African species for solid wood products such as flooring and fittings, bodes well for those timber companies and producer governments prepared to rise to the challenge.

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Around the world

Guess the height of the world's tallest tree

It has been a busy week for tree huggers - discovering not only the world's tallest tree but also what governs a tree's ultimate height. Until 7 September the record was held by a 112.8-metre-tall giant redwood in north California, then a team at Humboldt State University found a 115.2-metre specimen in California's Redwood National Park. There is, however, a natural limit on maximum tree height, says a team led by Quanshui Zheng of Tsinghua University in China in a paper submitted to *Nature's* pre-print server.

As water evaporates from leaves, moisture is pulled into the tree via the roots, meaning trees have to work ever harder to overcome gravity and raise water to leaves at great heights. Now an analysis by Zheng's team of 22 tree species suggests why there is a limit to tree growth.

The higher up a tree, the lower the negative pressure in mesophylls, cells in the middle of each leaf. If this pressure becomes too low, the cells collapse, "like when you suck through a straw very hard and the straw collapses", says Zheng. To prevent this happening mesophylls in the leaves at the top of trees are becoming so small that this is the factor which limits tree height, says Zheng's team.

Different levels of groundwater, humidity and temperature alter the negative pressure within mesophylls, which might explain why the height of tree species varies in different regions.

www.newscientist.com

Indonesia urged to aid smog fight

Malaysia has urged its neighbour Indonesia to sign up to regional plans for fighting pollution from forest-clearance fires. A thick haze has been spreading across several countries, with visibility in some places down to 200 metres.

Indonesia is the only country in the 10-member Asian regional grouping not to formally approve plans to coordinate a response to open burning. The situation has forced Singapore to issue a health warning. Large parts of Indonesia, Malaysia and Singapore have been hit by smog from illegal bush fires burning on the islands of Sumatra and Borneo.

'Costing billions'

Pungent smoke from the fires is an annual problem across

south-east Asia during the dry season. Flights have been cancelled, cars have put their headlights on in the middle of the day and Singapore has warned citizens against taking exercise outdoors. The worst case of smog ever recorded was in 1997, when a choking cloud engulfed large areas of south-east Asia, costing local economies billions of dollars.

The smoke from this year's fires is less severe than last year but the fact that the annual smog has reappeared at all has caused annoyance.

Waiting for Indonesia

Saying Indonesia was "dragging its feet", Malaysia also asked for offending firms to be prosecuted. Malaysian Environment Minister Azmi Khalid said he did not know why Indonesia

was “dragging its feet” over the agreement on Transboundary Haze Pollution (THP) approved in 2002 by the Association of Southeast Asian Nations (Asean).

The THP agreement envisages the creation of a regional co-ordinating centre for reacting rapidly to the haze, which is mostly attributed to slash-and-burn farming methods. Mr Amzi told the BBC that his counterparts in Indonesia assured him in June that they had plans in place to prevent a repeat of the haze. However, he says these do not seem to be working.

Indonesia has outlawed using fire for land clearance but the laws are widely flouted in remote areas of the country and

the government seems helpless to control the situation, says the BBC’s Lucy Williamson in Jakarta. Environmentalists say the problem has become more serious in recent years due to timber and oil palm companies clearing land for plantations.

“The fires are seasonal and very predictable, but the government never implements effective measures to prevent and manage them,” a spokesman for Indonesian environmental group Save Our Borneo, told AFP news agency.

news.bbc.co.uk

Trading carbon could reduce deforestation

The rapid destruction of the world’s rainforests could be reduced using financial incentives from carbon trade, according to a new World Bank report. The report, released on 23 October, suggests that industrialised nations offset their emissions of carbon dioxide by funding projects that reduce deforestation in developing countries.

Carbon trade is a mechanism developed to reduce global emissions of carbon dioxide, the major greenhouse gas leading to global warming. Under the mechanism, industrialised countries pay developing nations for reducing the latter’s carbon dioxide emissions. Studies have found that forests can store large amounts of carbon dioxide; the World Bank report estimates that deforestation accounts for 20 per cent of emissions of the gas worldwide annually. It also estimates that five per cent of the world’s rainforests is lost each decade.

In many parts of the developing world, dense tropical forest is cleared to create pastures worth as little as US\$300 a hectare, while the forest could be compensated with thousands of dollars if it were used for storing carbon dioxide through carbon trading, according to the report. “Global carbon finance

can be a powerful incentive to stop deforestation,” says World Bank economist François Bourguignon. “Compensation for avoiding deforestation could help developing countries to improve forest governance and boost rural incomes, while helping the world at large to mitigate climate change more vigorously.”

The report says that the potential benefits of using forests to store carbon dioxide have not been explored by the current carbon market, and urges for sustainable forest management to be integrated into the global strategy for reducing greenhouse gas emissions. But Lu Wenming, a senior researcher at the Chinese Academy of Forestry, warns that the introduction of forest preservation into the carbon market could be impeded by difficulties in evaluating the exact amount of carbon dioxide that a forest can store. For the forest resources to be effectively integrated into a strategy to reduce global carbon dioxide emissions, governments, international organisations, industries and forest communities must work together to create the appropriate policies.

www.scidev.net

Can the forest products industry be part of a bio-solution to climate change?

The global forest products industry can play a significant role in combating climate change by optimizing the use of raw material, increasing efficiency, producing bio-energy and expanding into bio-refinery products while developing the competitiveness of the sector.

This was the conclusion of the International Seminar on Energy and Forest Products Industry (30-31 October), in which intergovernmental and private sector organisations of the global forest product industry joined forces. Participants stressed that well integrated and carefully balanced energy and forest policies around the globe set the stage for these developments. Governments, industry, institutions and society at large each have a role to play and should work together.

The forest products industry is a major consumer of energy, using 6 percent of total industrial energy use in 2003. But the industry also produces energy, as well as other by-products that can be used for energy generation. It is the only sector that already generates approximately 50 percent of its own

energy needs, the majority from renewable carbon-neutral biomass. Energy costs, energy supply and climate change are amongst the core issues impacting on the future of the forest products industry.

Wulf Killmann, Director of Forest Products and Economics at FAO, said that this potential needs to be tapped. “Governments have a key role to play in encouraging industries to use cleaner and more efficient energy technologies and in promoting bio-energy.”

“Wood and paper products are uniquely renewable and recyclable products that help reducing greenhouse gas emissions by absorbing carbon dioxide from the atmosphere,” said Teresa Presas, Chair of the International Council of Forest and Paper Associations (ICFPA). The industry is committed to innovative energy solutions that meet the challenge of climate change, increase efficiency, reduce reliance on fossil fuel and expand the use of renewable energy sources. The industry believes that fibre from sustainable managed forests makes a positive contribution to the world’s future energy supply.

“To achieve this”, Presas said, “the industry needs enabling policies that support research and innovation, promote demonstration projects and improve the investment climate, specifically in this sector. Moreover there needs to be a level playing field between energy and non-energy uses of wood, considering that all this has to take place within the boundaries of sustainable forest management.”

The World Wide Fund for Nature (WWF) would be glad to see the global forest product industry taking a stronger role in the energy and climate change mitigation field, but also sets some requirements. “WWF considers that sustainable bioenergy has to be part of the global strategy to reduce greenhouse gas emissions, among other measures aiming to reduce the ecological footprint. Credible certification of bioenergy feedstocks with a focus on social and environmental issues - including greenhouse gas calculations - and land use planning are part of the solution to ensure the sustainability of development”, said Duncan Pollard, Director of the WWF Forests for Life Programme.

The seminar was jointly organised by the Food and Agriculture Organization of the United Nations (FAO), the International Energy Agency (IEA) and the International Council of Forest and Paper Associations (ICFPA), in collaboration with the UN Economic Commission for Europe (UNECE), the International Tropical Timber Organisation (ITTO) and the World Business Council for Sustainable Development (WBCSD).

During the meeting, ICFPA, FAO, IEA and WWF agreed to continue working together to apply the unique potential of the forest products sector to mitigating climate change and increasing energy security. The IEA will prepare a report back to the G8 with an analysis as part of the Gleneagles Summit Plan of Action and ICFPA will take forward its global CEO leadership statement on energy and climate change in June 2007 in Shanghai.

www.fao.org/forestry

Crops responsible for deforestation in Brazil

The Brazilian Amazon is increasingly being cleared to grow crops rather than for grazing cattle, making the process even more harmful to the environment, say researchers. Over the course of a three-year study led by Ruth DeFries of the University of Maryland in the United States, clearing for cropland accounted for nearly one fifth of deforestation in one state of the Brazilian Amazon.

The results, published by Proceedings of the National Academy of Sciences, use deforestation maps, field surveys and satellite data to follow what happened to large pieces of land cleared of rainforest in the state of Mato Grosso. The team found that an area over one third the size of Jordan — about 36,000 square kilometres — was cleared between 2001 and 2004 for large-scale mechanised agriculture. They say this contradicts previous claims that Brazil’s expanding crop production is met by converting land previously cleared for cattle ranching.

Their findings define a “new paradigm of forest loss in Amazonia”, although cattle pasture still remains the dominant land use, say the researchers.

Mato Grosso is one of the nine states of the Brazilian Amazon, and was home to 87 per cent of the increase in Brazilian cropland from 2001 to 2004 and 40 per cent of new deforestation.

DeFries says that clearings for cropland are in general larger than clearings for pasture, and more of the biomass in those areas is removed. “We didn’t quantify the amount of remaining biomass in the paper, but we suggest that carbon emissions per area will be greater when more biomass is removed”.

Amazon deforestation is Brazil’s largest source of carbon dioxide emissions.

Flávio Montiel, director of environmental protection at the Brazilian Institute of Environment and Renewable Natural Resources (Ibama) told SciDev.Net that the government is monitoring new research into deforestation, and investing in new technologies, such as those used in the study, to detect deforestation in real time.

www.scidev.net

Tree has twice as many genes as us

It may be a tree, yet it has twice as many genes as us. The first sequence of a tree genome has revealed that the black cottonwood poplar (*Populus trichocarpa*) has more than 45,000 genes. The sequencing turned up many genes unique to trees, including 90 or so linked with the production of lignin, cellulose and hemicellulose - the major polymers that give wood its strength and characteristic hardness (*Science*, vol 313, p 1596).

Breeders hope the genetic map of the poplar will help them breed tree species more quickly and study them more easily. Because trees take so long to grow there have been

just three generations of poplars since research on them began, says Wout Boerjan of the Flanders Interuniversity Institute of Biotechnology in Ghent, Belgium, and a member of the international sequencing consortium. The sequence should also allow researchers to more easily screen native and genetically engineered trees for valuable gene variants that produce useful traits without having to wait for trees to mature.

www.newscientist.com

WWF launches new manual to help promote legal timber

Frank Miller, the founder and managing director of Track Record, is the lead author of a new WWF manual aimed at helping buyers of timber forest products to avoid purchasing wood and wood products made from illegally logged timber. *Keep It Legal*, from WWF's Global Forest & Trade Network (GFTN), can be used by any organisation which purchases forest products, including processors, importers, manufacturers, wholesalers and retailers.

The manual focuses particularly on the problems posed by the extensive trade in illegal forest products and offers a systematic approach to identifying and eliminating the risk of illegally logged wood entering the supply chain. It includes a range of practical tools which can be adopted by individual companies and, by outlining the ways in which purchasers can demonstrate compliance with best practice, the manual makes the process of 'keeping it legal' simpler.

Frank Miller says: "More than 3.6 million hectares of forest, bigger than the size of Belgium, are being destroyed

each year, with one of the major causes being illegal logging. It is distorting trade, destroying nature, damaging communities and has a huge impact on the global economy. Hopefully a manual like *Keep It Legal* can go some way in making it harder for illegal wood to be passed off as legal.

"Track Record has developed sophisticated systems which help companies verify legality in their supply chains and promote responsible purchasing. *Keep It Legal* will provide an extremely useful and practical tool in helping our clients and their suppliers understand what represents current best practice for buying, processing and selling legal timber and timber products." The manual also contains specific guides for major timber-producing and exporting countries, and online country guides will offer practical advice to organisations sourcing timber for those countries.

Keep It Legal is available at www.panda.org/gftn or by contacting gftn@wwfus.org.

WWF

Forests expand thanks to government policy

Afforestation is replacing deforestation in an increasing number of countries, highlighting the positive impact that government policies — including those in China and India — are having on forest expansion, say scientists. However, the research published in the Proceedings of the National Academy of Sciences on November 13 shows that in many developing countries forests are shrinking, but this situation could be reversed.

The scientists developed a new method to calculate carbon stored in forest areas, information that is critical to the study of climate change. The technique is a reliable way of translating forest area, volume and biomass across countries. One of the study's authors, Jingyun Fang of Peking University in Beijing, China, says the new approach will affect how carbon credits are calculated, adding that it will "encourage governments to consider the value of reforestation".

Instead of simply measuring the areas covered by trees, the researchers calculated the volume of a country's 'growing stock' — trees large enough to be considered timber — as well as the amount of biomass and atmospheric carbon stored in forests. They used data from a UN report, and found that between 1990 and 2005, forest stocks rose in 22 of the world's 50 most forested countries.

Forest area shrank fastest in Nigeria and the Philippines, and expanded fastest in China, Spain and Vietnam. In China, reforestation and afforestation efforts, spurred by government

policy, allowed forest areas to increase from 96 to 143 million hectares.

These changes are also due to urban migration and agricultural yield, and they have led the team to predict that more nations will achieve forest transition, where reforestation overtakes deforestation, in the next three years. But the scientists also warn of the negative effect of bad land management.

"The main obstacles to forest transition are fast-growing poor populations who burn wood to cook, sell it for quick cash, and clear forest for crops," said lead researcher Pekka Kauppi of the University of Helsinki, Finland.

Forest transition at a global level will depend largely on Brazil and Indonesia, where huge areas of tropical forest are being cut and cleared. "I think we need more effort to protect and restore primary forests, especially tropical rain forests," Fang told SciDev.Net. "As our report has indicated, forest area and biomass are still being lost in two critical tropical countries, Brazil and Indonesia," he added.

The authors also suggest that the expanding forests can compensate for industrial emissions by capturing and storing carbon. The research may have an impact on discussions at the United Nations Framework Convention on Climate Change held in Nairobi, Kenya in November.

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