CFA Newsletter

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CFA Newsletter
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The views expressed are not necessarily those of the CFA.

Licensing of wood-based industries in India: why punish farmers greening the country?

What is the future for poplar on India's farms?

Many species and clones of exotic poplars were tried in India by the Forest Department of Uttar Pradesh and the Forest research Institute, Dehradun beginning in the early 1960s. Two of the most outstanding clones of *Populus deltoides*, G-3 and G-48, introduced by Wimco Limited laid the foundations for large scale commercial poplar plantations on suitable forest lands in Terai areas of the present Utrrakhand state and irrigated private farms of the indo-gangetic plains of north-western India since 1984. Planting of poplars on farmers' fields under agro-forestry systems increased to nearly 15 million plants per year in the Punjab, Haryana, Utrrakhand and Uttar Pradesh, covering 30 000 ha annually by the year 2000. With an average 5-year harvesting cycle that meant the permanent additional tree cover of 1 500 000 ha of poplar plantations on farm lands. With an average productivity of 20 tonnes/ha/year the annual cut from this resource was about 3 million tonnes.

A large number of small farmers have been growing poplars on their small land holdings and supplying wood for the plywood , packaging and paper industries and thereby conserving the biodiversity-rich natural forests and promoting local value addition, conserving foreign exchange and creating vast employment opportunities in partnership with wood-based industries. With the growing demand for plywood, block boards and flush doors, both agro-forestry plantations of poplars and the number and capacity of plywood units

have been growing steadily since the late 1980s in the Punjab, Haryana, Utrrakhand and Uttar Pradesh.

Should the farmers serving our society be impoverished and penalized for no fault on their part? That is exactly what has been happening as the farmers became unintended and unwarranted victims of issues related to licensing of wood-based industries in accordance with the interim orders of the Honorable Supreme Court issued on 16th January, 1998 for north-eastern states, and extended to the entire country from 30th October 2002 directing closure of all unlicensed saw mills and plywood/veneer factories. The Court further directed that no State Government or Union Territory will permit the opening of any sawmill, veneer or plywood industry without prior permission of the Central Empowered Committee constituted by the Supreme Court. Thousands of farmers, including poor and marginal farmers, lost millions of rupees during 4 years of turmoil as poplar timber prices crashed. Directives to close all unlicensed saw-mills, veneer / plywood industries and licensing requirements enforced by the interim orders of the Honorable Supreme Court were amongst the major factors leading to distress sales and premature harvesting of poplar plantations and the crash of the markets for poplar logs.

The price of poplar logs began to fall during 2000-01. From a normal level of Rs. 4500 per tonne, prices crashed to Rs. 1000 to 1500 per tonne by 2004-05 for logs 60 cms or more in girth. Assets of poor farmers worth millions of rupees were eroded in the four poplar growing states. Assuming an average decline of poplar prices of Rs.1500 per tonne, poor and marginal farmers lost Rs. 4 500 million or 450 crores annually, and Rs. 18 000 million or 1 800 crores during the 4 year period of turmoil. Farmers not only resorted to premature harvesting and distress sale of poplar plantations but also virtually stopped planting poplars.

We have to honour and implement the orders of the Honorable Supreme Court in letter and spirit and yet at the same time find a pragmatic solution to this vexed issue. By all means, punish those who are really responsible for flouting the directives of the Honorable Supreme Court. But why penalize poor farmers and impoverish them when they have committed no crime? Therefore, the following facts were placed before the learned members of the Central Empowered Committee constituted by the Honorable Supreme Court:

1. There were only a very small number of plywood factories in north India before the advent of the farm forestry poplar plantations promoted by Wimco Limited and the State Forest Departments in 1984. With the establishment of plywood factories, growing demand for poplar logs lead to large scale planting of poplars by farmers. Presently there are 1 100 plywood and veneer making factories in northern India and a Northern India Plywood Manufacturers Association. Thus both the wood-based industries and farm forestry plantations have been growing in poplar-growing states without dependence on forest resources.
2. Poplar plantations on farm lands contribute 1 500 000 ha of permanent tree cover and produce 3 million cubic meters of timber on a sustainable basis annually. If we include eucalyptus plantations, the contribution to tree cover and timber production outside forests is many times higher. In Punjab and Haryana, more than 90% timber production is from farm lands outside the forests.
3. In fact many more new state of the art plywood units with contemporary technology and international standards in respect of size, quality and costs of production should be licensed to promote further expansion of farm–forestry, local value addition and creation of opportunities for employment and exports of value added products.
4. There is a complete ban on export of logs or sawn timber of indigenous species out of the country yet we import huge volumes of logs and sawn timber. Local wood-based industries provide the only market for farm grown timber. Where will the farmers sell farm-grown timber if the processing industries which provide the only market are also closed?
5. Closure of the saw-mills, plywood and veneer units set up after October 2002, which are totally dependent on farm grown timber and pose no threat to natural forests, would trigger another panic reaction and may lead to a second crash of markets for poplar logs. That will be ruinous for the farmers. Thousands of poor farmers, who should be rewarded and recognized for their contributions to agroforestry, would be penalized for no fault on their part.
6. Planned and integrated development and growth of farm forestry plantations and wood-based industries is the only way to expand tree cover outside forests, meet society's needs for value-added products, save scarce foreign exchange, create ample employment opportunities, promote local value addition, generate additional excise and tax revenues and conserve our shrinking biodiversity-rich natural forests.

Accordingly, the Central Empowered Committee was requested to adopt a pragmatic and compassionate approach to safeguard the genuine and legitimate interests of the poor farmers for continued expansion and growth of technology based farm forestry plantations. Therefore, the existing plywood units set up after 30th October, 2002 should be granted licenses under the rules framed recently by the concerned state governments with a one-time penalty as may be deemed appropriate and directed by the Honorable Supreme Court . That will mean punishment to the defaulters and sparing the farmers the agony of yet another round of market crashes for farm-grown timbers.

This humble appeal submitted on behalf of thousands of poor farmers, who have little say in the matter but whose fortunes are strongly linked to this issue, has been considered on merits. Orders have been issued now by the Central Empowered Committee set up by the Honorable Supreme Court to grant licenses to the wood-based industries set up after 30th October 2002 in Haryana and Punjab with a one-time penalty and a similar approach is likely to be followed in other states subject to availability of farm-grown timber. This positive policy decision along with further policy reforms related to abolition of the need for felling permits and timber transit permits for farm-grown timber of all species in all states should ensure justice for the poor farmers and safeguard the genuine and legitimate interests of the farmers promoting farm forestry plantations. The price of poplar logs has since improved to Rs. 5000-5500 per tonne and demand for planting stock of poplars for agro-forestry systems has begun to grow again.

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Association News

New CFA publication – Commonwealth Forests

We are pleased to report that following 18-months of work, the CFA's new book *Commonwealth Forests* is the first publication to give a complete overview of the state of forestry in the Commonwealth. The book covers not only the extent and types of forests in the 53 Commonwealth countries, but also topics such as management and rates of deforestation. The benefits of these forests are also discussed including the production of tangible products such as timber and firewood, and other benefits that are rarely quantified and often taken for granted, including provision of fruits, fodder and shelter, and the conservation of biological diversity. In addition, *Commonwealth Forests* includes chapters on forest research, the education of future generations of foresters, administration of the forest services of the Commonwealth, and the role of Commonwealth countries in the international dialogue on forests. The final chapter on Challenges and Opportunities identifies the main issues facing foresters, planners and policy-makers and describes the opportunities offered for collaboration in addressing them. Annexes provide the figures upon which the text is based, country by country, and there are also details of the forest authorities for each Commonwealth country.

CFA members renewing their membership in 2008 will be offered a complimentary copy of *Commonwealth Forests*. The price to non-members is £10 plus p&p.

Donations – vital for the future of the CFA

As a charity, the CFA is always grateful for donations to support our work. We have been fortunate this year to receive financial support from the Bruce-Ball Charitable Trust and the Worshipful Company of Builders Merchants which will go towards supporting our Young Forester Award in 2008. However, we are constantly on the look-out for new sources of funding. One idea we have for raising funds is to encourage members to use **everyclick.com** as their day-to-day internet search engine (see below) but we also need your help. If you would like to support the CFA through a donation then please contact us at our address, given on the front page. This is your CFA, and we need your help to ensure its future.

Raise money for the Commonwealth Forestry Association just by searching the web

everyclick.com is an internet search engine with a big difference - it donates half its revenues to charity. If you use everyclick.com as your search engine rather than, for example, Google, every search you do can raise money for The Commonwealth Forestry Association. It sounds too good to be true but it works simply because everyclick.com generates revenue through the fees that advertisers pay. They keep 50% of the money and the other 50% is divided amongst the charities that have registered with them - which include the CFA.

All you need to do is go to **www.everyclick.com/uk/commonwealthforestryassociation** and select the

Commonwealth Forestry Association as your chosen charity. Then use it to do all your searching rather than your current search engine. Don't forget to add it to your favourites so you can find it again easily and you can make it your home page by clicking on the link in the top right hand corner of the site. It does not cost us, or you, a penny - so please use it - and pass the message on!

Can you read this?

If so, then maybe you are perfectly happy with the typeface we use for the CFA Newsletter. But if you have a problem, or would prefer we experiement with other typefaces then please let us know.

Forest Scenes

Updates on Australian forestry

Increased resources for forestry ODA

As reported in the September 2007 CFA Newsletter, the Australian Government is providing A$200 million under the Global Initiative on Forests and Climate, to reduce deforestation, promote sustainable forest management and encourage reforestation. Further information on this initiative can be found at: http://www.greenhouse.gov.au/international/forests/index.html

During the Asia-Pacific Economic Cooperation summit, which was held in Sydney in September, the Australian Government announced a number of additional climate change related programmes including the A$15.7 million Asia-Pacific Forestry Skills and Capacity Building Programme. This new programme will facilitate training programmes, study tours, transfer of technology and other forms of capacity building assistance and partnerships to enhance forestry capacity in partner countries. Further information about this programme can be found at: http://www.daff.gov.au/forestry

Australian Forestry Standard

The Australian Forestry Standard, which is Australia's national forest certification standard, received full recognition as an Australian Standard in August 2007 after a comprehensive review over the past three years. During the review, which involved comprehensive considerations by scientific, environmental, industry and social stakeholders, significant changes were made to the interim standard. Native forests will no longer be able to be converted to plantations under the Standard and other changes have been made to reduce the use of chemicals and facilitate reporting of audits. More than 8.5 million ha of native forests and plantations are now certified under the Australian Forestry Standard. Australia considers that its national forest certification scheme sets a strong benchmark for forest certification within Australia and globally. Further information can be found at: http://www.forestrystandard.org.au/

Establishment of forest and wood products Australia

On 3 September 2007, a new private sector company Forest and Wood Products Australia was established to undertake industry-wide research and development as well as generic marketing and promotion of sustainable forest management and timber products. It replaces the Forest and Wood Products Research and Development Corporation, which operated under government legislation. The new company has an annual budget of about A$7 million, which it generates from levies applied to forest growers, wood processors and timber importers. Funds that are collected and spent on research and development are matched dollar for dollar by the Australian Government. Further information can be found at: http://www.fwprdc.org.au/

Launch of illegal logging policy

The Australian Government launched its policy *"Bringing down the axe on illegal logging"* in October 2007, following a year of consultations with stakeholders including industry and environment groups. Under this policy the Government is committed to eliminating trade in illegally-sourced forest products and to promoting trade from sustainably-managed forests. The initial focus of the policy will be on trade in legally-sourced products primarily through a co-operative voluntary approach with the timber importers. The policy contains eight measures and a series of actions that will be implemented within Australia, within the Asia-Pacific region and through relevant global forums. A risk-based approach will be used to determine the legality of imported forest products by working with relevant partners to conduct supply chain assessments. Australia will also continue to promote the adoption of internationally accredited forest certification and chain-of-custody schemes. A representative multi-stakeholder working group will oversee the implementation of the policy. Further information on this new policy may be found at: http://www.daff.gov.au/forestry/international/illegal-logging

Approval of Tasmanian pulp mill

For the past three years there has been significant media attention regarding the proposal from one of Australia's largest forest products companies, Gunns Limited, to construct a A$1.7 billion pulp mill in northern Tasmania. The approvals process for this mill has been long and somewhat controversial. Initially the proposal was being assessed under the Tasmanian Resource Planning and Development Commission, but the

Tasmanian Government eventually decided to commission its own assessment and use the Parliament to decide the State approval for the project. The Tasmanian Government gave its approval for the project in August 2007. However, the final approval rested with the Australian Government.

On 4 October, the Australian Minister for the Environment and Water Resources, Malcolm Turnbull, announced his approval under the *Environment Protection and Biodiversity Conservation* Act for the proposed Gunns pulp mill in Tasmania's Tamar Valley. In doing so, he imposed 48 tough environmental conditions including:

- An integrated Environmental Impact Management Plan that will strictly prescribe all actions relating to EPBC Act matters.
- An independent panel, drawn from national and international experts, to oversee the design, implementation and monitoring of the pulp mill.
- An independent inspector, appointed by the Australian Government, to monitor Gunns compliance, and
- Guarantee of tertiary treatment of effluent, in the unlikely event it becomes necessary.

The Chief Scientist of Australia, Dr Jim Peacock AC, has advised that the expert panel of scientists that he convened to review the pulp mill assessment were impressed by the technical and engineering advances that have been made in the design and operation of Elemental Chlorine-Free pulp mills. The panel accepted that the proposed mill was likely to conform to world's best practice. In relation to effluent being released into the marine environment, the dioxin limit is more than 70 percent better than the world's best practice. Further information on the approval is available at: http://www.environment.gov.au/epbc/notices/assessments/2007/3385/decision.html

Tony Bartlett
General Manager, Forest Industries Branch
Department of Agriculture, Fisheries and Forestry, Australia

Trees and water use in Victoria, Australia

Australia is in the midst of one of its worst droughts in history and water policy reform is top of the environmental management agenda. Key to this is development of a framework to make sure water resources are used sustainaby. In response, the Commonwealth Government has developed the National Water Initiative (NWI) which has the objective of achieving a *'nationally-compatible, market, regulatory and planning-based system of managing surface and groundwater resources for rural and urban use, that optimises economic, social and environmental outcomes, and is able to adapt to future changes in the supply of, and demand for, water'*.

Blue gums growing in Victoria

The NWI identifies 'large-scale plantation forestry' (when established on agricultural land) as a land use change activity that has the potential to intercept significant amounts of surface and groundwater. Jurisdictions (local, regional and state authorities) are now considering implementation of the NWI through water plans and regulations that will take affect at the latest by 2011. In some cases, policies and subsequent legislation may have far-reaching consequences for the forest plantation industry – the cost of water is variable but typically is about AUS$1000 per MI. It is therefore important that such policy development be informed by the best available and most current knowledge of the impacts of land use change on water yield.

As a starting point it is important to understand those factors that affect the amount of water that plantations intercept when planted on agricultural land. The Victorian Department of Primary Industries has carriage of implementing the NWI in their state and commissioned Ensis to review plantation and agricultural issues that affect water use.

It is an inescapable conclusion that, in general, trees use more water than grasses or agricultural crops because of their deeper roots, longer- growing seasons, ability to absorb more radiation, and greater height and roughness of canopy that tends to increase evaporation.

The amount of run-off that plantations intercept increases with rainfall. CSIRO's Division of Land and Water has reviewed the global literature comparing run-off from forests and grasslands in paired-catchment studies. Based on these data, they estimated the amount of run-off that would be intercepted by plantations when established on cleared agricultural land. On average, the amount of run-off intercepted by plantations (given by the total amount of run-off from grasslands less that from forests) was about 345 mm (or 3.45 MI per ha) at 1500 mm mean annual rainfall, 213 mm at 1000 mm rainfall and 64 mm at 500 mm rainfall. It is important to realise that these estimates are for the average, equilibrium condition for forests and grasslands and that actual values for interception will be affected by a number of factors.

To date the emphasis has been very much on plantations as they affect run-off and water security. Although this is important, it is needs to be recognised that the preceding

agricultural management regime can have equal impact.

Our review considered water use under both agricultural and plantation phases and summarised the main factors controlling water use into a series of indicative tables. These are of necessity qualitative and therefore uncertain. Although we had a very specific Australian context, the general principles should be broadly the same across the world.

Some of the main conclusions from the review included:

- The impacts of land use change on water yield are inextricably related to the amount of rain and evaporation. Thus, the extent to which the climate changes and becomes more variable in coming decades will greatly influence the impact of forest development and management on water yield. This is especially important for forests because it coincides with the time frames for forest growth; it takes many years and sometimes decades for the impacts of newly established forests on water yield to be manifested.
- Despite sometimes impacting on water yields, reforestation/revegetation can offer other net benefits such as salinity mitigation, erosion control, carbon sequestration, biodiversity enhancement and diversification of rural economies. In evaluating implications of various land use changes, it will be essential to account for all of the likely benefits and costs associated with change. Often in the past, only single issues such as water yield have been considered in isolation. Good policy should be based on multiple rather than single criteria.

Finally, it is worth noting that, although the emphasis has been on plantations in affecting water security, the impact of native forests is much more important at the national level. Australia has about 150 m ha of native forests and woodland, compared with 1.8 m ha of plantation. Furthermore, most of Australia's main urban water supplies come from native forests. The impacts of climate change, fires and management of these forested estates can have a very major influence on water supply – much greater than the impacts of plantation expansion – and deserves much greater attention than it currently receives.

The review can be found at: www.ensisjv.com/plantationsandwater

Report on the Industrial Forest Plantation Training Course hosted by University of Helsinki, Finland

The University of Helsinki, Departments of Forest Ecology, Forest Economics and Forest Resources Management, in collaboration with Poyry Oy, Indufor Oy and CIFOR, organized the course as part of the Helsinki Summer School 2007, in Helsinki Finland. It was attended by 22 students from 12 different countries around the world. I was privileged to attend the course courtesy of the kind support from the Embassy of Finland based in Nairobi, Kenya and the Sawlog Production Grant Scheme in Uganda. I would like to share this very interesting and educative experience with you:

Field tour of Aspen plantation 10 yrs

The course was basically structured around class presentations with tutors from all major global regions, with diverse fields of specializations and levels of expertise related to plantation forestry. We also had a field excursion to an aspen plantation of Metsaliitto and the M Real paper factory in Kirkniemi. The class included a mix of foresters representing various countries ranging from Brazil, through Argentina, Spain, China, Laos, Mozambique, Uganda, Nepal and of course the hosts, Finland. We all had one aim - to address issues and challenges in developing industrial forest plantations.

The hottest topics discussed were the roles of fast-growing plantations in global industrial wood supply, climate change mitigation, environmental sustainability and poverty alleviation. Of particular interest to me was how Africa can significantly contribute to this field. Summarized below are the major points I got from this training.

- **Networking and co-ordination**. There are enormous benefits when all the different players in the forest sector work together towards a common goal. This was practically demonstrated by the organizers of the course, with people from the consulting firms, research and learning institutions, forest processing industries, large plantation companies and government ministries coming together to successfully conduct this course.

- **Information Sharing**. The participants and tutors had a wonderful opportunity to share top grade information and make some useful contacts that will be beneficial in exchanging ideas and/or challenges and coming up with joint solutions to

issues related to industrial plantation forestry.

- **Developed countries and developing nations have complimentary plantation forestry virtues.** The former have advanced technology, strong financial base, and access to international markets backed by solid research which has evolved over time; and the latter have the tropical climate favorable for fast tree growth, the human capital and available land. If the two regions work together, there is enormous potential to develop quality large-scale industrial forests to cater for the huge global demand for wood products.

- **Immense expansion potential for industrial plantation forestry and a great opportunity for Africa.** There is growing demand globally for plantation wood owing to the increasing demand for bio-energy, carbon sequestration, pulp and paper and high grade lumber. Correspondingly, there is great demand for land with good tree-growing conditions and relatively lower costs of production to expand plantation areas. All this points to Africa as the next "Brazil" in terms of plantations. However, Africa needs to create a stable investment climate; politically, economically and socially in order to assure investors of possibilities of profitable business enterprises here. This requires joint efforts from all sectors.

- **Holistic approach.** In order to successfully manage a commercial forest plantation, all aspects of economics, environmental and social concerns need to be addressed. Plantations can positively contribute to efforts to combat climate change and alleviate poverty but only if they are properly managed. First of all, the plantation enterprise needs to be economically viable to justify its establishment. Management decisions like the physical location, species choice and silvicultural regimes need to be backed by scientifically proven research to show that there is no significant threat posed to the environment. On a moral angle, the enterprise should in some way benefit the local people surrounding it through social benefits like job creation, technology transfer and infrastructure development.

- **Dynamic nature of plantation forestry.** There are frequently new innovations and approaches to the way things are done in plantation forestry. Old systems and processes are constantly challenged through research and technology development. Africa needs to keep up with the pace in order to compete successfully. A simple example is in the field of clonal forestry, which many African countries need to embrace in order to benefit from the many advantages they have over seed-derived trees.

The training course was particularly valuable for me in reinforcing ideas and principles that I had come across before but hadn't yet been able to put into practice. Sometimes you need to be in a different situation with different people to really understand issues that seem familiar! An immediate impact of the course for me is to work on our forthcoming National Tree Planting Seminar and 'planters safari', but I feel that the benefits of the training that I received in Finland will be with me for a long time to come.

Celia Nalwadda
The Sawlog Production Grant Scheme (SPGS), Uganda

Forestry administration in Nigeria - a brief history

As a former member of the forest services in Nigeria (1950-62) I was very interested in the article by Adewopo Julius on 'Forestry in Nigeria today' (CFA Newsletter 37, June 2007) and his analysis of the problems and challenges facing the forest services. I was impressed by the large numbers of professional (510) and technical (4000 plus) staff available today. I realise that many of them will be involved in the development and management of the large area of plantations (693000 ha) quoted in the article. However, it is striking to contrast these numbers with the small numbers available and their achievements (with the support of intermediate and field staff) in earlier decades. H.N.Thompson (1948 and 1952) wrote about the earlier history of the department. Dr E.O.Egboh (1985) has given an expanded and impressive account up to 1960, although for the 1950s the numbers of senior officers quoted (based on averages) gives a misleading impression and do not agree with staff lists (official and Empire Forestry Handbooks).

Logs awaiting raft making at junction of Bbai Stream and Orsiorino River Armahor 1960

In the early years there were the separate forest administrations of the Lagos Colony and Protectorate, the Southern Nigeria and the Northern Nigeria Protectorates. The first two amalgamated in 1905 and in turn this amalgamated with Northern Nigeria in 1914. The first appointments to these services were in 1897 (C. Punch), 1899 (P. Hitchins) and 1903 (W.R. Elliott), respectively.

In the first decade (1897-1906), expatriate staff numbers rose from one to six. H.N.Thompson was appointed

Conservator in 1903. The department was also responsible for the Botanical Gardens and the Agriculture department. This was a period of rubber and mahogany booms and the department promoted and developed the former and attempted control of the latter. Timber concessions agreed with the land owners were systematically examined and defined. Botanical collections were made and a start made on the evaluation of timber qualities and possible uses of minor forest products. Six forest reserves totalling 313 km² were made in this decade.

Felling Khaya ivorensis at O.A.3 1961

1907-15. The departmental headquarters moved to Olokemeji in 1906. Experimental plantings of indigenous and exotic trees were made there and at other sites; also experiments on the cultivation of food crops there and at Onitsha. The Agricultural department was separated off in 1911. Rubber development became so important that one man was engaged full time on this work. Staff numbers rose to 14 by 1911. The forests of Oyo, Ondo and Ijebu were explored and major areas reserved under the new Forestry Ordinance. The latter laid down procedures ensuring that reservation was with the agreement of local communities whose rights were defined by the Reserve Settlement Officer. There were new Regulations for timber and rubber. Ologbo, Okomu, Sapoba and Oban Hill totalling 2371 km² became Forest reserves (FR). As did Keko and Ijaiye 1062 km². Miller Bros, set up a sawmill at Koko, while a departmental mill was set up at Oni. The total area of FR at the end of the decade was 1345 km² while other reserve proposals totalled 2000 km². In the north a botanical garden had been established at Zungeru and exploratory surveys made to the south of the Niger and Benue rivers.

1916-29. The department was reorganised in the north and wooded areas examined in Sokoto, Kano, Zaria and Bauchi Provinces. A new Forestry Ordinance was passed and the area of FR in the north was increased from 330 km² to 1129 km² by 1918, while some 10269 km² were at the early stages of reservation. After the First World War, expatriate staff numbers rose to 20 in 1921. Of these, 16 were engaged most of the time on the selection and constitution of FR. By 1925, the area of FR in the north was 10862 km² and in the south 6307 km². Silvicultural research was initiated at Sapoba and Olokemeji /Gambari with studies on natural and artificial regeneration of indigenous and exotic species; also on anti-erosion trials at Udi. Fuel-wood plantations were developed at major towns. Staff numbers rose progressively to 52 in 1929 when T.N. Thompson retired and J.R. Ainslie took over as CCF.

Exploited compartment worked under selection system with high girth limits Ora-Inhela-Ozella FR 1961

1929-39 Due to the world recession 13 members of senior staff and 44 field staff were re-trenched in 1930/31 leaving a senior staff of 39 and a field staff of 294. With recovery from the recession, by 1935 senior staff numbered 43 and rose to 53 by 1938. Forest reservation was the principal activity. 1% inventories were made through the major reserves in the High Forest zone. Timber felling and exports were on a highly selective basis and largely geared to extraction by water.

1940-49. During the war some staff was lost to military activities, while others were engaged on wild rubber collection to replace sources lost in the Far East. However the Forest School for Forest Assistants was established in 1941 and research was expanded including the development of the Herbarium. Forest reservation continued while a departmental sawmill was opened at Apomu. Senior staff numbers fell to 40 by 1946 but were boosted to 62 by 1949.

1950-60. The last Annual Report on the Forest Administration for the whole of Nigeria was for 1952-53. By that time most of the Forest Reserves had been constituted with a total area of 74869 km² (7.8% of the total land area and 31.9% of the forest land). Of the reserve area 1813 km² was mangrove, 37495 km² was high forest and 52299km² was savannah. (2007 figures 522, 20242 and 65297 km², respectively). In the early part of the decade reserves were consolidated involving re-demarcation of boundaries and where possible excision of areas covered by rights. It was accepted that the area of high forest would not be adequate to meet future internal demands for timber, but high forest reserves were brought under Working Plans with area control management. In an attempt to increase the stocking of species of timber value these areas were regenerated under the Tropical Shelterwood System or by taungya. By 1952-53 over 80940 ha were either under treatment or had been regenerated, while there were also over 6070 ha of fuel-wood and other plantations. The end of the decade would see a considerable expansion on this figure with about 182000 ha either under treatment or regenerated and over 3240 ha of plantations in the Western Region alone.

Forest research was expanded during the decade while the Forest School continued to produce about 20 technical staff annually. In 1952-53 there were 108 and by the end of the decade this number would have grown to about 350. Subordinate field staff numbered 1,326 in 1952-53 and that number would have remained fairly static at that level.

Professional staff numbers were never up to the establishment figure. They numbered 66 in 1952, of whom 4 were Nigerians. By 1957 there were 58, of whom 9 were Nigerians and by 1962 there were 52, of whom 33 were Nigerians. Because of leave and travel time, numbers on active duty would be about 75% of the above.

Peter Henry

A ray of hope for Zambia's forests

A seemingly endless stream of news of Africa's sorry plight continues to reach us through the media; of sickness and starvation, through crop failure, soil deterioration and drought. Scotland is always first to respond with aid but one off fund raising ventures seem to amount to nothing more than a sticking plaster on Africa's open sores.

There is a man in southern, central Africa who realises that so long as trees remain, there is hope for his people and once the trees have gone the soil will also go. Against all odds and with no funding, he is motivating the people to set in place proved and tried systems for the conservation and restoration of diminishing forests without which they cannot survive. His name is John K Mutimushi.

John is an elderly, 'retired', Zambian forester who has set up a Non-Government Organisation (NGO) which he has called ZERAM, (Zambia Environmental Rehabilitation and Management). Working with the chiefs and village headmen, he has persuaded the people in Luapula Province that a long-term process of forest restoration is necessary and feasible and the people who are going to achieve it are the school children and their teachers for there is a zest for knowledge in the young people of Zambia. They need to be involved in ventures of this kind giving hope for a brighter future.

John Mutimushi

But let me tell you something of the history of forestry in Zambia and how a few ex colonial foresters, quite by chance, met up again with their old colleague, John Mutimushi.

Half a century ago I worked for a few years as a survey forester in Northern Rhodesia, now Zambia. The Forest Department was still in its infancy having been pioneered by our Chief Conservator, the late Colin Duff, a canny Scot known by all his colleagues as 'Bwana Duff'. He had arrived in the late 1930's and, working under the umbrella of the Department of Agriculture, laid the foundations of a Forest Department to be proud of. It was a small but highly progressive department practising sound forestry aimed at sustained yield of utilisable indigenous trees with extensive plantations of introduced fast-growing species such as pines and eucalyptus. Northern Rhodesia in the 1950s was the copper capital of the world and there was a desperate need for timber to meet the enormous demands of the mines and their infrastructure. Huge plantations were therefore established along the copper belt.

At the same time, it was recognised that the indigenous woodlands, extensive throughout the territory, must be conserved particularly along the watersheds of two of Africa's greatest rivers, the Congo and the Zambezi. Large areas were set aside as protected areas for this purpose. Most of the country was covered with woodland consisting of semi deciduous trees, known collectively as Miombo which, superficially, in the forester's eye, consisted of useless misshapen scrub. We must remember that foresters in Britain at that time also looked upon scrub woodlands of oak, birch and even old native Scots pine in the Highlands of Scotland as equally useless. Unfortunately, at that time, the renewable biomass of all these formations was not fully recognised. Yet the Miombo of southern central Africa had sustained human populations in the region for hundreds of years through a system of shifting cultivation, known as 'chitimene'. Trees were pollarded by men in the dry season and the branches were stacked by women into large heaps. These were burned in October. The fire was so fierce that it killed all the weed seeds in the soil below. When it had cooled down finger millet was sown in the ash. After harvesting 18 months later the soil was drawn up into raised beds. Perennial corn (sorghum) and maize were grown on these beds for a year or two along with subsidiary vegetables: beans, groundnuts, cucumbers and gourds. Finally they were planted with cassava which is not a very nutritious crop but will grow on impoverished soils. Meanwhile more trees were pollarded and the abandoned beds provided bare ground for natural regeneration of the woodlands. So long as the human population was not too high, this method of agro-forestry was perfectly satisfactory in providing a steady food and wood supply. Additional protein comes from poultry and eggs, bush meat and fish where available. Wild birds, forest fungi, caterpillars of various moths, termites and honey are also eaten.

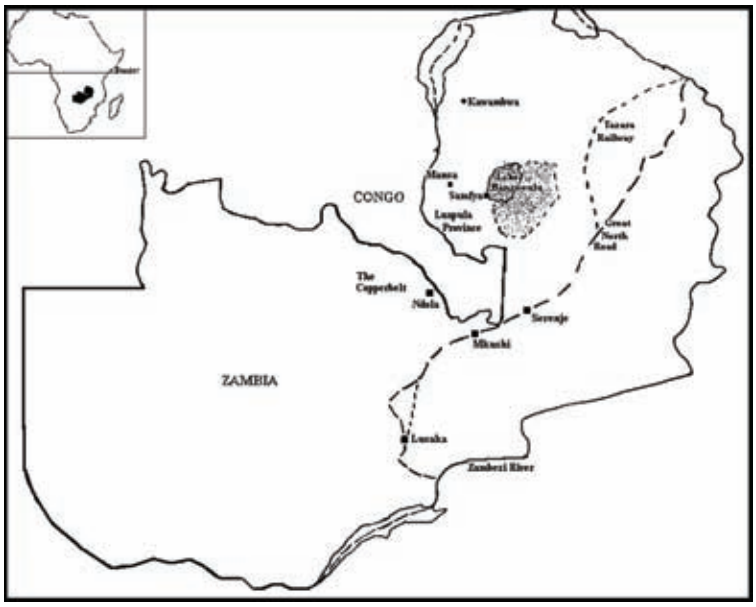
The Forest Department was not merely interested in exploitable timber. We also looked into the medicinal properties of various indigenous trees. The department had its own honey branch changing honey hunters, who often destroyed trees in order to extract honey from wild bees, into bee keepers. There was a need for a nationwide survey of all the forest communities and this was, for me, the most fascinating aspect of our work.

We had no maps so we made our own from aerial photographs taken during the war. Armed with shotgun, a prismatic compass and a bicycle wheel fitted with a mileometer, we walked on transects for weeks during the dry season through uncharted territory. Stopping at regular intervals, we listed species of trees in the canopy, the under-storey and shrub layer and made notes on the colour, composition and texture of the soil and any rock exposures.

Again the exercise was not merely a search for exploitable timber. It was a means of acquiring as full an assessment of the country's woodland cover as was feasible before any management changes or processes for conservation were implemented. As we got to know the Miombo, the tall grass tree-studded formations known as chipya, (meaning 'that which burns') and the corridor evergreen woodlands along stream-sides (mushitu) we soon realised that there were subtle variations within each of these formations. They all supported

a wide diversity of plants, insects, birds and mammals of all shapes and sizes. Over the next fifteen years, Northern Rhodesia's vegetation was mapped in this way; without the aid of GPS.

All of this happened a long time ago but Africa has a habit of staying with you, especially when your work was so intimately involved with its unspoilt regions. It is not surprising therefore, that in recent years the old colonial foresters have had regular reunions taking place at two-yearly intervals at various venues in the UK and Ireland. In 1997 it was held in Natal, South Africa and was as great a success as ever, for, wherever foresters come together, there seems to be meeting of kindred spirits. After this reunion four of us, three accompanied by our wives, decided to go on to Zambia:



Map of Zambia

- Maurice Eggeling who was the Provincial Forest Officer based at Mansa (formerly Fort Rosebury) in what is now Luapula Province;
- Terry Spanton, who after a spell in the Rhodesia teak forests in the far south, worked as a plantation forester first at Samfya on the shores of Lake Bangweulu and later in the Copper Belt at Chati;
- Bill Small who also worked mainly on plantations;
- I spent my brief spell as mentioned above on forest surveys first in Mkushi and Serenje Districts along sections of the Congo/Zambezi watershed and later in Mansa and Kawambwa District

Terry, who had lived in Northern Rhodesia/Zambia for over thirty years, still had friends with whom he had kept in contact over the years and who provided us with wonderful hospitality during our stay. One of them also arranged for us to have the use of a mini-bus with driver for the duration of our tour. After two days near Lusaka we headed up the Great North Road. We were astounded to see the extent of forest destruction which extended for miles on either side of the road. In the rolling hills of Mkushi and Serenje along the Congo/ Zambezi watershed the woodland was still largely intact despite the construction, since we were there, of the Tazara railway. In Mansa too we could see for miles over decimated wasteland. We remembered, fifty years ago, travelling through close-canopied, almost continuous woodland, from Mansa to Samfya on the shores of Lake Bangweulu. At Samfya we found the forest office still intact and still in use by the Forest Department. In our time there were two rooms, one used by Terry and the other by the forest survey unit. This was our centre or base for all surveys carried out in what is now known as Luapula Province.

"I think we should pay our respects to the current forester, don't you?" said Terry.
"Let's do that" I replied.
Terry strode up to the door and was about to knock when it opened and out came an elderly African gentleman with a brief-case. He looked at Terry who still had a fine bushy beard, once black, but now grey. His mouth opened wide with astonishment.
"Spanton!" he gasped.
"I know your face" said Terry, "but I can't put a name to it!"
"I am Mutimushi." came the reply. "John Mutimushi."
As a forest ranger John had worked briefly with both Terry and Bill. He had retired from the forest department in 1990 but still kept in close touch, trying to sustain forest management in the private sector.

What an amazing coincidence that we should meet at that moment. It was a very emotional meeting and tears flowed down John's face. If the truth be told none of us old foresters were completely dry eyed!

A typical Zambian plantation

It would have been good to stay and have a long talk with John but we had a tight schedule and a long way to travel if we were to see the results of the plantation foresters' work of the 1960's and 70s along the Copper Belt.

After a night at Mansa, where Maurice Eggeling stayed when he was Provincial Forest Officer (Northern Province), we headed back to Serenje and south again down the Great North Road.

The next leg of our journey took us to the Copper Belt where both Bill Small and Terry Spanton had been responsible for the establishment of vast plantations.

We didn't know what to expect but were delighted to find at Chati that both *Eucalyptus grandis* and *Pinus kesiya* were still growing well; the former in its third or fourth generation. Pines were most impressive, standing up to thirty metres high, with open crowns so that in a few patches, the original Miombo ground flora and shrub layer still survived in the under storey. The total area covered by plantations in the Copper Belt must have been in excess of thirty thousand hectares. Now there seemed to be no management and all the roads built for access and extraction were totally impassable.

Near Ndola we stopped to look at long-term experimental burning plots originally set up by Bwana Duff. They demonstrated the importance, in a monsoon climate, (six months dry and six months wet), of sustaining a practice of burning the ground vegetation early in the dry season, whilst it is still slightly green, thus preventing fierce destructive fires later. Sadly we found that this long-term experiment, with its controls of late burnt and unburnt areas, had not been sustained and there was evidence of illegal felling and charcoal burning. Stacks of bags full of charcoal along all the main roads indicated the seriousness of indiscriminate destruction of woodland to supply fuel to the big towns.

After our return to the UK, I wrote to John Mutimushi to say how wonderful it was that we should meet up at Samfya after all these years. John responded with a ten page letter. His opening sentence was 'It was wonderful meeting with you old colonial foresters who taught us the sound principles of progressive forestry from its grass roots.' John may have learnt something about the principles of forestry but this was nothing compared with what we learnt from our forest guards and rangers about the rich diversity of their indigenous forests.

The African staff in the 1950s consisted of forest guards, rangers and patrol men trained at the Forest Department's school at Mwekera. Men were attracted to this work who, like Mutimushi, knew their trees.

Blackmount

Sitka spruce: how much are they worth?

His name translated into English means 'medicine for the village' which would seem to indicate that he stemmed from a line of medicine men who knew not only the trees, but all their various uses. Our Chief Conservator once told me that these were the most important people in the department for they were at the sharp end of it all. How right he was.

In the 1960s, John was sent to the Forestry Commission's training school in the Forest of Dean, Gloucestershire, for further training. (I too trained there in the early 50s.) After independence, he was assigned to various posts and was eventually a Provincial Forest Officer.

Since our meeting we have kept in touch and, over the past seven years, I have received lengthy letters about Zambia's problems in forest decimation and the lack of sustained funding to maintain forest management even within the established plantations and reserves. While the indigenous forests continue to be destroyed the basic needs of people in rural areas cannot be met. He spoke of women, often carrying babies on their backs, having to walk up to fifteen kilometres to collect a head-load of firewood to carry it back home knowing that they will have to do the same thing the next day. Others are digging up the roots where the corridor woodlands along stream sides have been destroyed.

Charcoal burners are destroying forests throughout the territory and illegal pit sawyers are cutting up Mukwa (*Pterocarpus angolensis*) which is the finest furniture timber species in the country. Mukwa, once widespread, is now becoming a rare species. There are still trees surviving of smaller dimensions but, even those with only a small core of fine dark heartwood, the greater part consisting of pale sapwood, are being exploited.

Soil erosion is taking place on decimated areas and John recognises that when the forests have gone the people cannot survive. There is already a great deal of hardship and hunger in rural areas.

In May 2005, I drew up and financed a two week study tour in the west of Scotland for John Mutimushi incorporating projects relevant to his own work in Zambia.

We visited the oak woods of Lorn in Argyll which have survived

in spite of sustained exploitation for charcoal to feed the iron foundries of Bonawe in the eighteenth and nineteenth centuries. John was fascinated with the by-products from the broad-leaved woodland management in Argyll in the form of small woods to be turned into spokes for carts and carriages, and oak bark for tanning leather supplied by huge herds of cattle reared in the Highlands and driven to lowland markets. The history of our oak woods is closely comparable with Zambia's Miombo woodlands.

We visited Taynuilt tree nursery where Peter and Jane McCracken are growing Scottish native trees for local needs. We toured the native pinewoods on the southern fringe of Rannoch Moor and saw the results of a thirty year rehabilitation programme with which I have been closely associated.

He was able to see the extent and remarkable performance of introduced North American conifers. He looked at the well grown Sitka spruce plantation and said "Each tree must be worth a fortune." Little did he know that the sale of timber at present scarcely pays for the cost of felling and extracting!

We inspected community woodland projects at Knoydart in west Inverness-shire and were accompanied by Grant Holroyd, the resident forester and Bob Black of Argyll Woodlanders who is advising the Knoydart Forest Trust on management.

In south-west Scotland we included the Borders Trust native woodland project at Carrifran Glen near Moffat. Stan Tanner, who also worked for a while in Zambia, showed us round.

At Carrifan Glen with Stan Tanner

At Knoydart

Meeting John Mackenzie

We stayed a few days with my daughter Jessie MacKay in Kirkcudbrightshire and invited John Mackenzie, retired FC District Officer, to meet his old colleague from forest survey days forty five years ago in Northern Rhodesia. John Mutimushi remembered episodes from those times that John Mackenzie had long forgotten.

Finally, we attended the Royal Scottish Forestry Society spring gathering at Seamill in Ayrshire which gave John a chance to talk with many foresters about his projects. He certainly added a little colour to the proceedings and it was particularly appropriate that the last evening was devoted to help for under -developed countries. All the right people involved with aid for these projects seemed to be there and assurances were given to John that help was at hand.

During the past ten years John Mutimushi and his colleagues, along with volunteers from the villages and schools for ZERAM have achieved a great deal in Mansa District. Plantations of pines and eucalyptus are springing up and some are already up to 7 or 8 metres high. Villagers have been involved in re-surveying the extent of degradation in Miombo woodland and plans for long-term rejuvenation are underway. A dossier of work done and projected schemes has been prepared but the scale of augmentation is at present severely curtailed through lack of funding.

John has drawn up a list of items needed to increase the extent of ZERAM's activities. He seeks funding to buy watering cans, wheel barrows and tools. At the moment his mode of transport around this vast region is by bicycle. If only he had a small truck to take transplants out to the planting grounds; what a difference that would make.

New agricultural methods are now being considered including the production of compost from dead vegetation

to replace the chitimene system, and the possibility of fish farming ventures is being explored. John's plea is for a sustained trickle of funding.

The infrastructure is in place and there are plenty of young people keen to make it work when the wise old men have gone.

Peter Wormel

RSFS meeting at Seamill

Managing climate change in Africa - the benefits of carbon credits

The effects of human-induced climate change are real and upon us. This phenomenon affects the global village, without any recognition of the contribution of individual continents to the underlying cause. Africa is responsible for only 2-3% of the global carbon emissions, with emissions of only 0.8 metric tons per person. This is in comparison to a global average of 3.6 metric tons per person, and staggering figures of 5.37, 4.63, 3.76 metric tons per person for the U.S, Australia, and Canada respectively (Marland *et al*. 2000). However, risk to food security, dependence on natural resources for livelihood, and even the vast range and delicacy of the biodiversity results in a greater vulnerability to climate change effects for Africa.

Forests offer the single largest opportunity for cost-effective and immediate reductions of carbon emissions. Through their destruction, forests can be serious sources of greenhouse gases. Deforestation currently contributes approximately 18-25% of global carbon emissions and is second only to energy contributions (Mitchell *et al,* 2007). Through their sustainable management, forests can be major sinks of the same gases. Forests act as important buffers that cushion the impact of ongoing climate change. According to Roper (2001), there are three broad categories of forestry-related interventions that will help stabilize greenhouse gas emissions in Africa:

- managing the existing forest resource better;
- expanding the area of forest cover; and
- using wood fuels as a substitute for fossil fuels.

These interventions do not necessarily fall within the framework of the Kyoto Protocol, but they could make major environmental and socio-economic contributions to the countries where they are undertaken.

Trees provide ecosystem services of carbon sequestration, storing and transpiring water required for precipitation, maintaining soil fertility, and forming habitats for a diverse array of plant and animal species. Moreover, forest and woodland species also provide firewood, structural timber, traditional medicines, staple foods, and drought emergency foods. A large fraction of the population lives in rural areas, depending on trees and shrubs for many of their subsistence needs. Indeed, firewood and charcoal provide approximately 70% of the energy used in Africa. Furthermore, the export of timber, nuts, fruit, gum, and other forest products generates 6% of the economic product of African countries.

Expanding the area of forest cover by establishing tree plantations, agroforestry plantings, or analog forests enlarges the capacity of the terrestrial carbon sink. Trees are composed of approximately 50 percent carbon, which they extract from the atmosphere during photosynthesis. The rate of carbon sequestration depends on the growth characteristics of the species, the conditions for growth where the tree is planted, and the density of the tree's wood. It is greatest in the younger stages of tree growth, between 20 to 50 years. As a continent lying in the tropics, Africa has a great opportunity to mitigate climate change by exploring this astounding carbon-sink asset.

Carbon credits – a plus factor

Carbon sequestration is the process of removing excess CO_2 from the atmosphere. The Kyoto Protocol's Clean Development Mechanism (CDM) recognizes carbon sequestration through forestry as a way to mitigate global warming and also allows industrialized countries to offset their carbon emissions by investing in forestry projects in developing countries. In addition, many private organizations are voluntarily promoting carbon sequestration projects to reduce their carbon emissions. Globally, carbon sequestration projects are now worth millions of dollars.

The economic and environmental benefits of carbon sequestration projects are particularly relevant for Africa. African countries need increased investment to support poverty alleviation and infrastructure development. With a high dependence on land and forests for subsistence, these countries also require effective strategies to combat the growing threat of widespread natural-resource degradation. Accordingly, efforts to mitigate climate change through carbon sequestration projects could bring in money both to raise local incomes and regenerate natural resources. Rural

populations from Africa have the capacity to compete and export greenhouse-gas emission-reduction credits generated by forestry and agriculture activities that improve their livelihoods, ameliorate local environmental problems, and increase communities' ability to cope with climate change (Brito 2005).

Presently, there are 19 carbon sequestration projects in 16 countries in Africa, out of which 7 are based in Kenya, Uganda or Tanzania. This indicates that East Africa is currently the preferred region for international carbon investors. Project locations span diverse agro-ecological zones and land uses, including rangelands (Community-Based Rangeland Rehabilitation for Carbon Sequestration, Sudan), farms (The International Small Group and Tree Planting Program, Tanzania), dense forests (Forest Rehabilitation Project in Mount Elgon and Kibale National Parks, Uganda), and Lake Victoria basin (Western Kenya Integrated Ecosystem Management Project). Although many African carbon sequestration projects are beneficial, expanding them beyond a few pilot schemes will be difficult unless challenges such as tenure insecurity, high transaction costs, political instability and a lack of institutional capacity are addressed (Jindal 2006).

African initiatives to counter climate change

Forests also mitigate climate change effects indirectly. Forests are giant global utilities, supplying humanity with vital ecosystem services such as rainfall generation and biodiversity maintenance at local, regional and global scales. If we lose forests we lose the fight against climate change: we must act to put forests first now (Mitchell *et al.* 2007). Several steps have been taken by different initiatives so as to salvage this unique continent. The UNFCCC, which took place at Nairobi in 2006 reported:

- African governments are presently working through a number of regional and global institutions to strengthen their response to climate change.
- A number of adaptation projects have been started in Africa to address a range of climate change impacts. These include projects on incorporating climate change in water resources management in Tanzania, improving food security in Mozambique, and coping with coastal flooding and drought in East and Southern Africa.
- UN agencies have embarked on a wide array of projects throughout the continent to improve energy efficiency that reduces greenhouse gas emissions, such as through solar power, hydropower, alternative fuels and sustainable construction.

Massive reforestation of depleted forest-lands, planting of trees on strategic water-sheds and coastal regions and the introduction of elaborate agroforestry practices to rural dwellers for efficient land-use are some of the present pro-active measures that have been adopted. The magnitude of the vulnerability of the African continent calls for both control of emissions and fortification of this delicate ecosystem. Hence investing in the management and development of African forest resources is inevitable as we all join hands across continents in a concerted effort towards salvaging the globe from this unabated threat. This can only be done under an atmosphere of well forged relationship between local, national and international bodies and though this is already taking place through different agreements and conventions on forest resource management, much is yet to be done hence the call for more pro-active and timely actions.

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Around the world

South Africa: forestry expansion 'unsustainable'

The government's plans to target forestry as a sector for expansion in the National Industrial Policy Framework have been slammed by independent observers who say the strategy pays scant attention to SA's growing water scarcity. The trade and industry department's industrial policy earmarks forestry, paper and pulp, and furniture as a lead sector for development.

The government wants to establish forests on 140 000 ha of land, 100 000 ha in Eastern Cape and 40 000 ha in KwaZulu-Natal, over the next 10 years with the aim of creating 41 000 jobs at plantation level and 2129 jobs at the primary processing level. The department estimates more than R 1.5 bilion will need to be invested for the afforestation, with "substantial" further investments needed to establish downstream processing enterprises.

But independent commentators maintain the industry in its current form is not sustainable and that its expansion would perpetuate existing problems. "We have been trying for years to draw government's attention to the fact that SA's forestry and timber industry is largely unsustainable. In essence, taxpayers pay to make the timber industry profitable," said Wally Manne of the Timberwatch Coalition, an environmental nongovernmental organisation. "The consequence of industrial interventions in the past is that they enabled industries to be established that would otherwise not exist through all kinds of subsidies. Now we sit with that legacy," said Manne.

He said the government's plan for the forestry sector was not based on proper economic assessments and disregarded the effect on the rural poor. "If you do a cost benefit analysis, it shows the industry not to be viable . These strategies are pursued in the name of rural development but they often end up disenfranchising the poor, driving them off land and out of jobs. No studies are available to show how rural people are supposed to benefit."

Critics have similarly observed that the government's motor industry development programme has had a rather muted effect on job creation and is patently bad for consumers. While the programme is costing the country millions, the real beneficiaries are multinational companies, whose profit margins are boosted. The government is persisting with the programme.

With the development and expansion of the forestry sector there are graver concerns, however. By the government's own admission, SA is expected to experience a permanent water shortage from 2020. In the face of a looming water crisis the plan to aggressively expand water-intensive sectors such as forestry, biofuels and agro-processing was curious, observers said.

Paul Desmet, an independent environmental consultant who assisted with a biodiversity assessment as part of the strategic environmental assessment for the water affairs and forestry department, said the situation in Eastern Cape was viable, with many rivers untapped. However, KwaZulu-Natal, with vast areas under plantation, was water-stressed. "We should be taking forests out to alleviate the problem," Desmet said.

Commentators also criticised the government for not consulting properly when formulating the policy. "This points to a need for more rigorous assessment of water deployment ... There is no reference to a water strategy, which begs the question: is there one at all?" said Earthlife Africa's Richard Worthington.

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Tropical trees 'stunted by higher temperatures'

Rising temperatures over the last few decades in Malaysia and Panama may have decelerated the growth of rainforest trees, according to a study. This could significantly affect the ability of trees to store carbon dioxide, raising the atmospheric concentrations of this greenhouse gas, say the researchers.

The study is the result of 24 years worth of data on tree species from Barro Colorado Island in the Panama Canal and the Pasoh Forest Reserve southeast of Kuala Lumpur, Malaysia. Lead author Kenneth Feeley, from the US-based Harvard University, presented the research in August 2007 at the annual meeting of the Ecological Society of America in San Jose, California, United States. The study had been published previously in the June issue of the journal Ecology Letters.

The researchers found that as many as 71 per cent of plant species in Panama and up to 95 per cent of species in Malaysia showed decreases in growth rates. During this time, the daily minimum temperatures and cloudiness increased. For example, the minimum nightly temperature on Barro Colorado Island has increased by more than one degree Celsius over the last 20 years. It is already known that increasing temperatures speed up the process of respiration in plants, causing them to release more carbon dioxide.

Feeley and his colleagues suspect that warmer temperatures also slow down the process of photosynthesis, during which plants take in carbon dioxide - although they emphasise that this is still a theory.

"We are only able to state that the slowing in growth that we observed is consistent with the hypothesis that increases in temperature will cause decreases in tree growth," explained one of the researchers, Joseph Wright, from the Smithsonian Tropical Research Institute in Panama.

If this is the case, in the future tropical forests could emit large amounts of carbon dioxide, write the researchers. Wright told SciDev.Net that he hopes other researchers will now analyse other tropical regions with the same climate patterns as Malaysia and Panama.

www.SciDev.net

Zimbabwe loses 400 000 ha of forest to illegal fellers

Zimbabwe is losing between 300 000 and 400 000 hectares of forest annually due to illegal tree felling in peri-urban and farming areas, highlighting the need for intensified environmental conservation campaigns.

Intermittent power outages, increasing population and general lack of monitoring have resulted in a 100 percent increase in deforestation from between 150 000 hectares and 200 000 hectares two years ago, a situation that has also been blamed on general lack of effective monitoring.

To combat this wanton destruction, the Forestry Company of Zimbabwe has embarked on a nationwide blitz that has led to the arrest of many firewood vendors and the confiscation of tonnes of firewood. In an interview yesterday, FCZ acting operations manager Mr Abednigo Marufu said as the vanguard of Zimbabwe's array of natural forests, his company was disturbed by the rate of deforestation.

"We are losing our forests at an appalling rate. In the past we were losing about 150 000 hectares annually but from the time the country started experiencing erratic power supplies, deforestation has been happening at an alarming level.

"Apparently, since the introduction of the current load-shedding programme, more trees are being felled. People are going into the rural areas, protected areas and those pieces of land that are still to be allocated under the land redistribution exercise.

"The wood is usually destined for resale in Harare and other urban areas," Mr Marufu said. Although clearing forests for farming purposes is legal, some individuals were taking advantage of this to cash in on increasing demand for firewood. Mr Marufu said the FCZ, in conjunction with the City of Harare, had begun licensing firewood vendors to minimise illegal firewood vending. "Forestry Company understands the increasing demand for energy in urban areas, but we feel there should be control of sourcing.

"Only authorised vendors would be allowed to operate in the city and already we have licensed three firewood vendors in Glen Norah and Mbare.

"This will allow us to monitor the origin of the wood that is on sale in the country," he said.

Power outages, afflicting the entire Southern Africa region, have affected various sectors of the economy amid increasing calls for Zimbabwe to come up with alternative forms of energy.

Mr Marufu urged farmers, especially those in resettled areas, to increase the planting of fast-growing trees like eucalyptus, mango and pine that can be used for firewood. The FCZ is planning a meeting with stakeholders to find ways of minimising the negative effects of the current power shortages. It is also monitoring the movement of timber in the country to curb illegal harvesting of natural resources and established woodlots and would also intensify tree-planting programmes.

Recently the company engaged the police and the Zimbabwe Revenue Authority to curb the illegal export of unprocessed or raw forestry products.

allafrica.com

Howling in harmony with nature in the park where you can't see the wolf for the trees

The reintroduction of wolves to Yellowstone National Park has had a dramatic effect on its environment, helping to restore its ecological balance to a more natural state that was last seen half a century ago. Since wolves were returned to America's most celebrated national park in 1995 after an absence of 70 years, young aspen trees have started to grow again for the first time in more than 50 years, research has shown.

Although wolves have no direct impact on the growth of aspens – deciduous hardwood trees that are typical of the American West but in long-term decline – they have made their influence felt through what scientists have termed the "ecology of fear". Their return has halved the park's elk population over the past decade, and those that remain have started to avoid browsing on young tree shoots in areas where they feel particularly vulnerable. The combination of these factors has allowed more saplings to thrive, so that some have reached heights at which they are no longer likely to be eaten by elk and other herbivores.

Scientists say that the phenomenon shows how the existence of a natural food web, complete with a top predator such as wolves, can benefit an entire ecosystem. The aspen is not the first tree to show signs of recovery since the wolves' return. "This is really exciting, and it's great news for Yellowstone," said William Ripple of the Oregon State University College of Forestry, who led the aspen study. "We've seen some recovery of willows and cottonwood, but this is the first time we can document significant aspen growth, a tree species in decline all over the West. We've waited a long time to see this, but now we' re optimistic that things may be on the right track.

"The issue of aspen decline in the American West is huge, and their recovery will depend on local conditions and issues in many areas. In northern Yellowstone, we finally have some good news to report. It's just a start, but it's a pretty good start."

Wolves were eradicated from Yellowstone, which is largely in Wyoming and takes in small areas of Montana and Idaho, in the 1920s, and the decline of aspen and cottonwood trees has been dated to precisely this period. Large trees that were at least 70 years old still stand, but few younger trees survived as new shoots were rapidly eaten by large herds of grazing animals, principally elk, that were no longer kept under control by predation. The loss of trees and shrubs had a major ripple effect throughout the ecosystem, say scientists. There was greater water erosion, a loss of beaver dams, and a breakdown of food webs. Birds, insects, fish and plants were all affected.

The new study, which is published in the journal Biological Conservation, has looked chiefly at aspen growth on land near to streams. It found that over the past decade – since wolves were reintroduced to the park in 1995 – some aspen saplings have grown more than 7 feet, putting them above the height at which they can readily be browsed by elk.

The recovery has probably been influenced more by changed elk behaviour than by lower numbers – the elk

population is still higher than it was in the mid1960s when aspens were in decline, even though it is much lower than it was a decade ago.

Professor Ripple said: "In riparian zones, where wolves can most easily sneak up on elk, and gullies or other features make it more difficult for elk to escape, we've seen the most aspen recovery. We did not document nearly as much recovery in upland areas, at least so far, where elk apparently feel safer. But even there aspen are growing better in areas with logs or debris that would make it more difficult for elk to move quickly."

www.timesonline.co.uk

Hardy Amazon 'greens in times of drought'

Forests in the Amazon are much more resilient to drought than previously thought, researchers have found. A study published in Science in September suggests that forests showed increased, not decreased, levels of photosynthesis in response to a drought. Researchers concluded that canopy vegetation, composed mainly of leaves of the upper parts of trees, is capable of increasing photosynthesis during drought periods of up to two years.

Scientists used satellite data to construct a model to measure and compare the green areas of certain parts of the Amazon during widespread drought in 2005, the most extreme since 1999. They found that the region's "greenness" - linked to photosynthetic activity - did not decline, as expected in drought conditions, but actually increased significantly.

Humberto Ribeiro da Rocha, one of the researchers, from the University of São Paulo, Brazil, said the results showed that the forest's reaction to limited water is much more favourable to forest survival than expected from most large scale numerical models. Rocha suggested that the extensive reach of the trees' roots may enable them to reach water reservoirs deep in the ground. "Today there is already reported evidence of humid tropical forest trees in Amazonia that reach soil water up to ten metres deep in drought periods, without losing water through evaporation," he told SciDev.Net. He added that the forest may not necessarily maintain the same biomass in these situations.

But the results do not reduce the threat of global warming that could turn the Amazon into savannah, Rocha warned. He said that if the climate becomes constantly hotter and drier, even deep water reservoirs could be depleted.

www.SciDev.net

Congo: World Bank confronts Pygmy challenge over logging

The World Bank is scrambling to respond to complaints that it broke its own rules to support commercial logging at the expense of Pygmy lands and livelihoods in the war-wrecked Democratic Republic of Congo (DRC). At issue is the future of the Congo Basin, home to the world's second largest virgin rainforest following Latin America's Amazon.

The DRC government and the bank view logging as a key source of export revenue for a country struggling to recover from a 1998-2003 war. Pygmies, numbering around 600 000 in a country of some 58 million people, rely on the forest for income, shelter, food and medicine, and cultural identity. In all, some 40 million Congolese are thought to depend on the forests for their livelihood.

Bank managers have dispatched a team of technical staffers to Kinshasa, capital of the former Zaire, in a bid to satisfy the lender's executive board that they are taking adequate measures to address Pygmies' concerns. "In the near term there will be a meeting in Kinshasa and the bank has made it clear that we'd like to be guided by the Pygmy groups to make sure that we're being more effective in our consultations," said John Donaldson, the bank's Africa spokesman. "This should lead to addressing other concerns and it would be a deepening of a process already under way," Donaldson told IPS.

This, after delegates of Congolese indigenous communities -- encouraged by a bank inspection report validating many complaints they had previously submitted in writing - met senior officials here on the sidelines of the agency's Oct. 20-22 annual meetings. The Pygmies, accompanied by environmental and indigenous peoples' advocates from the Rainforest Foundation and other groups, pled for an immediate halt to industrial logging, a greater say in forest issues for communities affected by the timber trade, a thorough assessment of logging's environmental impact, and support for more forest-friendly ways to boost the economy.

"We want to be partners with the World Bank but there must be real and effective participation by local people," Adrien Sinafasi, of the Bukavu-based group Pygmy Dignity, said in an interview.

Sinafasi said his delegation pressed their case in a minutes-long encounter with Robert Zoellick, the bank's president, and in subsequent talks with Obiageli Ezekwesili, its vice president for Africa, staff members, and representatives of European countries on the lender's executive board. Executive directors are expected to meet in early December to review the Pygmies' complaints, the results of an investigation by the bank's quasi-independent inspection panel, and managers' response. Donaldson said the management document was being revised. The document could rebut the Pygmies' charges or it could explain lapses. Managers typically outline steps to rectify problems identified by inspectors.

The inspection panel, in a widely leaked report, faulted the bank for backing logging in the DRC based on exaggerated estimates of the export revenue to be reaped. In consequence, inspectors found, sustainable forestry and conservation were discouraged.

The panel also found that the benefits of logging have accrued mainly to foreign firms and their local affiliates, and that companies have not made good on promises to invest some of the proceeds in local aid projects. "The benefits from the industrial harvesting of trees ... are not going to the people living in and around the forest," it said, adding that

investigators "found evidence that the promised benefits to the communities ... such as schools, clinics and other facilities, have not materialised."

The report further assailed the lender for failing to meet its own standards for environmental impact assessments and for lax monitoring of the situation on the ground.

Sinafasi, citing signals from bank executive directors and managers as well as growing appreciation of the forests' role in regulating climate, said he was optimistic the bank would pay greater attention to forest communities but added: "Of course, we are not naive."

Bank officials said a logging moratorium in the DRC was imposed in 2002 and that commercial concessions are under review and will be converted into new contracts only if they pass legal muster. The agency supports these measures as a way to bring some order to a system unable to keep up with fast-moving logging companies.

Sinafasi, however, said Zoellick appeared unaware that 107 new logging contracts have been issued in violation of the moratorium. Logging companies are required to ensure their operations fall within government business and environmental regulations. In practice, local and international watchdogs have said, the companies proceed at will and, if confronted over violations by government agents, simply bribe the poorly paid civil servants to look the other way.

allafrica.com

Australian timber standard guarantees sustainable source

Australia's $18 billion forestry industry has received a boost with the launch of the internationally recognised Australian Forestry Standard. Forest certification assures consumers they are buying wood products from sustainably managed forests and plantations.

Forestry and Conservation Minister Eric Abetz said the AFS was the only forestry standard in Australia to have gained accreditation under the International Standards Organisation. Standards Australia recognised the AFS as a full standard after a three-year review.

Australian Plantation Products and Paper Industry Council (A3P) chief executive Neil Fisher said consumers could be confident that AFS products had been produced under world-class environmental standards. The AFS is also recognised internationally through its endorsement by the Program for the Endorsement of Forest Certification schemes. The PEFC has about 200 million hectares of forest certified in 20 countries.

About 9 million hectares of Australian forests are now AFS-certified through government forestry operations in Victoria (VicForests), NSW, Tasmania, South Australia and Queensland. More than 85 per cent of plantations managed by A3P members are certified to the AFS. Companies include Hancock Victorian Plantations and Green Triangle Forest Products. Mr Fisher said some A3P members were also certified under the Forest Stewardship Council certification system.

"A3P also supports FSC and is seeking to assist the harmonisation of forest certification schemes to help consumers make more informed decisions," he said.

FSC, which is supported by green groups, has about 80 million hectares of forests certified globally and about 650,000 hectares in Australia. Business members include ITC, HVP, Australian Paper and Timbercorp.

Senator Abetz also announced a $200,000 government fund to help small private forest growers gain AFS certification. Australia's forest and wood products industry employs more than 83,000 people.

www.theage.com.au

Canada should be doing more to protect communities from forest fires

Canada appears to be foot-dragging and should be doing more to protect communities from wildland forest fires, say forestry and firefighting experts. Spurred by major fires that ravaged parts of Western Canada, Ottawa and the provinces signed the Canadian Wildland Fire Declaration in 2005 to pursue sharing the cost of a $2.4-billion strategy over 10 years. Ottawa's share would be about $880 million.

The plan calls for replacing aging equipment such as water bombers, stepping up the recruitment and training of firefighters, developing better guidelines for building homes and subdivisions in forested areas and removing dead trees and brush near communities.

While some progress is being made, the two levels of government have not approved the major funding needed to fully implement the strategy. "We are looking for some signal that it is actually a national priority, that there is interest among the provinces and territories to get into this question more pointedly. We are just not there yet," said Gordon Miller, director general of the Canadian Forest Service's Northern Forestry Centre.

Canada hasn't experienced a major devastating forest fire since 2003, when flames torched homes in the Kelowna area and other parts of British Columbia's interior, forcing the evacuation of about 50 000 people.

Researchers say in the future Canada will face a higher risk of similar wildfires because of factors such as climate change, the trend toward building more homes in forested areas and the fact that large tracts of timber are being rendered dry and dead by the mountain pine beetle.

Canada's Wildland Fire Strategy is a great plan, but without the proper funding it may not be able to deal with the major fires it was designed to mitigate or prevent, says Dave Martel, a forest fire management researcher at the University of Toronto.

"I'm very concerned that this thing is not happening as soon as the people who developed it had hoped," Martel said. "What happened in Kelowna could happen again."

"There are places in other parts of Canada that are vulnerable. We've had signals from Kelowna and we have seen what can happen in places like southern California. We have got to get moving on this."

canadianpress.google.com

Palm oil warning for Indonesia

Land clearances in Indonesia to meet the growing global demand for palm oil pose a serious threat to the environment, a report has warned. Forests are being burned and peat wetlands drained for plantations, causing huge releases of carbon dioxide into the atmosphere, Greenpeace said. The environmental group warned of a potential "climate bomb" and called for the clearances to stop.

Palm oil is an ingredient in foods and a bio-fuel added to diesel for cars. It is already controversial because it is often grown on rainforest land in South-East Asia, but Greenpeace's "Cooking the Climate" report investigates the cultivation of the crop in Indonesian peat swamps, thought to be one of the most valuable stores of carbon in the world.

In normal rainforest there is much more carbon stored in microbes in the soil than in the leaves and branches of the trees. In peat wetlands that is magnified with soils many metres deep. But these wetlands are fast being cleared and drained, causing large quantities of carbon dioxide to be emitted.

According to the report, every year 1.8 bilion tonnes of carbon dioxide - a major cause of climate change - are released by the destruction of Indonesia's peat wetlands. "Unless efforts are made to halt forest and peatland destruction, emissions from these peatlands may trigger a 'climate bomb'," Greenpeace warned.

Indonesia is looking to become the world's top producer of palm oil. But in July, environmental groups said a huge project planned for Borneo would cause irreparable harm to the territory and culture of indigenous people.

news.bbc.co.uk

Costa Rica and US swap debt for nature

Costa Rica and the United States have signed an agreement to swap US$26 million of Costa Rican debt for funds to protect more than 1,000 acres of tropical forest. The move will protect biodiversity in the region and help thousands of indigenous people maintain sustainable livelihoods.

The two countries made the agreement this month (October), with Costa Rica agreeing to spend the swapped amount on forest conservation over the next 16 years. The US will contribute US$12.6 million, with environment protection organisations The Nature Conservancy and Conservation International each providing US$1.26 million. The agreement is in line with the US Tropical Forest Conservation Act, under which the eligible countries can use their debt payments to finance tropical forest conservation.

"This is the first swap in Costa Rica under the Forest Conservation Act. This is also the largest swap we have ever made," David Henifin, attaché of the US embassy in Costa Rica, told SciDev.Net. Six areas have been designated for protection, based on a scientific analysis to determine gaps in forest protection, says Zdenka Piskulich, director of The Nature Conservancy in Costa Rica.

The swap will target forest protection in some of Costa Rica's best known biodiversity hotspots, such as Tortuguero, a system of natural waterways near the Caribbean Sea. The area surrounding the Rincon de la Vieja volcano, home to over 300 species of birds, and the Osa Peninsula, home to 2.5 per cent of the world's animal and plant species, will also benefit, along with ecosystems in the Amistad region, which contains 90 per cent of Costa Rica's known plant species.

Piskulich said in a press release that the funding will also allow indigenous communities, many of whom live in the Amistad region, "to pursue sustainable and economically viable livelihoods, thus improving their lives and sustaining the diverse biological resources on which they depend".

Costa Rica's environment and energy minister, Roberto Dobles, says that they hoped the investment would improve indigenous people's quality of life, allowing them to benefit from tourism. The money will be part of a national trust under the administration of the Costa Rica-USA Foundation.

www.scidev.net

Forest owners win credits back off government in New Zealand

After a fierce battle with the forestry sector, the Government has given a major concession to the industry in its climate change policy announcement today. Under the Kyoto Protocol, forests planted after 1989 generated carbon credits which could be sold to those who breached caps on the greenhouse gases they emitted. For some time, the Government has argued that these credits were owned by it and they would be allocated as they saw fit. This caused fury amongst some forest owners, especially those who had sold investments on the basis of the value of the credits.

A public campaign against the move, at the same time as records showed the amount of exotic forests planted was shrinking for the first time in 50 years, has appeared to spur the Government into action. The policy released today says owners of post-1989 forests will own the credits, but will also have to deal with the debits if they cut down the forests. Post-1989 forest owners would not be forced to join the emissions trading scheme and if they don't the Government will take ownership of the credits and debits. Different sets of rules will

apply for forests planted prior to 1990.

Forestry Minister Jim Anderton said the scheme could provide owners with a new stream of income and would encourage new plantings. There would be other incentives to plant trees with the aim to increase forest cover by 250 000 hectares by 2020. These included an Afforestation Grant Scheme to encourage new tree planting from those who did wish to enter the emissions trading scheme.

National's climate change policy spokesman Nick Smith said he welcomed the Government's change of heart, saying its attitude had lost about 10 million trees. "This has resulted in 31 million tonnes of carbon emissions," Dr Smith said. "The forestry sector needs certainty. With Labour now agreeing with National on the allocation of carbon credits, they can move forward with confidence."

Green co-leader Jeanette Fitzsimons said the Government had gone too far. "Instead the Government has caved in to the frenetic demands of the Kyoto foresters who believe they have an absolute property right to all of the credits that might relate to their plantings," Ms Fitzsimons said. "So the taxpayer is going to be subsidising the replanting incentives for older forests."

The Kyoto Forestry Association spokesman Roger Dickie said it was thrilled with the announcement. The association represents owners of post-1989 planted forests. "It indicates that the Labour/Progressive Government has listened carefully," Mr Dickie said. "Most importantly, the Government's announcements will give people confidence to look more seriously at new forestry investment to reverse our current low levels of new plantings and reverse the trend towards deforestation."

www.stuff.co.nz

Africa surfaces as new frontier for biofuels

2007 might as well be called "the year of climate change and biofuels." As the U.S. and EU ramp up their ethanol production and Brazil sets the stage for leadership in the field, sub-Saharan Africa plays an increasingly important role. Many sub-Saharan African countries, primarily South Africa, Angola, and Mozambique might soon become leading biofuel and carbon credit suppliers to world markets.

Sub-Saharan Africa's emerging biofuel industry serves the interests of developed markets on many levels, most notably by providing an alternative to hydrocarbon dependence. Industrialized countries subject to the Kyoto Protocol Greenhouse Gas Emissions caps can also meet their emissions reduction targets through Clean Development Mechanisms (CDMs).

CDMs award credits to companies that invest in energy efficient projects in developing countries.

The current portfolio of 800 CDM projects worldwide includes very few biofuel-oriented projects. Private and public sector institutions such as Agrinergy and the United Nations Conference on Trade and Development (UNCTAD) are currently working to streamline the CDM biofuel approval process, which will enable industrialized countries to facilitate biofuel projects in Africa for their benefit. Increasingly, Africa will be a frontier for developed nations to diversify their energy supplies and attain carbon "neutrality."

As sub-Saharan Africa moves to take part in the budding global biofuels boom, Brazil, China, and the EU are taking steps to help develop the industry on the Continent. Brazil leads this effort. The country's pioneering investments in Africa's biofuel industry derive from a commitment to South-South cooperation and Brazil's own interest in diversifying its supplies and creating worldwide biofuel demand. Brazil has technical cooperation agreements in agriculture with both Angola and Mozambique, which allows for easy development of the agriculture biofuel feedstock industry in both countries. China seeks to participate in the agriculture and biofuel craze, while the EU needs to reach its target that 5.75% of vehicle fuels be renewable by 2010. If the EU tries to reach this target from supplies in Europe alone, one quarter of the Continent's land would be covered with biofuel crops. No one wants that.

Brazil's national oil company, Petrobras, recently teamed up with Italy's premier energy firm Eni to explore African biofuel sources to export to Italy. The companies are currently looking to collaborate on the construction of biodiesel plants in Brazil, Angola, and Mozambique.

Petrobras' likely accord with Eni is only one of many biofuel projects in Africa sponsored by Brazil. In late 2006, Embrapa, Brazil's leading government body for agriculture and biotechnology research and the world's leading institution for tropical research, created a satellite office in Ghana's capital, Accra. The office is one means through which Brazil will provide technical assistance and technology transfers to countries looking to develop biofuel industries. Already, Embrapa Africa has engaged Angola to help develop that country's soybean biofuel industry, and Mozambique, to bolster biofuel research capacities in the country's Institute for Agrarian Research. China is partnering up with Embrapa to provide the infrastructure such as road, railways, and waterways necessary to bring the fuel to markets.

Angola is slated to be Petrobras' most critical destination for biodiesel production, and Mozambique for ethanol. Both countries are large, with relatively small populations and thus, thousands of hectares available for biofuel crop growth. Angola has one of the largest non-forest agricultural lands in the world, even taking into account lands that can't yet be tilled due to landmines and that are already tilled for food purposes. The country's biofuel export potential is estimated at approximately six exajoules of bioenergy per year, the equivalent of 2.7 million barrels of oil per day (bpd).

Mozambique is widely hailed as the most promising hub for biomass production in Africa, with production capacity of up to 6.7 exajoules per year, the equivalent of three million bpd or one billion barrels per year. The country's suitable agroclimatic and agro-ecological conditions can facilitate the growth of a wide variety of energy crops. The Mozambican government would like to pursue biodiesel from jatropha and ethanol from sugar cane. Both feedstocks have significant growth potential in Mozambique, and aren't significant sources of food for the population, which will help to avert the heated "food versus fuel" debate.

Mozambique's often praised governance and emerging agricultural infrastructure make the country an ideal destination for Brazil's expansion.

The EU is piggybacking on Brazil's leadership and has expressed commitment to diversifying its own energy resources, as outlined in its 2006 Green Paper, "A European Strategy for Sustainable, Competitive, and Secure Energy." Working together with Brazil, the EU will facilitate and fund a

biofuels task force in South Africa to fast track South Africa's industry.

Ethanol Africa, a South African company, is slated to construct Africa's first ethanol plant in Bothaville, South Africa. The project requires a $1 billion investment, the seed financing for which will be provided by the asset management company, Sterling Waterford. The plant will be maize-based, drawing from the maize surplus in the Free State. According to Ethanol Africa, the Bothaville plant is a prototype that will be replicated in eight other plant projects in the country. The company is also pursuing ethanol opportunities in Zambia, Mozambique, and Angola.

allafrica.com

Sarawak to double timber production

Sarawak aims to double its timber production to 25 million cubic metres a year by creating one million hectares of planted forests in 13 years' time. To achieve that, the state government has issued 38 licences for planted forest projects, said Sarawak Forestry Applied Forest Science and Industry Development general manager Nigel Lim Poon Teck. He said that the proposed projects, which would cover an estimated area of 1.2 milion hectares, were to provide high quality wood fibre and timber for the wood-based industry.

"Planted forest development is crucial to the state for it will ensure relieving the harvesting pressure from natural forests and increase the state's forest cover," added Lim when opening an applied forest science research seminar at Wisma STA here Thursday.

Sarawak, which now produces more than 11 million m^3 of timber a year, has limited annual production from permanent forest estates to some 9.3 million m^3 to ensure sustainability.

Lim said over the past few years, the planted forest programme had concentrated on planting the *Acacia mangium* species. But of late, with the advancement of our research and development programme, he said indigenous species had generated a lot of interest among the licensees.

thestar.com.my

Tibet striving to curb desertification

An afforestation project has begun to curb desertification and soil erosion in southwest China's Tibet Autonomous Region. With a total investment of 600 million yuan (79 million U.S. dollars), more than 53 000 hectares of trees will be planted by 2010 around major towns, alongside trunk roads, airports, scenic spots and border ports in 53 counties of seven cities.

The efforts target at increasing the region's forest coverage rate by 0.04 percent to 11.35 percent, according to the Tibet financial bureau. The new forests will help to preserve 1.86 million tons of soil and release 1.59 million tons of oxygen, as well as improve the quality of surface and underground water.

In Tibet, 217 000 square kilometers -- about 18 percent of China's territory -- are classified as desert and almost 400 square kilometers of land is affected by desertification every year, official statistics show.

Measures were taken to preserve virgin forests, and to transform farmland and pastures to forests and grassland in Tibet during the national 10th five-year plan period between 2001 to 2005.

The region, accounting for 12.5 percent of China's total territory, will focus on forest and grass plantation to build barriers against wind and sandstorms to consolidate soil preservation. The project will also provide nearly 7,000 jobs for farmers and herdsmen.

news.xinhuanet.com

Activists assail India's forest mining push

India's drive to attract investments in mining in resource-rich forests could upset the fragile ecological balance of the country, environmentalists said. Forests, which cover around 20 percent of the country, are rich in biodiversity, but there is also an abundance of coal and minerals such as bauxite, iron ore, nickel and manganese under the forest floor. Environmentalists are now concerned that the government will meet rising demands for land by big firms which are promising millions of dollars of investment and potential employment for the country's poor masses.

"The amount of forest land which has been diverted for mining has increased significantly in recent years," said Chandra Bhushan of the Centre for Science and Environment, a New Delhi-based think-tank. "As the economy has grown, so has industrial development in these areas and there is now huge pressure on forest land."

Bhushan said 61 000 hectares of prime forest land was converted for mining between 1998 to 2005, compared to 35 000 hectares from 1980 to 1997 - almost double the area in less than half the previous period.

India has more than 63 million hectares of forest land, ranging from Himalayan temperate to dry zone forests. According to conservation body WWF-India, these forests are home to more than 45 000 species of flora and 81 000 species of fauna of which thousands are endemic. But mining companies are now vying for areas in the eastern states of Orissa, Jharkhand and Chhattisgarh, which are not only abundant in minerals and biodiversity, but also accommodate millions of tribal people whose livelihoods depend on forests.

Despite sound legislation to protect forests, activists said India's aim to maintain high economic growth at between eight and 10 percent annually has led to forest clearance procedures often being overlooked in favour of development. Authorities now want to abolish a decade-old conservation panel which

advises the Supreme Court on the environmental impact of development projects.

Activists said the panel, known as the Centrally Empowered Committee (CEC), has in recent years prevented or delayed many industrial projects in environmentally sensitive areas, a move which authorities see as hampering their development agenda. The CEC delayed plans by Vedanta Resources Plc to mine in Orissa's lushly forested Niyamgiri hills, saying authorities violated their own guidelines by allowing the firm to build a refinery without getting clearance to mine there.

"The CEC is delaying projects often without any reason and these are decisions which should be made by the government," said an official at the Environment Ministry. "The government will put in place measures which will continue to protect the forests but at the same time respect the environment," said the official, who did not want to be named. But environmentalists are sceptical. "If they get rid of the CEC, forest lands will be easily diverted for projects like mining and the country's ecological security will be threatened," said Kanchi Kohli of Kalpavriksh, an environmental campaign group.

www.int.iol.co.za

China returns more than 24 M ha of farmland to forest

China has returned more than 24 million hectares of farmlands to forests since 1999. China started the nationwide campaign of returning farmlands to forests in 2000, involving 124 million farmers of more than 32 million households in 25 provincial areas. The campaign has contributed to more than 60 percent of the country's newly-made forest areas in recent years, according to a recent national forestry conference.

Farmers who were affected by the campaign had also received subsidies and grains, with subsidies accounting for almost ten percent of farmers' average annual income. The government will earmark another 200 billion yuan (US$26 billion) to the campaign in the coming years, making the total investment reach 4.3 trillion yuan. A special fund will also be established to consolidate the achievements of the campaign.

China has planted 53.3 million hectares of forests in the past 58 years, more than any other country in the world, with forestry coverage rate rising from 8.6 percent to 18.2 percent, according to the State Forestry Administration. China will continue implementing key projects in forestation, including returning farmlands to forests and grasslands and preserving natural forests, with the aim of increasing forestry coverage to 20 percent by 2010.

www.chinadaily.com.cn

Northwest England's vanished woodland set to return

Native woodland that vanished from the Northwest 150 years ago is being brought back as part of a massive new replanting scheme. Almost 500 hectares of land is being repopulated over a number of years with a staggering 311 000 trees to recreate the upland oak woodlands that once covered vast tracts of the region. The £500 000 project funded by the Forestry Commission and United Utilities, is being carried out by United Utilities aided and supported by its partner the RSPB and its farming and shooting tenants. The work is also within the remit of the new 'Regional Forestry Framework', a strategy that sets out the vision for woodlands and forestry in the Northwest for the next 20 years.

The Framework, called 'Agenda for Growth', brings together a broad range of organisations who are all committed to creating and regenerating woodlands and demonstrating their wider socio-economic and environmental value.

The planting under the SCaMP project is taking place in Bowland, Lancashire and part of the Peak District that skirts Greater Manchester. And it will bring with it a series of benefits. As well as creating a woodland resource to improve the local quality of life, the trees will help to improve raw water quality for United Utilities.

Importantly, those behind the replanting believe it could also benefit a number of bird species in the Northwest. According to a recent DEFRA publication, the region shows some of the best statistics when it comes to sustaining wild bird life.

While much is still unknown about bird population trends, it is hoped that this new wave of tree planting is creating the right habitat for rare bird species that include the pied flycatcher, wood warbler and redstart that rely upon upland oak woodland habitats. This is a long-term investment to create large-scale habitats across a landscape and support woodland birds over decades and centuries to come.

The planting scheme will include the reintroduction of berry bushes such as holly and juniper, which act as sustenance for migratory birds like the threatened ring ouzel, also known as the mountain blackbird, which migrates to the Atlas Mountains in Morocco every year and needs berries to feed it on its long journey.

Juniper is virtually extinct in parts of the region and only found in a small area of Bowland. However, some 20 hectares of juniper are being planted with the help of the Forestry Commission funding.

Over the five-year life of the planting project, some 22 tenant farmers on United Utilities-owned land will be participating. Those tenant farmers will lose livestock grazing areas but are instead being asked to manage woodland, and will receive £60 a hectare every year over 15 years.

RSPB Conservation Programmes Manager Roy Taylor, said: "If you're an upland farmer at the moment then your livelihood is under real pressure. This is an attractive financial diversification in many ways. "This will form one of the biggest deciduous planting schemes in North West England, restoring native woodland. It's an awful lot of trees and will make a dramatic impact on the landscape. The scale is massive. It's recreating the landscape for future generations."

Forestry Commission, UK

Roko wins multi million dollar Rwanda forest ecolodge venture

The first high end eco-lodge in Rwanda will be housed in the 1 015 km^2 Nyungwe forest located in the south western part of the country. Owned by the Rwanda Office of Tourism and National Parks (ORTPN) and raised from the ground by ROKO Construction, the US$7.2 million (Rwf3.99 billion) 25 villa complex will stand out tall in the region.

"The construction of the eco-lodge is timely as it will address accommodation problems in Nyungwe. It will be an important milestone in our efforts towards improving tourism experience in all our national parks while increasing tourists' length of stay as they discover Nyungwe's awesome treasures," the Minister of Commerce, Industry, Investment Promotion, Cooperatives and Tourism Mr. Protais Mitali said while laying the foundation stone at the Gisakura site some 225 km from Kigali city on September 28.

Nyungwe forest, which was lifted to National park status in 2005, has 13 types of primates including chimpanzees, black and white colobus monkeys, blue monkeys and several species of large mammals like golden cats, bush pigs and the black fronted duiker. Nyungwe also has over 275 bird species, 25 of which are endemic to the Albertine rift.

The architect at the site Mr. Rehal Sandeep from Kenya's Studio Infinity said use of local materials will form a key part with the use of timber, local reeds and banana fibres. Rwandan art will provide spice to the setting.

The local community has already embraced the project. In total, 450 workers are being employed at the site, 50 of whom are expatriates from within the region.

One of the Roko workers from Uganda said that he is glad that the site has opened an employment opportunity for him to come and work here.

Upon completion, residents are expected to provide food to service the eco-lodge. "You should not beg money from tourists but should work for it. We should develop a culture of hospitality and working hard," Mitali told the local community that gathered to witness the event.

The Nyungwe eco-lodge will comprise a presidential suite, luxury villas, forest and tea villas, tree houses, nature centre library and view tower, reception, kitchen, dining and fitness centre and quarters for staff and drivers. The reception area has a cylindrical semi-opaque fabric inner shade with heat-proof canvas lining and sisal woven Rwandan material. Traditional Rwandan artefacts will encase interior design accessories.

Tourism is Rwanda's third foreign exchange earner and therefore the need for continued investment in the sector is part of the hymn book at ORTPN. Last year $36 million was collected by the treasury from 31 000 visitors. For 2007, Rwanda targets to woo 40 000 are expected to generate revenue worth $42 million.

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Possible financing for long-term forest management - Malaysia

The Forestry Department of Sabah is in serious discussions with HSBC and CIMB to obtain loans to finance sustainable forest management. "If this succeeds, this will be the first example of private banking financing sustainable forest management," Datuk Sam Mannan, the director of forestry at the department said here today.

Another feather in the cap for Sabah was the purchase of Sabah Forest Industries Sdn Bhd for over US$260 million (US$1=RM3.50) by Ballapur Industries Ltd, India's leading paper manufacturer, he said. Mannan said the purchase was a "manifestation of the investor's confidence in how forests are managed in Sabah."

He said this in a statement in highlighting the progress Sabah has achieved in pursuing sustainable forest management (SFM) and rectifying media reports which have put the state and its industry in bad light. He also said Sabah's forests include private sector participation in its management including reputable companies such as TSH Resources, KTS, which not only have planted trees, but kept areas for conservation and protection under the Forest Management Unit (FMU) system.

"The SFM/FMU system continues to be the best system ever introduced as manifested in the successes of various companies such as TSH Resources, Bornion, KTS, Yayasan Sabah and others with reduced impact logging (RIL) protection, SFM and tree establishment being driven by private funds and private energy under the guidance of the government," he said.

Besides this, he said, the Kedah government signed a memorandum of understanding on Aug 10, 2007, with the Forestry Department for the planting of 10,000 hectares of timber latex clone rubber. "This has further reinforced confidence in the state government's ability to deliver," he said.

Mannan said Sabah has achieved much progress in pursuing SFM as manifested in the world-renowned Deramakot SFM forest area and the SFM project at Ulu Segama-Malua involving 250 000 ha with orang utans as the prime species for conservation. "The Sabah Foundation has set aside nearly 500 000 ha, or 50 percent, of its area for protection, conservation or SFM, with more to be put aside as part of its long-term planning," he said.

Mannan said the foundation's harvesting in Malua Forest Reserve, under full reduced impact logging, was even under the watchful surveillance of an independent third-party forest audit team from abroad at considerable costs. "The World Wild Life Fund of the US, in its visit to the site on Aug 15, 2007, commended the good harvest practices," he said.

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