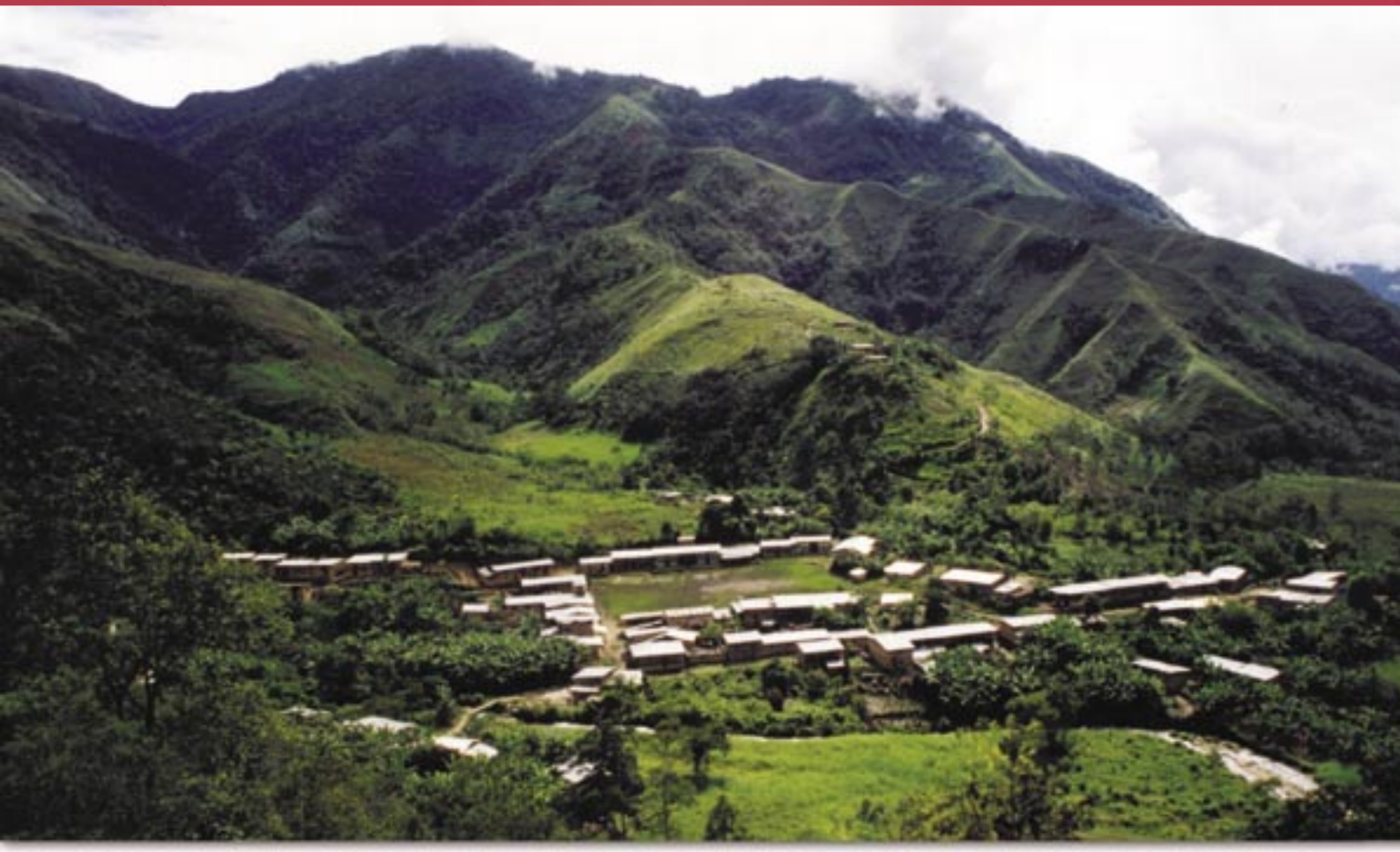
ISSN 1022–5439

ITTO Tropical Forest UPDATE

Volume 12 Number 4 2002

A newsletter from the International Tropical Timber Organization to promote the conservation and sustainable development of tropical forests



What to do with the bald spots

FEW things distress a forester more than seeing baldness in what should be a forested landscape. Land that could support forest but doesn't is an eyesore to many.

Not all baldness is bad, of course. Shifting cultivators deforest patches of land, plant their crops, move on, and the forest grows back; in this case, the baldness is not much more than a drastic haircut. Deforestation is also often part of a development process, making land available for agriculture, infrastructure and other development. The permanent loss of forest is probably worthwhile if the economy grows and livelihoods are improved and if the ecological integrity of the landscape is maintained.

But allowing degraded land or degraded forest to replace healthy forests is not good management. Functioning forests play an important, if often silent, role in the lives of millions, possibly billions of people: they disgorge clean water into streams and reservoirs, dish up hundreds of edible plants and animals, dispense a potent brew of medicines, and stand ready to supply local and industrial needs for timber and fuelwood. By definition, degraded land and degraded forest cannot do these jobs. Water becomes soiled, valuable plants and animals vanish, and supplies of timber and fuelwood dwindle.

Contents

Regular features

Editorial Alastair Sarre
Design Justine Underwood
Database Manami Ohshima

The *Tropical Forest Update* is published quarterly in English, French and Spanish by the International Tropical Timber Organization. Content does not necessarily reflect the views or policies of ITTO. ITTO holds the copyright to all photos unless otherwise stated. Articles may be reprinted without charge providing the *TFU* and author are credited. The editor should be sent a copy of the publication.

Publishing and distribution are coordinated by Anutech Pty Ltd, Canberra, Australia. Printed on paper produced with a minimum of 50% recycled fibre and a minimum of 15% post-consumer waste and without the use of chlorine gas.

The *TFU* is distributed **free of charge** to over 10 400 individuals and organisations in 125 countries. To receive it, send your full address to the editor. Please notify us if you change address. The *TFU* is also available on-line at www.itto.or.jp/newsletter/.

International Tropical Timber Organization
International Organizations Center – 5th Floor
Pacifico-Yokohama, 1–1–1 Minato Mirai, Nishi-ku
Yokohama 220–0012 Japan
t 81–45–223 1110
f 81–45–223 1111
tfu@itto.or.jp
www.itto.or.jp

Cover image The Urumba Basin, Peru. *Photo: A. Gaviria*

... Editorial continued

ITTO's new *Guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests*, which are featured in this edition of the *TFU*, are part of a substantial effort by ITTO and its partners to deal with degraded forest and forest land. They cover three main categories of forest. *Degraded primary forests* are primary forests in which the initial cover has been adversely affected by unsustainable harvesting so that their structure, processes, functions and dynamics are altered beyond the short-term resilience of the ecosystem. *Secondary forests* are composed of woody vegetation regrowing on land that was largely cleared of its original forest cover. *Degraded forest lands* are former forest lands severely damaged by excessive harvesting, poor management, repeated fire, grazing or other disturbances or land uses that damage soil and vegetation to a degree that inhibits or severely delays the re-establishment of forest after abandonment. The estimated area covered by forests and lands in these three categories in the tropics is an immense 850 million hectares.

What is to be done with this land? The first thing, say the guidelines, is to consider the role that degraded forests and forest lands play in their landscapes—or could play, if properly restored and managed. It is often unrealistic and probably unnecessary to reforest and restore every bare hill and every degraded creek line in landscapes such as that depicted in the cover photo. In balancing the needs of conservation and production, restoration efforts should aim to re-establish functionality; that is, degraded lands should be reforested and degraded and secondary forests should be managed so that the landscape regains or maintains its capacity to deliver the products and services required of it. In many cases, say Maginnis and Jackson (page 9), "restoration activities are better focused on the recovery and maintenance of primary processes … rather than on attempting to replace the original forest structure".

The management of secondary forests is a somewhat different case. Secondary forests are not necessarily degraded, but they are different from primary forests and their management requires different approaches. Müller (page 16) notes that secondary forests are often ignored by policy-makers or, even worse, targeted for clearance because of their perceived lack of value. Yet they can be a very valuable resource.

Other articles in this edition explore some of the ground-level efforts being made, with ITTO assistance, to restore and rehabilitate. James Gasana (page 5) evaluates an ITTO project in Ghana that supported the 31st December Women's Movement, a non-governmental organisation, in its mission to assist rural women to develop and manage reforested lands. Mohammed Bazri Hamzah (page 12) describes an ITTO project that produced guidelines for matching species with site in degraded primary forests and on degraded forest lands. Alfredo Gaviria (page 14) writes about an ITTO project in Peru's Urumba Basin that helped local communities to organise themselves so they could better address their land degradation problems.

Despite such good work, the bald patches in tropical forest lands will continue to grow for some time yet; the forces that promote them remain far more powerful than those that would repair them. Yet in one way at least, forest degradation can be empowering: as an asset of great value such as primary forest is degraded, a society's most powerful people tend to lose interest in it. This gives people on the economic margins the chance to gain greater access to an albeit depleted resource. In many cases this will lead to more deforestation, because agriculture is usually a more economically attractive land use, but it can also provide opportunities for community-led restoration and rehabilitation.

Forests have an important role to play in sustainable tropical landscapes. The new guidelines, and the assistance offered by many national and international organisations, will encourage people who believe in this role to keep working towards forest restoration. As people see the local consequences of drastic forest loss, we expect such encouragement to be increasingly welcomed.

Alastair Sarre
and
Eva Müller

When damage is done

ITTO's most recent policy document describes what is needed to restore, manage and rehabilitate degraded and secondary tropical forests

Reforestation watershed: mules are useful for transporting seedlings for the reforestation of Peru's Urumba Basin (see article page 14). *Photo: A. Gaviria*

THE extent of forest degradation in the tropics is vast: some 350 million hectares of tropical forest land have been so severely damaged that forests won't grow back spontaneously, while a further 500 million hectares have forest cover that is either degraded or has regrown after initial deforestation *(see table next page)*.

... an adaptive approach should be taken in which the responses of the forest to treatments are monitored and management is altered in the light of experience.

Such large areas of damaged forest and land are cause for concern, but they also represent a potential resource of immense value. In close collaboration with several other organisations[1], ITTO recently developed and published the *ITTO Guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests* to help countries and communities realise this potential. This substantial document provides a powerful introduction to the issues confronting the policy-makers, forest practitioners, extension workers and others who want to help restore and manage degraded or secondary forests.

What are degraded and secondary forests?

A **degraded primary forest** is a primary forest in which the initial cover has been adversely affected by the unsustainable harvesting of wood and/or non-wood forest products so that its structure, processes, functions and dynamics are altered beyond the short-term resilience of the ecosystem; that is, the capacity of the forest to fully recover from exploitation in the near to medium term has been compromised.

A **secondary forest** comprises woody vegetation regrowing on land that was largely cleared of its original forest cover (ie carried less than 10% of the original forest cover). Secondary forests commonly develop naturally on land abandoned after shifting cultivation, settled agriculture, pasture, or failed tree plantations.

Degraded forest land is former forest land severely damaged by the excessive harvesting of wood and/or non-wood forest products, poor management, repeated fire, grazing or other disturbances or land-uses that damage soil and vegetation to a degree that inhibits or severely delays the re-establishment of forest after abandonment.

Management strategies

Management strategies for degraded and secondary forests should aim to regain ecosystem integrity: that is, the maintenance of the potential to provide a certain set of goods and services for which the site is suited, implying the maintenance of biological diversity, ecological processes and structure, and sustainable cultural practices. The guidelines make a distinction between three principal management strategies:

- **forest restoration**, the aim of which is to assist the natural processes of forest recovery in a way that the species composition, stand structure, biodiversity, functions and processes of the restored forest will match, as closely as feasible, those of the site-specific original forest;

[1] *the Food and Agriculture Organization of the United Nations, the Center for International Forestry Research, IUCN – The World Conservation Union, and the World Wide Fund for Nature International, among others*

Potential resource

Estimated extent of degraded and secondary forests by category in tropical Asia, tropical America and tropical Africa in 2000* *(millions of hectares, rounded to the nearest 5 million hectares)*

	Asia *17 countries*	America *23 countries*	Africa *37 countries*	Total
Degraded primary forest and secondary forest	145	180	175	500
Degraded forest land	125	155	70	350
Total	**270**	**335**	**245**	**850**

**Compiled by Jürgen Blaser and César Sabogal for the ITTO guidelines using extrapolations from various earlier estimates*

- **secondary forest management**, which aims to increase the capacity of secondary forests to generate important environmental and social services for a wide range of beneficiaries on a sustainable basis; and
- **the rehabilitation of degraded forest lands**, which aims to re-establish site productivity and protective functions and many of the ecological services provided by a functional forest or woodland ecosystem.

Some basic conditions for the restoration, rehabilitation and management of degraded and secondary forests can be enumerated. For example:

- the strong support and participation of local stakeholders is needed in the planning, implementation and monitoring of activities. The rights and responsibilities of ownership, including customary claims and rights, must be clearly defined and mutually agreed;
- local forest users must obtain some short-term economic benefits, which must be in addition to any potential future benefits;
- there must be a sound understanding of the complexities and dynamics of the forest ecosystem and of the interacting socio-economic and political systems; and
- land capability must be analysed and overall land-use relationships must be understood and legally defined.

Informed choices can be made on the management strategy and silvicultural techniques to be applied in a particular situation. But even when the knowledge and experience of local people, foresters and ecologists are fully deployed, the outcome will rarely be totally predictable. Thus, an adaptive approach should be taken in which the responses of the forest to treatments are monitored and management is altered in the light of experience.

The role of the guidelines

The *ITTO Guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests* are intended to:

- provide a knowledge base on key policy, socioeconomic, legal, institutional, ecological and silvicultural issues that need to be taken into account in the planning and implementation of appropriate strategies and viable options for the restoration of degraded primary forests, the management of secondary forests, and the rehabilitation of degraded forest land;
- help planners to integrate the restoration, conservation and management of degraded and secondary tropical forests and degraded forest lands at the local and landscape levels;
- collate and build on relevant experiences in the use and management of degraded and secondary forests;
- stimulate the adoption of appropriate and adaptive management practices for conserving and enhancing the production capacities of degraded and secondary forests; and
- help create a policy focus on degraded and secondary forests at the local, national and international levels to promote their sustainable and equitable management and use, prevent degradation and inappropriate conversion, and guide the development of such forests according to clearly defined management strategies.

The guidelines provide a checklist of prime objectives, principles and recommended actions which, it is hoped, will constitute an international reference standard for the management, restoration and rehabilitation of degraded and secondary forests and provide a framework for the development of more specific guidelines at the regional, national, local and site levels. The objectives, principles and recommendations are divided into two sections, described below.

Section I: Policy, planning and management principles and recommended actions: in this section, seven main objectives for the restoration, management and rehabilitation of degraded and secondary forests are defined. Under each main objective, a number of principles, and under each principle a number of recommended actions, are listed. Section I comprises a total of 31 principles and 105 actions. The seven objectives are:

1) Attain commitment to the management and restoration of degraded and secondary forest landscapes;
2) Formulate and implement supportive policies and appropriate legal frameworks;
3) Empower local people and equitably share costs and benefits;
4) Employ integrated approaches to resource assessment, planning and management;
5) Take an adaptive and holistic approach to forest management, emphasising environmental and social values;
6) Promote economic efficiency and financial viability; and
7) Guarantee participatory monitoring and evaluation as a basis for adaptive management.

This section is particularly directed at public policy-makers, such as government agencies dealing with rural landscapes (departments of forestry, planning, finance), development and extension agencies, civil society, NGOs and private and communal extension agencies.

Section II: Stand-level principles and recommended actions: in this section, 18 principles and 55 actions are listed under a specific objective concerned with the restoration of degraded forests, the management of secondary forests and the rehabilitation of degraded forest lands at the site level. It is particularly directed at civil society, NGOs and private and communal extension agencies; forest practitioners and people working at a site level; and education, training and research institutions.

The ITTO Guidelines for the restoration, management and rehabilitation of degraded and secondary forests *are available in English, French and Spanish from the ITTO Secretariat in Yokohama (address on page 2); they can be downloaded from www.itto.or.jp*

Reforestation and the gender agenda

An ITTO project has created new opportunities for women through reforestation

by James K. Gasana

Intercooperation

PO Box 6724
Maulbeerstr. 10, CH-3001 Berne
Switzerland

t *41–31–382 0861*
f *41–31–382 3605*

Teak time: villagers pose in front of their teak plantation, which was established with ITTO assistance. *Photo: J. Gasana*

PRINCIPLE 20 of the 1992 Rio Declaration states that women have a vital role to play in environmental management and development and that their full participation is therefore essential to sustainable management. Such a principle is easy to formulate but difficult to adhere to. Nevertheless, some attempts are being made and lessons are being learned. For example, an ITTO project in Ghana that has been attempting to empower women through reforestation offers some very useful lessons on how principles can become practice in the tropics. This article presents the findings of a recently conducted ex-post evaluation of the project.

Although women are actively engaged in the use of forest resources in Ghana, the role they can play in the sustainable management of forests is not always recognised in forest policies and practice.

ITTO PROJECT PD 27/94 REV. 2 (F): 'Women and tropical forestry development program' started in April 1995 and spanned 51 months. It aimed to alleviate pressure on existing tropical forest resources and improve the standard of living of women and rural communities by supporting community-based and private-sector tropical reforestation and by involving women in the development of Ghana's forest resources. Specifically, the project aimed to: 1) enable women to establish and sustainably manage nurseries for non-timber forest products (NTFPs), timber and fruit trees to supply the 31st December's Women Movement (DWM)—a community-based non-governmental organisation—and private-sector tropical reforestation initiatives; 2) demonstrate the potential for women to support tropical reforestation; 3) encourage the involvement of women in West African sub-regional consultations on tropical reforestation; 4) support the establishment of community-based NTFP, timber and fruit tree plantations through an extension program; and 5) create employment opportunities for women. In the project's last stages, a sceond phase—ITTO PROJECT PD 49/98 REV. 1 (F): 'Participatory tropical development by women in indigenous communities'—was formulated and is now under way.

The first project (and also the later one) was implemented by the Ghana Forestry Department in cooperation with DWM. DWM is dedicated to mobilising Ghanaian women at the national level and to securing a political space for their socioeconomic empowerment. It aims to integrate women in the mainstream of socioeconomic and cultural development through sensitisation, workshops, training and extension services and has acquired considerable experience in mobilising women for community development activities. Its membership of nearly 1.5 million makes it a force that can work effectively to influence policies and practices affecting women.

An evaluation of project achievements was made difficult by a lack of data, since an internal monitoring and evaluation system was not set up. In conducting the evaluation I used field observations and interviews with project staff, DWM leaders, administration authorities and stakeholders and villagers in the project activity areas to complement information from project reports.

Project rationale and background

Although women are actively engaged in the use of forest resources in Ghana, the role they can play in the sustainable management of forests is not always recognised in forest policies and practice. The need to pay attention to this role was raised at a workshop convened under ITTO PROJECT PD 119/91 REV. 1 (F): 'Workshop on women and forestry: a look at African experiences in the sustainable development of tropical forests', which provided a forum for women in Ghana and other African countries and critically analysed the role of women in forestry. It recommended, among other things, programs at a country or regional level to provide women with the training and other assistance they required to become more involved in sustainable forest management. Ghana subsequently submitted, and the International Tropical Timber Council funded, ITTO PROJECT PD 27/94 REV. 2 (F), which aimed to implement the ideas and recommendations developed in the workshop.

Three hypotheses underlie the project concept. The first is that a reforestation program can help improve the livelihoods of rural women by enhancing their involvement in the creation and management of tree plantations. The second is that a separate forestry program targeting women may advance their position in the creation, management and use of tree plantations. The third concerns a paradigm of aid delivery to rural communities: that projects implemented by a government agency in cooperation with a national NGO will be an effective way of mobilising rural women and communities. In each hypothesis the beneficiaries of the project are mostly rural women, but also individuals, groups, DWM and other NGOs engaged in rural forestry activities, the Forestry Department and private-sector operators. The project was implemented in three ecological regions: High Forest, Guinea Savanna, and Coastal Savanna.

Findings

Effectiveness of the conceptual framework

The overall impression given by the technical and physical achievements of the project is largely positive, given the scale of operation and the duration of the project. The implementation rates of most activities, as will be shown, are high, particularly in seedling production and reforestation. This success can be attributed to the partnership between the Forestry Department and DWM, to the dedication of the project's staff, and to the commitment of the DWM leadership at all levels.

The project had some unexpected effects. In all three regions, women and their families are deriving important socioeconomic benefits from interplanting trees with agricultural crops, a technique introduced by the project. Fuelwood is already harvestable in some of the older plantations created in the savanna zones. In all three regions, community assets have been created that now represent a potential source of income. Beneficiaries are aware of the possiblities of income generation from their plantations, and the communities have expressed their desire to pursue the planting effort.

However, an analysis of the project design shows a lack of effectiveness in the conceptual framework as well as weaknesses in the definition of approaches, strategies and objectives that ought to have been corrected in the earlier stages of project implementation. In the very beginning, the project was not prepared on the basis of a social survey and did not include such an important exercise in its activities. Although it is implicitly a highly gender-sensitive scheme, there was no gender analysis to identify key operational women-related issues in reforestation and to describe their socioeconomic needs and the specific gender-related constraints to meet those needs. Such a weakness is particularly significant in a project implemented in a large diversity of geographical, social and cultural conditions. Further, participatory development requires a long-term vision and strategies rather than the planning of short-duration project phases. In this regard, the project design should have placed more emphasis on developing processes instead of focusing on activities. For a project facing sociocultural constraints to the changes it is attempting to

Seeds of change

Seedling production in the three project central nurseries—up to the completion of PD 27/94 Rev. 2 (F)

SPECIES	ZONE			TOTAL
	Coastal Savanna	*High Forest*	*Guinea Savanna*	
Senna siamea	200 552	56 200	225 932	482 684
Acacia spp.	148 002	–	58 031	206 033
Khaya senegalensis	33 000	–	49 200	82 200
Tripl. scleroxylon	–	15 200	–	15 200
Terminalia superba	–	18 006	–	18 006
Terminalia ivorensis	–	12 033	–	12 033
Maclura excelsa	–	4 503	–	4 503
Tetrapleura sp.	–	6 880	–	6 880
Anac. occidentale	27 052	2 000	24 020	53 072
Coconut	880	–	–	880
Citrus	9 863	5 300	500	15 663
Mangifera indica	6 523	1 050	8 600	16 173
Leuc. leucacephala	63 800	–	31 631	95 431
Tectona grandis	408 763	283 200	12 202	704 165
Eucalyptus spp.	76 500	–	18 004	94 504
Blackberries	2 200	–	–	2 200
Albizzia lebbek	83 650	–	–	83 650
E. angolense	–	10 100	–	10 100
Cedrela odorata	–	21 000	–	21 000
Aningeria robusta	–	3 550	–	3 550
Ceiba pentandra	–	12 300	–	12 300
Avocado	3 200	500	-	3 700
TOTAL	**1 063 985**	**451 822**	**428 120**	**1 943 927**

bring, this means that *how* the outputs are reached is more important than the outputs themselves, and the focus of this kind of project must be on the internal social dynamics generated in beneficiary communities.

The impression gained from the reports and field observations is that, with a few exceptions, the project delivered at the activity level. Indeed, there are impressive performances in the implementation of most technical and physical results, while there are varying degrees of under-achievement in many outputs and specific objectives. This situation is certainly due to the abovementioned problems in project design and would have justified an early revision of the design.

Going bananas: the planting of agricultural crops inside timber plantations, such as banana in this High Forest teak plantation, ensures that benefits accrue to villagers as the timber trees grow. *Photo: J. Gasana*

Outputs

Three nurseries were established, one each in the High Forest, Guinea Savanna, and Coastal Savanna zones, producing almost two million seedlings *(see table)*. Forty women were trained in various nursery techniques and 70 DWM members were trained in forest extension. In the project design, women in their communities were to have managed these nurseries themselves. However, this activity is still organised by DWM, and there seems to be a lack of separation between women as beneficiaries and DWM as their organiser. Despite this, the local ownership of the project's results, and the strong local commitment to the project's objectives, are impressive.

The project had positive results in tree plantation establishment and the cultivation of NTFPs. Plantations of teak and other species were created in the Ashanti region and community woodlots for fuelwood production in the Volta. DWM played an important role in promoting these activities by negotiating with chiefs and the Forestry Department to provide land for reforestation. The project also trained women in plantation management, techniques for budding and grafting citrus, mangos and avocados, mushroom cultivation and snail rearing, and the identification, collection and cultivation of NTFPs.

The most impressive effect wrought by the project on the potential of women to support tropical reforestation is the consolidation of their aspirations towards the forest resource and the catalysis of desires for further access to land and credit. In most communities I visited, women expressed concern about how they might further consolidate the links between their plantations and other needs in the community. The most pressing needs mentioned concern health and education facilities, which require immediate income rather than the income that might be generated from trees that will be cut in a more remote future. In this regard, DWM and new phases of the project should try to catalyse the emergence of women as socially and economically autonomous groups participating in the project as beneficiaries. A development project targeting women will have achieved a large measure of success if it supports them in organising themselves to meet their socioeconomic needs as independent persons or production groups.

Although the creation of employment opportunities for women was one of the specific objectives of the project, its design did not include explicit outputs and respective employment creation activities. No data are available on the number of jobs the project helped create because of the lack of a monitoring and evaluation system to assess project impacts. However, the potential for income generation can be inferred from field interviews and observations. The newly acquired techniques of grafting encouraged an increase in the demand for fruit-tree species alongside tree seedlings and presented a new opportunity for income generation. Nurseries for timber trees alone do not yet appear to be a commercially viable concern in the project areas.

Overall impacts

Women are collectively planning and managing a reforestation program through DWM, with impressive results. This is not yet fully achieved at the district or local community level, where further capacity-building is required. Perhaps the factor that is most limiting for further progress in community-based reforestation is the access of women to land. In its second phase, the project seems to be near the limit of what it can achieve to facilitate this, and only government intervention can bring about further improvements. Concerning income generation, the plantations are still too young to have had a significant economic impact where timber is the objective of production. Nevertheless, the project helped create potential sources of income from trees, particularly where they were scarce in the savanna regions. There are good prospects for the sale of firewood and NTFPs.

The most visible impact is the creation of assets that did not exist before.

Although there is no doubt about the potential of the plantations to improve the standard of living of women and rural communities, it is perhaps still too early to fully assess how large that impact will be. What can be said is that if beneficiaries have taken

seriously the responsibility of planting and managing their plantations it is because they see good socioeconomic prospects for their communities. The most visible impact is the creation of assets that did not exist before. Moreover, harvests from intercropping and the production of firewood are adding income and, in the case of the latter, alleviating the burden of firewood collection for women in the Volta region. The time spent by women on firewood collection will continue to reduce as the firewood crops mature.

The project achieved a considerable mobilisation of beneficiaries and their communities behind its objectives, and there is a great ownership of its achievements. However, there is still a need to develop a coherent approach to allow this participation to cover all aspects of project design, implementation and evaluation. There remain obstacles in the post-project situation. For example, selling seedlings remains difficult despite increased awareness and planting needs, although demand may increase when the national reforestation program (see below) is implemented. Where longer-rotation species have been promoted, the sustainability of plantation management will depend on the diversification of income-generating activities.

The unexpected impacts include the following:

- DWM succeeded in giving a high political profile to the project, and the project helped focus political attention on the need to integrate women in forestry;
- other women's organisations and NGOs are applying the extension methods for reforestation used by the project;
- similarly, the government has launched a national reforestation program aiming at planting 20 000 hectares per annum, using the project's experience in community reforestation;
- the practice of intercropping in plantations served as a powerful incentive for reforestation and the maintenance of young plantations;
- the taungya system practised on forest reserves in the High Forest zone has demonstrated a potential for forest stewardship, but this needs to be reinforced by a clear official statement on the sharing of future timber harvests between the state, the customary authority and the women who planted; and
- there has been capacity-building among foresters involved in the project. They improved their extension approaches and learned how to conduct dialogues with beneficiaries. This contributed to strengthening the confidence of the communities.

Lessons learnt

The project demonstrated the usefulness of government partnership with an NGO for reforestation and community development. The cooperation strategy between DWM and the Forest Department enabled the project to benefit considerably from DWM's experience in community mobilisation. Moreover, the gateway activities which address priority needs and concerns of communities, such as intercropping and NTFPs, constituted a key success factor in the project.

The mobilisation of women for reforestation has merit in the creation of community assets. However, it may not lead to fundamental changes in the existing gender biases as far as access to land is concerned. If women in the community are not seen as co-participants in natural resource management, reforestation extension targeting only their group may, rather, add a new role of tending tree plantations to their burden.

Thus, a gender approach starting from the identification of women's needs and constraints for meeting them may lead to better results. Indeed, the best gender approach would aim to establish women's participation in forestry as a right and as a means to expand their options. It would recognise that women must have equal access both to land and to community resource management decision-making processes.

Recommendations

The ex-post evaluation made a number of recommendations for the new phase of the project and for the project partners. Here, I relate the three main recommendations specific to ITTO.

- For projects where social and cultural factors must be taken into account to achieve the expected changes, project-design teams should includes experts with sociocultural and gender analysis skills wherever necessary.
- For such projects, the emphasis of implementation should be put on initiating or strengthening development processes.
- Finally, projects targeting rural communities, particularly those that have to empower certain sociologically weaker groups, may best reach their objectives if government agencies promoting them relinquish their implementation responsibilities to NGOs. ITTO should promote such partnerships and publicise its experiences.

Acknowledgements

The author is very grateful to Her Excellency Nana Konadu Agyeman Rawlings, DWM President, who chaired the evaluation's briefing and debriefing meetings, for her wise advice and comments. He expresses his sincere thanks to Mrs Edith Abruquah, project coordinator, Ms Rejoice Juliet A. Ahiable of DWM, and the many DWM regional and district coordinators he met for their eagerness in answering his questions and in supplying information relevant to the evaluation.

Restoring forest landscapes

Forest landscape restoration aims to re-establish ecological integrity and enhance human well-being in degraded forest landscapes

by Stewart Maginnis[1] and William Jackson[2]

[1]Head, Forest Conservation Programme

IUCN – The World Conservation Union

Stewart.Maginnis@iucn.org

[2]Director, Global Programme

IUCN – The World Conservation Union

Bill.Jackson@iucn.org

THINK of a tropical forest landscape and the image that probably springs to mind is of a billowing, continuous canopy with scattered solitary emergents, a sea with many shades of green and the occasional dramatic splash of colour stretching uninterrupted towards the horizon.

Reality is often quite different. Deforestation and forest degradation have altered many of the world's tropical forest landscapes to such a degree that—according to a report by Bryant et al. (1997)—only 42% of remaining forest cover, or 18% of original forest cover, in the tropics is still found in large, contiguous tracts. The same report lists eight ITTO producer countries (and most ITTO consumer countries) in which virtually all the forest estate is in fragmented, modified blocks.

The figures behind this shift in the configuration of tropical lands are dramatic. About 830 million hectares of tropical forest can be classified as fragmented (Bryant et al. 1997), although admittedly some of these forest fragments might be hundreds of square kilometres in size. Care should be taken when combining figures from different sources, but it is reasonable to suppose that the vast majority of the estimated 500 million hectares of degraded primary and secondary tropical forest (ITTO 2002) is part of those same fragmented forest blocks. Another 350 million hectares of former forest land within the tropical forest biome has been severely degraded through fire, land clearance and destructive harvesting practices, while an additional 400 million hectares of productive agricultural land still retain a significant tree component.

Therefore, today's 'typical' tropical forest landscape is more likely to be a mix of primary forest, managed forest, secondary forest and degraded forest lands interspersed with extensive areas of other, non-forest land-uses. It is also likely that there are many more people living in these landscapes than was previously the case; reliable estimates indicate there might be 500 million people in rural areas of the humid tropics and that they depend on a mixture of agricultural and forest resources to maintain their livelihoods.

... regarding forests purely in terms of conservation or production omits the vital role they play in securing and maintaining the livelihoods of many rural and urban people.

To reflect this shift, we propose broadening the definition of a forest landscape to:

> *a landscape that is, or once was, dominated by forests and woodlands and which continues to yield forest-related goods and services.*

Why restoration?

The world's decision-makers and advocates have tended to focus on the fate of the remaining primary forests, largely because of their value as some of the richest repositories of biological diversity and as critical biotic storehouses of carbon. While ensuring an adequate network of protected forest areas and a viable, sustainably managed productive forest estate is certainly of the utmost priority, recent analysis by Howard and Stead (2001) indicates that this focus probably only accounts for 30–35% of the world's forest estate; 10% of forests are now legally protected while the 1.6 billion m^3 of timber harvested each year is sourced from 600–800 million hectares of forest.

To many in government, the private sector and the NGO community, the remaining area of forest land is seen as a reserve that will in time be protected, exploited or converted—depending on which interest group stakes its claim first. However, regarding forests purely in terms of conservation or production omits the vital role they play in securing and maintaining the livelihoods of many rural and urban people. It also raises serious questions: can the conservation of biological diversity really be limited to 10% of the world's forests? Are the only goods that merit attention from unprotected forest formally traded commodities such as industrial roundwood?

In Kenya and Tanzania, for example, formal health care is so expensive that up to 70% of the rural poor rely solely on herbal medicines collected from forests and woodlands to remedy all but the most serious ailments. In India, Kerr (2002) documents the Sukhomajri watershed development program, under which tree density on denuded slopes increased a hundredfold, from 13 to 1292 per hectare, over a period of 16 years. Subsequent increases in the production of forest grasses resulted in a sixfold increase in milk production, while better-regulated water flow permitted more diverse and higher yielding cropping systems. As a direct result of this increased economic activity, household incomes across all social classes increased by 50%. Further downstream, the siltation rate of an important lake near the major city of Chandigarh was reduced by 95%, saving the city US$200 000 annually in dredging costs.

The fact is that tree cover no longer dominates many tropical forest landscapes. In some areas, the current land-use configuration has led to a dramatic and detrimental decline in the availability of forest goods and services. In such degraded landscapes, agricultural production tends to suffer, local shortages of timber and fuelwood prevail, household income falls, and biological diversity declines. Often, the effects of landscape degradation are felt further downstream—siltation loads increase and water quality declines. Restoration can therefore help reverse some of the more severe impacts of forest loss and degradation by providing: more secure access for local people to a range of forest products, including fuelwood and non-timber forest products; improved hydrological regulation and nutrient cycling; more diverse and better connected habitats, thus supporting more biological diversity; and options to increase the resilience and adaptability of existing agricultural systems.

Although it is clear that restoration should be a key element in any national forest strategy, this does not mean simply getting as much forest cover back as possible. A more comprehensive approach to restoration should emphasise the importance of both the quality and quantity of tree cover and should require that ecological integrity is enhanced at the same time as tangible benefits accrue to local people. This means that reforestation with the main plantation species can only ever be part of the solution.

Forest landscape restoration

Forest landscape restoration can be defined as 'a process that aims to regain ecological integrity and enhance human well-being in deforested or degraded forest landscapes'. It is being promoted by IUCN – The World Conservation Union, the World Wide Fund for Nature (WWF) International and various governments and other partners to meet the challenge of restoring goods and services in modified and degraded forest landscapes. It focuses on restoring forest functionality: that is, the goods, services and ecological processes that forests can provide at the broader landscape level as opposed to solely promoting increased tree cover at a particular location.

Forest landscape restoration is not a new idea. It builds on a number of existing rural development, conservation and natural resource management principles and approaches, bringing them together to restore multiple forest functions to degraded landscapes. It doesn't aim to return forest landscapes to their original, 'pristine' state. Rather, it is a forward-looking approach that seeks to put in place forest-based assets that are good for both people and nature. Since forest landscape restoration addresses the supply of forest goods and services at a landscape level, it is not limited to—nor does it exclude—particular site-based technical interventions. Any individual application of the forest landscape restoration approach will be a flexible package of site-based techniques, from pure ecological restoration through blocks of plantations to planted, on-farm trees, whose combined contribution will deliver significant landscape-level impacts.

Forest landscape restoration … focuses on restoring forest functionality: that is, the goods, services and ecological processes that forests can provide at the broader landscape level as opposed to solely promoting increased tree cover at a particular location.

One of the key challenges for forest landscape restoration is to identify the type and level of restoration that will be compatible with social and physical realities. Thus, it is important to be clear on both the immediate and long-term objectives of restoration when identifying the potential suite of technical approaches and policy interventions. For example, Whisenant (1999) points out that while healthy ecosystems have built-in repair mechanisms, those that are badly degraded may have surpassed their capacity for self-repair. In such situations, restoration activities are better focused on the recovery and maintenance of primary processes (hydrology, nutrient cycling, energy flows) rather than on attempting to replace the original forest structure or 'near-natural' species mix immediately.

Restoration objectives must be based on the interests of key stakeholders, the nature of the physical landscape and the resources available. It will depend on factors like existing institutional and land tenure arrangements, the prevailing land-use policy framework, and biotic factors such as residual soil fertility and remnant species diversity, abundance and distribution. It is important to recognise that objectives may shift over time. While long-term aims may be to increase the resilience, diversity and productivity of land-use practices and conserve biodiversity, realities on the ground may require short-term interventions that yield immediate benefits.

Community support is a key element in the success of any forest landscape restoration activity. Stakeholders need to feel empowered to act and to be sure the resources they put in place will not be taken away from them. This means that perennial land-use governance issues such as decentralised decision-making and the transfer of access and use rights must be addressed. Traditional practices and institutions also play a significant role, while the importance of long-term government commitment cannot be discounted.

Forest landscape restoration in practice

A recent workshop in Costa Rica supported by ITTO (among others) highlighted that forest landscape restoration is more that just an interesting idea (IUCN in prep.). The workshop heard about many programs and policies in both tropical and temperate countries that have brought about significant increases in forest goods and services at a landscape level. Two are briefly highlighted here.

The restoration of ngitili woodland enclosures in northern Tanzania

The Shinyanga region in Tanzania was originally covered in dry acacia woodland known locally as *ngitili*. The Sukuma people who live in that area had a strong pastoralist tradition and relied on *ngitili* woodland enclosures to provide dry season fodder and a range of other essential goods and services. However, tsetse fly eradication schemes, the conversion of land for cash crops, and state-sponsored collectivised farming meant that by 1985 only about a thousand hectares of *ngitili* remained in Shinyanga; land degradation had become a serious issue. A government-sponsored soil conservation project set out to work with traditional land-use systems and to build on institutional structures, coinciding with a relaxation in the rules governing collective farming. By 2000 the area of *ngitili* had increased to over 250 000 hectares. Although the restored patches of *ngitili* range between ten and 200 hectares in size, their cumulative effect has been to

dramatically transform the Shinyanga landscape (Barrow et al. 2002).

Landscape-level restoration of riparian habitat in Sabah

The Kinabatangan River in Sabah, Malaysia stretches for 560 kilometres along its lower reaches. About thirty years ago its extensive floodplain was dominated by tropical high forest, but since then oil palm plantations have replaced at least 85% of forest cover. The remaining forest is now limited to a narrow, degraded and fragmented corridor along the banks of the river interspersed with the occasional larger forest reserve. Interestingly, this remnant forest is still a very important reserve for wildlife such as the forest elephant, orang utan and Sumatran rhino; it attracts large numbers of tourists who boost the local economy. The fact that the forest has been cleared right to the water's edge has also created its own set of problems; flooding regularly kills thousands of hectares of young oil palms, forest elephants have no option but to pass through plantations, destroying valuable crops as they do so, and fertiliser and pesticide run-off has significantly reduced water quality, diminishing the river's fish stocks on which local communities depend.

Over the past ten years WWF has been working with local communities, district authorities and plantation owners to identify and implement landscape-level restoration solutions that benefit all. Some progressive plantation owners have agreed to allow those parts of their oil palm estate that flood regularly to revert back to secondary forest or to convert them to forest plantations, thus protecting the rest of their crop from seasonal flooding. These restoration activities have started to connect key forest fragments and will, in time, buffer the river from fertiliser and pesticide run-off. By creating a corridor at least 500 metres wide it also helps secure the habitat of some of Malaysia's most threatened species (WWF 2002).

Conclusion

The potential for a more systematic approach to forest restoration should not be under-estimated. For example, in 1999 a meeting of senior forest department officials from the countries of the Lower Mekong concluded that up to 23 million hectares in that region alone could benefit from restoration. However, a range of technical approaches would have to be used to create a productive mosaic of agricultural and forest land, and existing institutional arrangements would have to be modified to help empower smallholders to become more involved in forest management (Gilmour et al. 2000).

New opportunities are emerging that will deliver further working examples of forest landscape restoration on the ground. For example, WWF aims to have 20 large-scale forest landscape restoration initiatives up and running by 2005. The *ITTO Guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests*, and the follow-up regional workshops in 2003 (see page 18), will make an important contribution to raising awareness and increasing capacity on this issue in ITTO producer countries. A United Kingdom-supported initiative should help to implement restoration-related elements of the work programs of the United Nations Forum on Forests and the Convention on Biological Diversity. Forest landscape restoration also offers a practical approach to implementing socially and environmentally responsible carbon sequestration projects under the terms of the Kyoto Protocol (Orlando et al. 2002); significant funding could soon be available that would make restoration a major driving force in helping to secure rural livelihoods and enhance ecological integrity in degraded tropical forest landscapes.

These restoration activities have started to connect key forest fragments and will, in time, buffer the river from fertiliser and pesticide run-off. By creating a corridor at least 500 metres wide it also helps secure the habitat of some of Malaysia's most threatened species

References

Barrow, E., Timmer, D., White, S. & Maginnis, S. 2002. *Forest Landscape Restoration: Building Assets for People and Nature—Experience from East Africa*. IUCN, Cambridge, UK.

Bryant, D., Nielsen, D. & Tangley, L. 1997. *The Last Frontier Forests: Ecosystems and Economies on the Edge*. World Resources Institute, Washington, DC, USA.

Gilmour, D., San, N.V. & Tsechelicha, X. 2000. *Rehabilitation of Degraded Forest Ecosystems in Cambodia, Lao PDR, Thailand and Vietnam*. IUCN-Asia, Cambridge, UK.

Howard, S. & Stead, J. 2001. *The Forest Industry in the 21st Century*. WWF, Godalming, UK.

Kerr, J. 2002. Sharing the benefits of watershed management in Sukhomajri, India. In Pagiola, S., Bishop, J. & Landell-Mills, N. (eds) *Selling Forest Environmental Services: Market-based Mechanisms for Conservation and Development*. Earthscan, London, UK.

ITTO 2002. *Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Tropical Forests*. ITTO, Yokohama, Japan.

IUCN in prep. *Developing the Forest Landscape Restoration Approach. Proceedings of an International Workshop*. Heredia, Costa Rica, 28 February–2 March 2002. CD ROM. IUCN, Gland, Switzerland.

Orlando, B., Baldock, D., Canger, S., Mackensen, J., Maginnis, S., Socorro-Manguiat, M., Rietbergen, S., Robledo, C., & Schneider, N. 2002. *Carbon, Forests and People: Towards the Integrated Management of Carbon Sequestration, Biodiversity and Sustainable Livelihoods*. IUCN, Gland, Switzerland.

Whisenant, S. 1999. *Repairing Damaged Wildlands: A Process-orientated Landscape-scale Approach*. Cambridge University Press, Cambridge, UK.

WWF 2002. *Forest Landscape Restoration: Working Examples from Five Ecoregions*. Doveton Press, UK.

Enrichment and rehabilitation in the permanent forest estate

An ITTO project in Peninsular Malaysia has developed guidelines for matching species with site in forest restoration and rehabilitation

by Mohd Basri Hamzah

Project Lead Consultant

Attached to the Forestry Department Peninsular Malaysia

basri_hamzah@hotmail.com

THE degradation of forest soil is a worldwide phenomenon caused by agents such as fire, deforestation and logging that create wide canopy openings and/or disturb and expose the mineral soils.

In Peninsular Malaysia, where annual rainfall generally exceeds 2000 mm, uncontrolled disturbance in the hill dipterocarp forest—which constitutes the bulk of the permanent forest estate (PFE)—may easily lead to soil degradation. For example, it has been estimated that about 3.7% of the PFE is sufficiently disturbed to require restoration interventions.

The Forestry Department Peninsular Malaysia began implementing ITTO PROJECT PD 115/90 REV.1 (F): 'Rehabilitation of natural forests' in 1993. It's main objective was to develop appropriate silvicultural measures to rehabilitate degraded forests so as to restore the productivity of these areas. In particular, the aim was to identify the species most suitable for enrichment and supplementary planting in degraded and secondary forests.

Climbing to success: planting rattan on marginal sites can boost site recovery and the revenue-generating potential of the forest. *Photo: A. Sarre*

Implementation strategy

The choice of species to be used in the site-species matching trials was based on the need to identify ecologically and silviculturally desirable species suitable for planting in areas where the current stocking of such species was too low. However, the socioeconomic relevance of species to local Orang Asli communities was also an important criterion in species selection; providing incentives for these communities to become involved in forest restoration and management will reduce the need for traditional shifting cultivation, which is becoming less sustainable in Peninsular Malaysia as fallow periods become shorter. Species were therefore chosen for their high survival rates, productivity, nitrogen-fixing and soil-stabilising abilities, multiple-use potential, local acceptance and commercial viability.

The project provides clear evidence that high-value timber species, which are mostly climax species (dipterocarps, mahogany), can thrive in disturbed areas characteristic of succession stages.

In total, 17 species were chosen for the site-suitability trial. All produce commercial timber except for the three bamboo ($_{B}$) and one rattan ($_{R}$) species and all but three ($_{E}$) are indigenous; the bamboos are also good soil-stabilisers. Two species ($_{D}$) were from the dominant dipterocarp family, three were legumes ($_{L}$) and ten produce additional products such as fruits ($_{F}$), bamboo shoots ($_{B}$), rubber latex ($_{X}$) and medicines/insecticides ($_{M}$). The species were *Acacia mangium*$_{EL}$, *Durio zibethinus* (*durian*$_{F}$), *Parkia speciosa* (*petai*$_{F}$), *Pithecellobium bubalinum* (*kerdas*$_{FL}$), *Elatiospermum tapos* (*perah*$_{F}$), *Gigantochloa levis* (*buluh beting*$_{B}$), *Gigantochloa ligulata* (*buluh tumpat*$_{B}$), *Dendrocalamus asper* (*buluh betong*$_{B}$), *Calamus manan* (*rotan manau*$_{R}$), *Swietenia macrophylla* (mahogany$_{E}$), *Shorea parvifolia* (*meranti sarang punai*$_{D}$), *Shorea leprosula* (*meranti tembaga*$_{D}$), *Hevea brasiliansis* (*rubber*$_{EX}$, Clone PB260), *Scaphium* spp (*kembang semangkok*$_{F}$), *Endospermum malaccense* (*sesendok*), *Azadirachta excelsa* (*sentang*$_{M}$) and *Intsia palembanica* (*merbau*$_{L}$).

Project area

Five compartments in two forest reserves were chosen for the trial: compartments 6 and 181 in the Korbu Forest Reserve and compartments 103, 105 and 106 in the Piah Forest Reserve. Both reserves are located in the Kuala

Kangsar Forest District some 5° north of the equator in the state of Perak, about 280 km north of Kuala Lumpur. The selected compartments were all accessible and contained sufficient areas of abandoned shifting cultivation and recent logging activity.

The trial area comprised lowland dipterocarp forest below 400 m above-sea-level, with terrain ranging from undulating to steep. It was stratified into 'sites' on the basis of stand disturbance: abandoned shifting cultivation area (SCA); old logged-over forest (LOFO); and recently logged-over forest (LOFN). A pre-felling inventory showed an average timber volume of 39 m^3/hectare. The SCA and LOFO, abandoned for more than seven years, were characteristically weed-infested. All compartments were managed under the Selective Management System (SMS), a tropical variant of the shelterwood system that is applied to the PFE throughout Peninsular Malaysia. The soils in the area were all ultisols—characteristically highly leached, acidic and nutrient-poor—but within this broad type there was variation between sites.

Silvicultural treatments

Twenty-two treatments (including controls) were carried out in the form of species-site trials, weed controls and stand improvement. Permanent sample plots were either rectangular or irregular; in the latter, plantings were conducted along roads and skid trails in the LOFN. Plantings in rectangular plots comprised either one or two species, but randomised multiculture planting was also carried out in the SCA to test inter-species compatibility. Multistorey planting, in which *meranti tembaga* eventually replaced an overstorey nurse crop of *Acacia mangium*, was conducted in the SCA and on former log landings of the LOFN. Each treatment was conducted in 3–5 replicate blocks at each site.

Measurements

Measurements were taken twice a year for two years. Ten parameters were recorded for planted seedlings: mortality, crown lighting, site features, stem collar diameter, height above ground, crown diameter, crown length, branch number, and stem and crown form. For control plots in the SCA and LOFN, parameters recorded included species (all sizes), frequency (seedlings), diameter at breast height (dbh), clear bole height and tree class (trees >5 cm dbh), crown lighting, lianas, crown form, and stem grade (trees >15 cm dbh). Bamboos were measured for shoot and stem number and rattan for stem length, leaf number and stem class.

Economic and financial analyses

Thirteen species with superior survival and growth performance were selected for subsequent economic and financial analysis; these were *kembang semangkok*, mahogany, *sentang*, rubber, *meranti tembaga*, *meranti sarang punai*, *petai*, *durian*, *perah*, *merbau*, *sesendok*, *kerdas* and *Acacia mangium*. Projected yield data were analysed using a net present value (NPV) of 8% over a 60-year period. Short-rotation species required three to four cycles for this duration.

Species-site matching

The most tangible outcome of these trials was the development of guidelines for species-site matching. Of the 13 species selected for economic and financial analysis, ten were ultimately recommended for various degradation types based on their NPV values, which all exceeded RM4000 per hectare (US$1 = RM3.8). The site-species matches for the study area are as follows:

- restorative planting in the SCA: *durian*, *petai*, mahogany, *meranti tembaga*, *sentang*, *kembang semangkok*, *buluh tumpat* and *buluh beting*;
- enrichment planting in the LOFO: *meranti sarang punai*, *meranti tembaga*, and *kembang semangkok*; and
- restorative planting in the LOFN: *durian*, *petai*, mahogany and *buluh betong*.

In addition, the study was able to identify optimal light and site conditions for species during establishment. It is thus possible to identify those microsites and the degree of shade manipulation needed for individual species. In general, the project was able to evaluate the rehabilitation capacity of a species, including its socioeconomic relevance and specific environmental functions.

Implications for forest management and the rural economy

Techniques for rapid soil stabilisation in hill forests (approximately 20% of the area affected) are becoming increasingly important as these forests are logged. Project results offer effective soil management options through restorative and productive plantings of proven species contributing directly to environmental and economic sustainability.

The project provides clear evidence that high-value timber species, which are mostly climax species (dipterocarps, mahogany), can thrive in disturbed areas characteristic of succession stages. Their use in enrichment planting should thus provide a new opportunity for producing quality timber in disturbed areas. Although monoculture plantings proved more productive than multicultures, the latter arrangement appeared effective in avoiding insect damage in the valuable timber species mahogany.

Under proper compartment stratification, naturally unproductive areas (infertile, stony, thin soils, steep slopes) can be demarcated and the marginal sites planted with proven restorative species such as bamboo (and also *rotan manau* as a 'bonus' crop). Such integrated utilisation can help maximise stand productivity.

The performance of rubber in restorative plantings, although rated lowest in NPV returns, nevertheless offers the potential to boost the (currently declining) supply of rubberwood to the Malaysian furniture export industry (worth RM6 billion in 1999). However, the decision to use rubber and other exotic species must be made on the understanding that this may cause a fundamental shift in the ecological character of the natural forest.

The outstanding restorative performance of traditional agroforestry species such as *durian*, *petai* and to a lesser extent bamboo provides a readily acceptable way of involving rural communities in forest restoration and reforestation as avenues for rural development.

The project made a number of recommendations for the restoration and rehabilitation of degraded forest in the PFE of Peninsular Malaysia, and also published guidelines (which can be obtained from the Forestry Department Peninsular Malaysia, naaman@forestry.gov.my). However, these recommendations and guidelines are based on a relatively short assessment period; it is important that the research sites are maintained and monitored over the next decade or more to ensure the effectiveness of the restoration and rehabilitation measures.

The author acknowledges the contributions of Associate Professor Ashari Muktar, Universiti Putra Malaysia, and Dato' Hj Mohamed Darus Hj Mahmud, formerly the Director General of the Forestry Department Peninsular Malaysia.

Getting organised

An ITTO project in the Urumba Basin near the Peru-Ecuador border is assisting various groups to manage and reforest degraded land

by Alfredo Gaviria

Forest consultant

alfredo_gaviria@hotmail.com

THE Urumba Basin lies close to the border with Ecuador in the Peruvian Andes. Settled by migrant communities from the country's northwest, the Basin has undergone dramatic deforestation and large areas are now denuded and degraded. Of particular ecological concern are the small remaining areas of natural cloud forest, which occur in the region at altitudes of 1350–2000 m above sea level. At the same time, the communities that have settled there have few ways of generating income and agriculture is relatively unproductive.

In 1992 ITTO funded ITTO PROJECT PD 42/92 REV. 1 (F): 'Reforestation and sustainable management and utilization in the natural cloud forests of Jaen-San Ignacio', to be implemented by Peru's National Institute for Natural Resources (INRENA). This project commenced in 1994 and concluded in 1999 when it was superseded by a second phase, ITTO PROJECT PD 38/99 REV. 1 (F,I): 'Demonstration community forest management in the natural cloud forests of the Urumba Basin, San Ignacio', which itself concluded earlier this year. The project, commonly known as the Urumba project, was based in the small town of La Bermeja in the northeastern region of Peru near the Ecuadorian border.

Environmental focus: a young boy lends a hand in the community nursery. *Photo: A. Gaviria*

The objective of the project was to raise the living standard of the communities in the Urumba Basin through their organisation and participation in the sustainable management of their renewable natural resources. To do this, the project facilitated reforestation activities on degraded and other agricultural land, the management and sustainable use of areas of cloud forest, and other community-based activities. It had three work components: a *forest training and extension* component to develop a dissemination and awareness program and a series of courses on forest techniques and community organisation, produce seedlings and establish plantations in areas adjacent to logging coupes; a *forest management* component, to manage and evaluate the plantations established under the first phase of the project, conduct forest inventories, establish and evaluate a growth plot, manage natural regeneration, and reforest logging coupes; and a *forest harvesting and timber processing* component, to harvest, process and market the timber products and to conduct timber-seasoning trials.

Project activities promoted the creation and involvement of different local organisations that remain in place after project completion.

Project activities promoted the creation and involvement of several local organisations that remain in place after project completion.

Community company

A 'community company' is a self-managed business organisation owned and operated by members of a community that have grouped together to produce goods and/or services. Under the project, the community company la Bermeja LTD was formally established in 1997 with 50 members (or shareholders). Its aim is to improve the income of its shareholders by managing and commercialising the local natural resources, using the human resources of the community and funds obtained from within the community and from other institutions or projects.

The company now has 82 shareholders and has been harvesting annual logging coupes of 36 hectares using low-impact extraction techniques, which include on-site milling and mule-based transport. It also operates a training and production centre in La Bermeja, 5 km from the forest, and a furniture assembly and sales centre in the city of Jaen,

108 km away. Both centres are equipped with appropriate technology and machinery and qualified personnel. They also have a growing list of clients, having gained recognition in the local markets for the quality of their products, which are manufactured with seasoned timber from managed forests, and the timely delivery of products. The company distributes its albeit modest annual profits to shareholders.

Agroforestry committees

During the first year of its second phase, the project organised and provided technical assistance to three agroforestry committees in the townships of La Bermeja, Torohuaca and Monte de los Olivos. During the second year, two neighbouring townships—El Valor and Santa Rosa—requested support.

The agroforestry committees were given advice on planning their reforestation activities and on the refurbishment and establishment of community nurseries, the preparation of substrata, bag-filling and alignment, seedbedding, the pricking out, irrigation and removal of seedlings, and the field-planting of seedlings. The committees met once a week to develop and carry out nursery activities.

During the 2000–01 and 2001–02 reforestation campaigns, the 111 members of the agroforestry committees planted 56 450 tree seedlings over 79 hectares using three different modalities: block planting, perimeter or border planting, and agroforestry plantations, the last two being the preferred options of farmers both to demarcate and enclose their lands and to provide shade and nutrients for their coffee crops.

Of the planted seedlings, 85% were of the indigenous species *Schizolobium amazonicum*, known locally as 'pino chuncho'; the remaining 15% were *Eucalyptus saligna* and *E. globulus*. *S. amazonicum* is a fast-growing leguminous species with self-pruning and coppicing ability and is commonly found in secondary forests. Under the conditions prevailing in La Bermeja, this species grew more than 7 m in less than three years; it can actually grow up to more than 30 m in height and 1 m in diameter (at breast height). On an experimental basis, timber has been produced from four-year-old trees and shows commercial potential. *S. amazonicum* has also shown the best survival rates (70% survival), above *E. saligna* (63%) and a disappointing *E. globulus* (38%).

Soil structure is a determining factor for seedling development; those seedlings planted on farms as border plantations or in association with coffee crops fared much better than those planted in blocks—the soils in the designated plantation sites were degraded and did not have sufficient organic matter to produce vigorous growth. S. *amazonicum* planted on the degraded land reached heights of a metre or less in the same time that they reached 7 m on more favourable sites, despite being fertilised with guano and planted along contour lines. New strategies are needed for rehabilitating these degraded lands; options that might be considered include the selection of different species better suited to a colonising role, and the use of nurse trees.

For the 2002–03 reforestation campaign, the agroforestry committees have produced and planted 17 000 *Inga* spp (huaba) seedlings, mainly for shade purposes, in about 35 hectares of farmland in association with coffee crops. This is the preferred species of the communities for use as firewood for cooking.

Mothers' clubs

Aware of the importance of working with women in rural communities, the Urumba project helped to strengthen women's organisations in La Bermeja, Torohuaca and Monte de los Olivos. The success of this led women in El Valor to follow suit and establish their own organisation this year.

The members of the Maria Elena Moyano Mothers' Club were trained in orchid-growing and reproduction techniques as an alternative to non-timber forest product harvesting in the natural cloud forests. As a result, an orchid nursery now holds about 350 orchids from approximately 80 species, some of which have not yet been scientifically identified. The women from La Bermeja have also received training in carpentry techniques. The 86-woman membership of the four mothers' clubs has established community orchards and is producing beetroot, radish, onion, coriander, gherkin, cauliflower and other vegetables that are helping to improve the community diet.

University students

The project provided field training for more than 200 forest engineering students as well as opportunities for the development of 13 university theses in different research areas. The project also established a 20-hectare growth plot in the Quebrada Torohuaca Forest Utilisation Unit for the study of cloud forest dynamics; responsibility for maintaining the plot was later transferred to the Cajamarca National University and the Urumba Basin is now an important field site for student field work.

Project sustainability

I believe that much of the enthusiasm, creative thinking and enterprise that the project stimulated in the region will continue to flourish. The communities will be supported by a rather unusual non-governmental organisation established in May 2001 by a number of technicians and professionals associated with the Urumba project (including the present author). The Peace and Environment Institute (Instituto Paz y Medio Ambiente—IPAMA) is a non-profit organisation dedicated to objectives similar to those strived for under the ITTO projects: raising the living standards of the rural communities living in the provinces of Jaen and San Ignacio through the rational and sustainable use of natural resources; promoting the conservation of the environment, the integrated and sustainable development of the communities and gender equity; and strengthening friendship and goodwill with their neighbouring communities in the Ecuadorian border regions.

IPAMA provided technical assistance to La Bermeja LTD for the submission of a project to provide training in the production and marketing of forest products in the Urumba project area. This project was approved by the Ministry of Agriculture and is now under implementation, co-financed by La Bermeja LTD and government agencies INRENA and INCAGRO. IPAMA is also providing technical assistance and support to the agroforestry committees and mothers' clubs.

Translated from the Spanish by Claudia Adan

Making secondary forests visible

Secondary forests have long been ignored by policy-makers, but that must change

by Eva Müller

ITTO Secretariat
Yokohama, Japan
rfm@itto.or.jp

Not second class: secondary forest in Putamayo, Colombia. *Photo: H. Bravo*

ALTHOUGH reliable figures are not available, secondary tropical forests are almost certainly becoming more common: estimates range from 340 million (FAO 1996) to 530 million hectares (Emrich et al. 2000) across the tropics.

Despite their increasing abundance, secondary forests have been largely overlooked by policy-makers and foresters in many tropical countries. This 'invisibility' stems partly from the lack of a clear definition of the term, which has been used to describe a variety of forest conditions. Moreover, secondary forests, especially in younger stages dominated by shrubs and pioneer tree species, are frequently regarded as undesirable and without economic value and are consequently removed to make room for more 'productive' land-uses. On the other hand, some 250–500 million farmers on one-fifth of the world's tropical forest area value tropical secondary forests for their role as fallow vegetation in shifting cultivation systems.

Apart from problems of definition and perception, there is a lack of information on the extent and current and potential value of secondary forest resources and on appropriate management options. The lack of recognition leads to low political priority and a scarcity of financial resources and constrains the development of research, training and dissemination programs.

This article attempts to shed some light on the 'invisible' secondary forests, what they are, how they develop and how they might be managed sustainably for the production of a wide range of goods and services.

What are secondary forests?

ITTO (2002) defines secondary forests as:

> *woody vegetation regrowing on land that was largely cleared of its original forest cover (ie carried less than 10% of the original forest cover). Secondary forests commonly develop naturally on land abandoned after shifting cultivation, settled agriculture, pasture, or failed tree plantations.*

Secondary forests may also be the result of natural forest regeneration after catastrophic natural disturbances such as wildfires, storms, landslides and floods.

In an attempt to develop a typology of secondary forests, Chokkalingam and de Jong (2001) differentiated between post-catastrophic secondary forests, post-extraction secondary forests (degraded primary forest), swidden fallow forests, forest gardens, post-abandonment secondary forests and rehabilitated forests. Such a typology focusing on the processes underlying the formation and subsequent evolution of secondary forests could be used to guide secondary forest development along desirable pathways and to optimise the good and services they provide.

Secondary forests are an integral part of tropical landscapes. This means that their formation and dynamics are not only influenced by site-level factors but also by an array of interrelated biological and social forces acting at a larger scale—what will be referred to here as the

landscape scale. Conversely, the extent and configuration of secondary forests across a landscape will play an important part in determining the functionality of that particular landscape, which is a measure of the quality and quantity of goods, services, ecological processes and future options the landscape provides. Secondary forests tend to be located in accessible areas, close to human settlements, and are thus served with relatively good infrastructure. They are an increasingly important component of the forest resource in the tropics and, if maintained and properly managed, may provide a wide range of goods and services at local, national and international levels *(see box)*.

How do secondary forests develop?

Tropical secondary forests develop through the process of natural succession, passing through different stages that may be distinguished by the dominance of a given group of plants. In a basic model of succession, herbs, shrubs and climbers dominate the first stage. These establish quickly after human or natural disturbance and become scarcer under the shade of the emerging pioneer tree species, which are able to develop a canopy very quickly and will dominate the second phase for 10–20 years. As they die off, other already-established light-demanding species at the site take advantage of improved growth conditions and gradually become dominant. This is the third stage of succession, which may last for 75–100 years. The gradual occupation of the site by more shade-tolerant species is very likely to be continuous during this and subsequent stages. Differences in survival and growth rates among species at different stages play an important role in succession, determining the set of species that will be present in a given stage. Decreasing light availability at the forest floor during the course of succession is a major reason for these differences.

A range of factors determines the pace at which succession proceeds. Such factors include the intensity and duration of the original disturbance, the distance to primary forest, the availability of seed dispersers, and other site conditions such as local topography, climate, soil characteristics and light availability.

The existence of different regeneration mechanisms plays a crucial role in the speed and course of secondary succession. Resprouts from tree stumps and rootstocks form an important component of the regenerating vegetation, in both dry and moist forests. Regeneration from seed is, however, the main regeneration mechanism for widely dispersed pioneer species, especially after repeated crop-fallow cycles over long periods. In such circumstances, the future tree flora will be formed mainly by that subset of species capable of resprouting repeatedly from vegetative parts. In highly fragmented landscapes in particular, resprouting is often crucial for the regeneration of remaining primary forest species.

The productivity of secondary forests may vary in relation to factors such as site condition, time since settlement and, more specifically, the number of crop-fallow cycles at a particular site. The type and intensity of land-use during the cropping stage and the prevalence of disturbances such as accidental burning during the fallow period will all influence productivity. As succession progresses, total stem density tends to decrease and the stand increases in height, basal area and volume. The first 15 years or so of succession are characterised by rapid biomass accumulation—in exceptional cases by up to 100 tonnes per hectare per year. The relative amount of woody biomass increases rapidly during the first 15–20 years, followed by a steady but slower rate until maturity.

One of the most typical characteristics of secondary forests is the high floristic heterogeneity between stands only short distances apart, at the level of both the canopy and the understorey. This is due mainly to phenological variations in colonising species at the moment of land abandonment, the type of regeneration, and the presence of different species of remnant trees, which can influence species composition. At the regional scale, however, abiotic effects such as differences in rainfall and elevation mostly determine the rate of succession.

Management of secondary forests

Depending on the management objectives, several options for the management of secondary forests may be considered. These include:

- leave to regrow (eg as a land reserve);
- manage as fallow vegetation in the crop-fallow cycle;
- manage as part of an agroforestry system for producing mixed/multi-purpose trees;
- manage as a high-forest production system for wood or multiple-use; and
- convert to tree plantation or to a non-forest land-use.

The age and composition of the forest need to be taken into account in planning, as do the history of the site and local conditions. Given that secondary forests may be located on the land of smallholders, the role of this resource in farm production systems and the factors that underlie decision-making by farmers must be understood in order to identify the management options.

Goods and services from secondary forests

- Secondary forests are used as **fallow** within shifting cultivation systems and are often an integral component of small farmers' agricultural systems for the regeneration of soil fertility and the containment of pests and diseases.
- **Fuelwood and charcoal**, which are the primary energy sources for many rural people in tropical regions, are important secondary forest products.
- **Non-wood forest products** such as bamboo, rattan, edible fruits, medicinal plants, game, etc, are harvested in secondary forests because these forests are generally accessible.
- Secondary forests are a source of **wood** for local needs (house-building, posts) and for sale (sawn wood, veneer wood, industrial wood).
- If properly managed, secondary forests are important providers of **environmental services**. For example, they: protect soils from erosion; regulate the water regime and reduce water loss through run-off on hillsides; fix and store significant amounts of carbon, thus contributing to the mitigation of global warming; serve as refuges for biodiversity and biological corridors in fragmented/agricultural landscapes; contribute to reducing fire risk; and help conserve genetic resources.
- The use of secondary forests may **reduce pressure on primary forests**, thus reducing deforestation rates. However, this only applies if the products from the secondary forests are suitable for the same uses as those derived from primary forests, if the financial rewards are comparable, and if economic conditions do not encourage the simultaneous use of both types of forest.

The management strategy will vary depending on the objectives of management, the availability of land, labour and capital, biophysical characteristics, markets, opportunity costs, and so on. Fallow vegetation managed as part of shifting cultivation systems will require techniques permitting short fallow periods that don't compromise agricultural productivity. For instance, the incorporation of 'regenerative' species such as leguminous woody species will contribute to a more rapid recovery of soil nutrients during the fallow period.

When managed as part of the farming system to generate forest products for subsistence or sale, silvicultural practices that favour the establishment and optimise the growth of locally desired tree species should be promoted through the seeding or planting of target species during the crop phase of the agricultural cycle. Some characteristics of species that assist management under these conditions include: resprouting capacity after cutting and fire; compatibility with the agricultural cycle; short production cycles; and tolerance of shade in plants other than trees.

The multiple-use of many species growing in secondary forests is perhaps the most important feature to take into account for management purposes.

In a management regime aimed at the sustainable production of wood and/or non-wood forest products, landowners and/or forest users will probably have to take land out of the crop-fallow cycle. In any case, the change in land-use must generate a greater benefit than that provided by alternative uses of the land. The multiple-use of many species growing in secondary forests is perhaps the most important feature to take into account for management purposes.

The silvicultural treatments used to stimulate the production of commercial timber species in tropical primary forests, such as liberation thinning and refining, may also be applicable in secondary forests. Experience has shown that young secondary forests are more receptive to silvicultural manipulations than are primary forests because of their manageable tree size and rapid growth response. This also applies to enrichment plantings because enrichment requires canopy manipulation in order to optimise the growth and survival of the planted trees. Enrichment plantings have generally yielded promising results when applied in young secondary forests. However, they tend to be costly and labour-intensive.

When high timber productivity is a major objective, a monocyclic system that relies on creating a future, even-aged stand by opening the middle and upper canopies shortly before tree harvesting is perhaps the most appropriate. This strategy is required for pioneer/light-demanding species that need almost complete canopy removal to stimulate seed germination and sustain seedling growth and survival. In any case, the ability to compete financially with timber plantations has to be taken into account when this silvicultural management option is considered.

What needs to be done

The recently published *ITTO Guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests* (see page 3) aim to assist planners, policy-makers and practitioners in identifying the key policy, socioeconomic, legal, institutional, ecological and silvicultural issues that need to be taken into account in the planning and implementation of appropriate strategies and viable options for the restoration, management and rehabilitation of degraded and secondary forests. They also aim to stimulate the adoption of appropriate and adaptive management practices for conserving and enhancing the production capacity of these forests.

By creating a policy focus on secondary forests at the local, national and international levels, ITTO intends to increase their visibility, promote their sustainable and equitable management and use, prevent degradation and inappropriate conversion, and guide their development according to clearly defined management strategies.

ITTO encourages member countries to submit projects related to secondary forest management. Currently, several ITTO projects in different countries promote the sustainable management of secondary tropical forests for a variety of products and services. In Ecuador, for example, a pilot plan to facilitate the management and valuation of 10 000 hectares of secondary forests and to reverse the process of forest degradation through sustainable resource management and community training is being established and implemented. It aims to provide the Ministry for the Environment with technological packages to ensure the sustainable management of secondary forests at the regional and national levels.

The project portfolio regarding secondary forests is likely to increase in the future through a series of regional workshops being organised by ITTO with the assistance of IUCN to disseminate the guidelines and promote their use in member countries. However, much more needs to be done if secondary forests are to become truly 'visible' to planners and decision-makers and to be recognised as a valuable forest resource with considerable economic potential. Forestry legislation must distinguish between the legal requirements of primary forests and those of secondary forests. Adequate legal frameworks need to be developed that take into account the different management strategies for these forests according to the needs and objectives of landowners and local communities. Incentives must be provided to encourage the development and sustainable management of these types of forests. More applied research is required to develop management strategies that are adapted to the needs of landowners/communities while ensuring the functionality of these ecosystems. And, last but not least, successful examples of secondary forest management in the tropics need to be widely disseminated and publicised.

References

Chokkalingam, U. & De Jong, W. 2001. Secondary forests: a working definition and typology. *International Forestry Review* 3: 19–26.

Emrich, A., Pokorny, B. & Sepp, C. 2000. *The Significance of Secondary Forest Management for Development Policy*. TÖB Series No. FTWF-18E. GTZ, Eschborn, Germany.

FAO 1996. *Forest Resources Assessment 1990. Survey of Tropical Forest Cover and Study of Change Processes*. FAO Forestry Paper 130. FAO, Rome, Italy.

ITTO 2002. *Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Tropical Forests*. ITTO Policy Development Series No 13. ITTO, Yokohama, Japan.

Grow the markets before growing the wood

The global supply of timber is outstripping demand; predictions of a timber glut seem to be materialising

by Mike Adams

ITTO Secretariat
Yokohama, Japan
itto-mis@itto.or.jp

IN his paper on the global outlook for wood product supply and demand, the UN/ECE Timber Committee's Ed Pepke stunned many at a recent conference with figures showing a growing surplus of wood in some regions and a general oversupply compared to demand.

The *table* shows the difference between what is growing (that is, the wood volume increment) and what is harvested: removals are considerably below increases in harvestable stocks in some major timber-producing regions and there are wide variations in the utilisation of available wood. The Baltic countries use just half their increment, while Russia harvests an astonishingly low 16% of its apparent sustainable yield. The *figure* shows the huge surplus in wood volume increment in the Commonwealth of Independent States.

Tropical timber production is not increasing, either. The *ITTO Annual review and assessment of the world timber situation* estimates it at around 125 million m³ in 2002. Production has been in the range 122–126 million m³ for the last five years and a gradual decline in the timber harvest in natural tropical forest can be expected.

This all points to a shift in the consumption of commodity wood products in the medium term (as predicted by Alf Leslie in the *TFU* three years ago in the face of a 'tidal wave' of plantation timber). North American lumber production exceeds consumption and the excess is forecast to grow by 2010. In Europe the picture is much the same, with lumber production being higher than its consumption.

Some tropical timber producers might dismiss fears of competition because the bulk of the oversupply will be in softwoods: tropical hardwood producers are accustomed to competition from softwoods and the markets and end-uses are different enough to minimise any serious market challenge. However, net annual incremental growth of US and some European hardwoods is also exceeding the annual cut, introducing the likelihood of increased direct competition with tropical hardwoods for some higher-value markets.

The outlook for the US and European wood panel trade is also for an excess of production over consumption. This leaves only the Asian markets where, for the foreseeable future, production will continue to be lower than demand. It is there that the battles for market share are being fought and the competition is going to really heat up in the next few years.

Nevertheless, the prospects for growth in demand in Asia are very mixed. In Japan, for example, the consumption of wood and especially of tropical wood products has been declining for several years, and demand in the tropical-timber consumer countries of India, Korea and Thailand is also weak. It is only in China that demand for commodity wood products is growing; for example, during the first six months of 2002 it imported 12.2 million m³ of logs from all sources valued at US$1.06 billion, up 53% in volume and 20% in value over the same period last year, while sawnwood imports increased 39% in volume and 22% in value. In contrast, plywood imports were down 28% in volume and 37% in value compared to the first half of last year as the country's plywood manufacturing sector boomed (see *TFU* 12/3).

In the light of all this, the timber sector is facing some difficult times. As pointed out by Ed Pepke, if the markets for wood are to grow we need to:

- guarantee that today's wood products meet consumer needs;
- develop new products to meet evolving needs; and
- develop new markets for wood products as alternatives to products from non-renewable materials.

Every producer, tropical or not, will look to the Chinese market for growth and there is no doubt that the opportunities are good. But a word of caution: China already has a huge plantation stock. It is working hard to improve the productivity of these plantations and at the same time is investing heavily in new plantations. The challenge for both hardwood and softwood producers looking to the Chinese market will really begin when China invests in new capacity for producing manufactured boards such as oriented strand board, laminated veneer lumber and high-end fibreboards to absorb the plantation timbers and provide a substitute for imports.

Growth versus yield

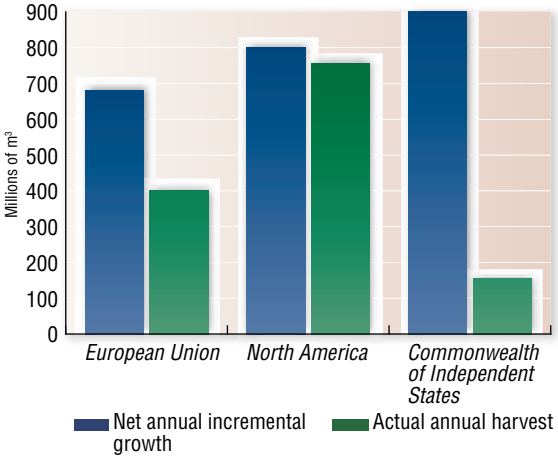
Timber harvest as a percentage of wood increment

Region or country	%
Europe – 41 countries	59
EU – 15 countries	64
Nordic countries	72
Baltic countries	50
Central and Eastern Europe	56
Russia	16
North America	79

Source: Pepke, UN/ECE Timber Committee, pers. comm.

Take it or leave it

Annual increment versus annual timber harvest



ITTO funds secondary forest management, certification

The most recent session of the International Tropical Timber Council financed further activities at the policy and field levels

Dialogue: Indonesian and Malaysian delegates discuss an issue during a break in the 33rd Council session.
Photo: © Francis Dejon, IISD/ENB

THE International Tropical Timber Council has committed another US$6.6 million in grants for initiatives promoting sustainable forest management, greater transparency in the tropical timber trade and the development of sustainable tropical forest-based industries.

The commitment was made at the Council's 33rd session, convened in Yokohama, Japan on 4–9 November 2002. It includes funds for the immediate financing of 24 new projects and scoping studies in all of the Organization's main areas of work, and seven decisions. The Council traditionally awards grants every six months to assist member countries in implementing Council policies.

One project financed at this session will develop a strategy for the sustainable management of secondary forests in central Peru, enabling an immediate application of the ITTO *Guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests* (see page 3). Another project will create a logging school to facilitate and promote the adoption of reduced impact logging in Indonesia and the Asia-Pacific region, another will assist the certification of sustainable forest management in Indonesia, and another will establish a national system for the collection, entry, processing and dissemination of forestry and timber statistical data in Togo. Summaries of all projects and pre-projects financed at the session will be published in the next edition of the TFU.

The Council also provided grants that will make available to tropical countries the services of forest fire experts who will work with local fire management staff to devise appropriate strategies for preventing and managing fire. These will include measures such as public awareness campaigns in rural areas, the use of appropriate technologies in fire management, and the improvement of land management practices that minimise the risk of wildfire. The fire experts will also help develop fire management proposals for funding by the international community, including through ITTO. The Council decided to finance joint action by civil society organisations and private-sector tropical timber producers to strengthen forest management and achieve environmental certification (see below).

During the Session, the Council took its first steps towards the renegotiation of a successor agreement to the International Tropical Timber Agreement (ITTA), 1994, under which the Organization currently operates and which will expire at the end of 2006. The Council adopted a schedule for the Preparatory Committee meetings and renegotiations and decided to convene a working group on the matter in the first months of 2003. This working group will identify issues to be addressed in negotiating a successor agreement and analyse the potential changes to the ITTA, 1994.

Partnerships between timber producers and civil society

The International Tropical Timber Council will finance joint action by civil society organisations and private-sector tropical timber producers to strengthen forest management and achieve environmental certification, after a decision at the Council's 33rd session.

Tropical timber producers have long been criticised, mainly by western environmentalists, for their forest management practices. In the last decade, considerable progress has been made towards raising forest management standards, but some environmentalists continue to call for boycotts on tropical timber products if they are not certified as derived from well-managed forests. Yet tropical timber producers face enormous difficulties in meeting the standards set by certification schemes, including the highly complex nature of tropical forests and a lack of forest management

capacity. Moreover, a loss of access to western markets reduces the incentive for sustainable forest management and contributes to the loss of tropical forests.

The new decision by the Council aims to add impetus to the quest for sustainable forest management and certification in the tropics. It will provide seed money to facilitate partnerships between timber producers and civil society organisations that will both guide forest practice and increase market access for the timber produced under such partnerships. In particular it will emphasise partnerships involving small-scale enterprises and community-based forest managers, local and national civil society organisations, and forest owners.

"The decision is a first step towards an innovative approach that will assist our quest to grow the trade in tropical timber from sustainably managed sources," said Council Chair Dr Jürgen Blaser. "We wait to see how this idea works, but I hope that both the industry and relevant civil society organisations embrace it. In so doing, they will be clearly showing the international marketplace that tropical timber producers are doing their best to bring about sustainable forest management."

Timber trade group wants importing countries to help stop illegal trade

The ITTO Trade Advisory Group (TAG), which was set up to provide input to the policy debate in the Council, has condemned illegal logging and illegal trade and called on importing countries to cooperate in stopping illegal trade.

In his closing statement at the Council's 33rd session, TAG spokesperson Barney Chan of the Sarawak Timber Association praised the Council's efforts to combat illegal logging and the illegal trade and said the legitimate trade was willing to cooperate in every way possible. Illegal activities undermine both progress towards sustainable forest management and the markets for timber produced from well-managed forests, he said.

Mr Chan called on all ITTO members to play their part in combating illegal activities, citing cooperation between Malaysia and Indonesia on the issue of the illegal trade in tropical hardwood logs. Malaysia has banned the import of logs from Indonesia to help enforce Indonesia's log export ban announced last year. Mr Chan called on other countries to consider similar moves to help Indonesia crack down on illegal activities.

ITTO has recently launched several initiatives to address illegal logging and illegal trade. For example, 13 ITTO member countries—Bolivia, Brazil, Cameroon, China, Republic of Congo, Indonesia, Japan, Malaysia, Papua New Guinea, Peru, Thailand, UK and the USA—are participating in an ITTO study to assess export and import data on tropical timber and tropical timber products. This study will help determine the extent of undocumented and possibly illegal trade, one of the first steps in reducing such trade.

In an address to the Council, ITTO Executive Director Dr Manoel Sobral Filho reported that the Government of Peru had invited ITTO to assist it in improving forest law enforcement. ITTO will finance a study on ways to address illegal logging and illegal trade in that country as an input to the Inter-ministerial Commission to combat illegal logging established last October by President Alejandro Toledo. ITTO and the Government of Indonesia are discussing a proposal for a similar study in Indonesia. Meanwhile, an ITTO project to find ways of reducing illegal logging is underway in the Indonesian provinces of Riau and West Kalimantan.

Phased approaches

The role of phased approaches to forest and timber certification featured in debates during the 33rd session of the Council. Dr Markku Simula, who has written widely on certification in the tropics, presented an interim report on phased approaches which suggested that such approaches could serve to start the certification process where the conditions do not yet exist at the national level, provide a 'road map' towards full certification, allow for the periodic assessment of progress towards full certification, and provide intermediate incentives for forest managers to improve management. He proposed the following steps: 1) commitment to achieve verified legality and sustainable forest management; 2) compliance with the legal requirements of the country and international rules; 3) progressive compliance with certification requirements (sub-steps); and 4) certification of sustainable forest management and origin.

Phased approaches were also called for by several speakers at a panel discussion organised by the ITTO Civil Society Advisory Group, which was formed last May to provide inputs to ITTO's policy work. The panel, the theme of which was 'succeeding in the certified forest products marketplace', comprised speakers from the World Wide Fund for Nature International, the Tropical Forest Trust, the Brazilian Buyers' Group of Certified Timber, and directors of timber companies in Bolivia and Malaysia.

Visit http://www.iisd.ca/linkages/forestry/itto/ittc33 for daily reports and an overall summary of the session prepared by the Earth Negotiations Bulletin.

Fellowships awarded

Twenty-eight fellowships worth a total of US$150 000 were awarded at the 33rd Session of the International Tropical Timber Council. Awardees were:

Mr Edson Corrales Melgar (Bolivia); **Mr Ezechiel Gwet Essoum** (Cameroon); **Mr Hubert Ngoumou Mbarga** (Cameroon); **Mr Walters Cheso** (Cameroon); **Mr Qinglin Huang** (China); **Mr César Augusto Velásquez Rúa** (Colombia); **Ms Yadid Oliva Ordóñez Sierra** (Colombia); **Mr Yeboa Alexis Koffi** (Côte d'Ivoire); **Mr Bouattenin Kouadio** (Côte d'Ivoire); **Mr Vicente Juan Guadalupe** (Ecuador); **Mr Stephen Edem Akpalu** (Ghana); **Dr Samuel Adzedu Amartey** (Ghana); **Dr Karan Deo Singh** (India); **Mr K.C. Chacko** (India); **Dr Uma Melkania** (India); **Ms Diana Prameswari** (Indonesia); **Ms Yelnititis** (Indonesia); **Mr Doan Naingglolan** (Indonesia); **Ms Chai Ting Lee** (Malaysia); **Ms Kamziah Abd Kudus** (Malaysia); **Professor Saw Kelvin Keh** (Myanmar); **Mr Kedar Nath Paudel** (Nepal); **Mr Buddi Sagar Poudel** (Nepal); **Mr Shyam Mohan Mishra** (Nepal); **Mr Walter Figueroa Pizarro** (Peru); **Mr Edinson Eduardo Lopez Galan** (Peru); **Dr Elmer Velasco Sayre** (Philippines); **Mr Marra Guy Dourma** (Togo).

Fellowship report

Some simple management guidelines could help the sustainable management of bigleaf mahogany in the neotropics

by James Grogan

Post Doctoral Associate

Yale University School of Forestry & Environmental Studies

New Haven CT, USA

jgrogan@crocker.com

Research Scientist

Instituto do Homem e Meio Ambiente da Amazônia (IMAZON)

Belém, Pará, Brazil

jgrogan@imazon.org.br

BIGLEAF mahogany (*Swietenia macrophylla* King), known as *caoba* in Spanish-speaking Central and South America and as *mogno* in Brazil, is the most valuable timber species in the neotropics. In recent years an international debate has arisen about the sustainability or otherwise of highly selective, largely unplanned mahogany extraction across the species' vast natural range, which stretches from Mexico to Bolivia (Gullison et al. 1996, Snook 1996, Lugo 1999; see also page 25). This is because the pace and efficiency of mahogany's exploitation have increased rapidly over recent decades as the extension of overland road networks into Amazonia has brought previously inaccessible natural populations within reach of a highly mechanised modern logging industry. As well, mahogany's exploitation is often linked to increased deforestation rates, as ranchers and smallholder agriculturalists follow logging roads into previously inaccessible frontier regions (Veríssimo et al. 1995).

Marvellous mahogany: the author perches against the bole of a giant mahogany in southeast Pará, Brazil.

An alternative to current logging practices is sustained-yield production of mahogany from natural forests. However, this requires a detailed understanding of the species' survival, growth and reproductive strategies under natural conditions. With this it should be possible to use harvesting techniques and silvicultural treatments to create conditions favourable to the growth of surviving sub-merchantable trees and the recruitment of future harvestable generations of trees. This knowledge should ideally be region- and even site-specific, considering the wide variety of climatic, topographic and edaphic conditions across which mahogany occurs.

I travelled to southeast Pará, Brazil, the heart of the Brazilian mahogany resource, in search of life-history information that could provide a biological basis for sustained-yield management systems for mahogany. Here I review some of the findings presented in my doctoral dissertation (Grogan 2001) and recently synthesised in an IMAZON publication (Grogan et al. 2002) that was partly funded by ITTO.

Research objectives and methods

An ITTO Fellowship helped support fieldwork in 1999 in a region where I have been studying natural populations of mahogany since 1995. My research objectives were to: 1) describe mahogany's landscape-scale distribution, density, growth and mortality patterns in selectively logged and unlogged forests; 2) identify the principal abiotic and biotic factors governing germination, survival and growth of seeds and seedlings; 3) describe patterns in reproductive phenology and seed production; and 4) synthesise research results into recommendations for forest management systems that would ensure future supplies of mahogany from natural and logged forests in the study region and, more generally, in the Brazilian Amazon.

Research was conducted at four sites. Three of these were timber industry-owned areas which had been selectively logged at varying intensities during the early 1990s. One site was unlogged primary forest. At each site, mahogany trees larger than 10 cm diameter at breast height (dbh) were located and mapped to describe original population structures. Surviving trees (nearly 600 in about 2750 hectares) have been re-censused annually since 1996 for survivorship, diameter increment, fruit production and reproductive phenology. Experimental studies examined seed germination behaviour and seedling survival and growth under various light (gap size) and soil fertility (topographic position) regimes. Because mahogany's distribution pattern demonstrates a strong positive correlation with seasonal streambeds in this landscape, these studies were supplemented by descriptive

work documenting changing forest composition and structure across topographic and edaphic gradients.

Results

Density and population structure: from a randomly stratified survey I estimated that the 1035 hectares of forest at Marajoarca, our principal research site, contained nearly 700 mahogany trees larger than 20 cm dbh (about 0.6 trees per hectare) before logging. Density increased to nearly three trees per hectare on low ground adjacent to seasonal streams. The size class frequency distribution of these trees showed roughly equal representation of stems in each 10-cm size class between 20 cm and 80 cm dbh, with stem frequencies declining above this diameter.

Fruit production: in southeast Pará, fecundity rose with stem diameter but fruit production rates were highly idiosyncratic. Not all large trees produced large fruit crops, some small trees were among the most fecund, and year-to-year production rates varied widely by individual tree and by local population. Because rates of seed availability for dispersal are unpredictable for a given tree in any given year, regeneration failure after logging—widely reported for mahogany in the literature—may be due to inadequate seed supply as well as to tree-felling before seed dispersal and a failure to open adequate growing space for newly germinated seedlings and advance regeneration.

Seeds, seedlings and saplings: seed germination rates were higher in the shaded understorey where moisture conditions were more favourable than in gaps, but vigorous seedling and sapling growth required higher light levels than those available under closed forest canopies. Saplings taller than 50 cm and pole-sized stems up to 10 cm dbh were rare in unlogged forest, occurring only in small or large gaps within dispersal distance of adult trees. Early growth rates were also influenced by soil nutrient status, with mean height increments in low-ground hydromorphic soils exceeding those in dystrophic soils on higher ground where adult trees were rare.

Growth by juvenile and adult trees: diameter increment data from four study sites for trees larger than 10 cm dbh indicated mean population-level growth rates of 0.49–0.79 cm/year. Optimal growth rates represented by mean values for the fastest-growing quartile by size class exceeded 1 cm per year for nearly all size classes smaller than 70 cm dbh. This suggests that under some management scenarios juvenile trees may require 50–60 years to attain a merchantable size of 55–60 cm dbh.

Management recommendations

Some of the management recommendations derived from this research are described below.

The minimum diameter cutting limit should be determined with two issues in mind: the retention of sufficient sub-merchantable trees to provide a second harvest on a rotation cycle of approximately 30 years; and the retention of sufficient reproductive capacity for the establishment of future rotation cycles and for the maintenance of population-level genetic structures. In southeast Pará, where forest structure is highly irregular and stature is low, a minimum-diameter cutting limit of 55–60 cm dbh could satisfy these requirements. In the taller forests of western Amazonia such as in Acre, where mahogany occurs at lower densities, appropriate minimum-diameter cutting limits may be 70–80 cm dbh.

Seed trees should be retained as sources for seed collection and re-distribution across management areas. Some proportion of large, highly fecund adult trees should be retained for this purpose. Large, hollow (and therefore unmerchantable) trees may be otherwise healthy and capable of producing high-quality seeds. Where landscape-scale population densities are extremely low, seed trees should be retained in groups to preserve reproductive capacity. That is, if distances between surviving trees increase dramatically due to logging, insect pollinators may not be able to transport pollen between flowering trees, depressing seed production rates.

Enrichment planting and tending: seeds or seedlings should be planted directly into logging gaps at the beginning of the rainy season following the dry-season harvest. Site preparation may include the enlargement of smaller gaps, the clearing of residual vegetation, and, depending on local conditions, burning to reduce above- and below-ground competition. Planting densities should be low to reduce the incidence of mahogany shootborer (*Hypsipyla grandella*, Lepidoptera) infestation. Periodic tending (clearing around growing saplings and poles, occasional gap enlargement) will be required during the first ten years following establishment; the precise schedule should be determined experimentally.

The future of mahogany in Brazil

Regions of the Brazilian Amazon with the highest natural population densities of mahogany (south Pará, Rondônia) have already been heavily exploited by the logging industry. Because many of these forests have been degraded by logger re-entry and/or fire, or converted to other uses such as pasture and agriculture, the management of intact populations may occur principally in western Amazonia. The Instituto do Homem e Meio Ambiente da Amazônia (IMAZON) is currently testing management recommendations derived from this research within an industry-owned management area near Sena Madureira in Acre. Results from this project should be available in the near future.

References

Grogan, J. 2001. *Bigleaf Mahogany (*Swietenia macrophylla *King) in Southeast Pará, Brazil: A Life History Study with Management Guidelines for Sustained Production from Natural Forests*. Yale University, New Haven, CT, USA. PH.D. dissertation thesis.

Grogan, J., Barreto, P. & Veríssimo, A. 2002. *Mahogany in the Brazilian Amazon: Ecology and Perspectives on Management*. IMAZON, Belém, Pará, Brazil. Available in pdf format in English or Portuguese at www.imazon.org.br

Gullison, R., Panfil, S., Strouse, J. & Hubbell, S. 1996. Ecology and management of mahogany (*Swietenia macrophylla* King) in the Chimanes Forest, Beni, Bolivia. *Botanical Journal of the Linnean Society* 122: 9–34.

Lugo, A. 1999. *Point-counterpoints on the Conservation of Big-leaf Mahogany*. General Technical Report WO-64. USDA Forest Service International Institute of Tropical Forestry, San Juan, Puerto Rico.

Snook, L. 1996. Catastrophic disturbance, logging and the ecology of mahogany (*Swietenia macrophylla* King): grounds for listing a major tropical timber species in CITES. *Botanical Journal of the Linnean Society* 122: 35–46.

Veríssimo, A., Barreto, P., Tarifa, R. & Uhl, C. 1995. Extraction of a high-value natural resource in Amazonia: the case of mahogany. *Forest Ecology and Management* 72: 39–60.

ATO/ITTO C&I adopted

20th Ministerial Conference of the African Timber Organization

21–26 October 2002
Kinshasa, Democratic Republic of Congo

In a declaration signed by eleven ministers and heads of delegations present at its 20th Ministerial conference, the African Timber Organization (ATO) formally approved the *ATO/ITTO Principles, Criteria and Indicators (PCI) for the Sustainable Management of African Natural Tropical Forests*. In the 'Kinshasa Declaration on PCI', the ministers commit to:

1) adopting the harmonised ATO/ITTO PCI and speeding up the implementation of management, taking into account the PCI in developing rules and legislative frameworks; and
2) respecting the effective implementation of this commitment in view of promoting the sustainable and rational management of forest ecosystems.

The achievement in Kinshasa is a landmark in cooperation between ATO and ITTO and the end-result of a process initiated by Decision 4(XXIX) taken at the 29th Session of the International Tropical Timber Council, which called for collaboration between ATO and ITTO in order to refine the ATO PCI and make them consistent with the ITTO criteria and indicators (C&I). This work was helped by two international consultants, who examined both sets of C&I, combining the strengths of each in a draft of harmonised PCI for African tropical forests. During a 2001 regional ATO/ITTO workshop in Yaoundé, Cameroon, held just prior to the Thirtieth Session of the ITTC, which was also in Yaoundé, the draft was finalised as the ATO/ITTO PCI.

The ATO/ITTO PCI include one principle, five criteria, 33 indicators and 44 sub-indicators at the national level, and three principles, 15 criteria, 56 indicators and 140 sub-indicators at the forest management unit (FMU) level. An innovative feature of the ATO/ITTO PCI is the inclusion of sub-indicators, which provide a basis for the development of specific verifiers and standards of performance relevant to the assessment of sustainable forest management at the FMU level in African tropical forests.

Also at the conference, Mr Emile Mokoko Wongolo from the Republic of Congo was elected as ATO's new Secretary General, the former Secretary General, Dr Raul Natse Obala having died last March (see page 29 this edition). The conference also nominated Mr Koffi Yao Ngelessan from Côte d'Ivoire as Technical Director in charge of forest policies and legislation.

The 21st session of the ATO Ministerial Conference will be held in Côte d'Ivoire in 2004.

Wood is good. Get it?

Best Practices Forum on Wood Products and Forest Communications

6–7 October 2002
Vancouver, Canada

More than 210 people from ten countries and 139 organisations—including ITTO—gathered for what was the first conference of its kind ever staged by the wood products' industry. It was enlivened by an array of international speakers from industry, government and the media, who shared their insights into the attitudes prevalent among the public and non-industry stakeholders about the benefits of forest products and related environmental issues.

In opening the event, Pierre Monahan, president of Bowater Canadian Forest Products, commented on the importance of the forum. "The problem is that our ultimate competitors—those that want to shut us down or displace wood with non-wood substitutes—are organised and gaining steam," he said. "The only way to respond is to join forces, even while we continue competing with each other. If not, we will all continue to get picked off, one at a time."

Peter Mansbridge, chief correspondent for CBC Television News, said it was essential for the industry to establish its credibility among journalists and the media as a source of facts, information, research and resources on environmental stories. He noted that "too few media think of business first when it comes to stories on environmental issues when, actually, as stewards of the forest resource, industry is well positioned to offer facts and information".

Other presentations set the stage, from current world market and economic conditions to the communications challenges that the industry faces. The second day featured successful programs in marketing wood products to customers and builders and industry educational programs and interactive communications.

The full proceedings of the conference can be found at www.wpnupdate.com/Oct17

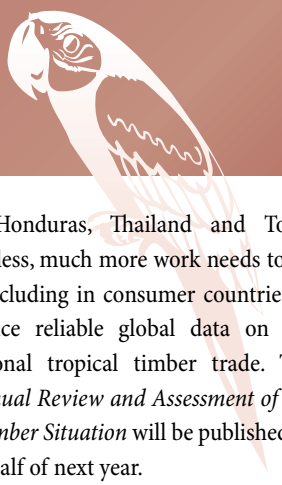
Asian partnership kicks off

1st Meeting for the Promotion of the Asia Forest Partnership

11 November 2002
Tokyo, Japan

The Asia Forest Partnership was first announced at the World Summit on Sustainable Development, held last August/September in Johannesburg. It aims to promote sustainable forest management in Asia by addressing issues such as good governance and forest law enforcement, developing capacity for effective forest management, controlling illegal logging and forest fire, and rehabilitating and reforesting degraded lands. This meeting was attended by about 100 people, many of them in Japan to also attend the 33rd Session of the International Tropical Timber Council. According to Shinako Tsuchiya, Japan's Parliamentary Secretary for Foreign Affairs, the purpose of the one-day meeting was to discuss concrete measures and contributions being made to the partnership by each partner. Speakers included Wahjudi Wardojo, Secretary General of Indonesia's Ministry of Forestry, Fatimah Raya Nasron, Under Secretary of the Malaysian Ministry of Primary Industries, and Zhang Zhongtian from China's Department of International Cooperation.

Tropical and topical



Edited by Alastair Sarre

Logging in Liberia

The Save My Future Foundation has published a report on Liberia's logging industry, *Plunder: the silent destruction of Liberia's rainforest*, with "a single objective in mind—to stimulate an informed public debate about the future of Liberia's rainforest, the conduct of logging companies and the appropriation of revenue from the industry". Copies can be obtained from: SAMFU Foundation, PO Box 6829, 1000 Monrovia 10, Liberia; fmonitor@gn.apc.org

New head for UNFF

The Secretariat to the United Nations Forum on Forests has a new Coordinator and Head. Mr Pekka Patosaari, a native of Finland, replaces Mr Jag Maini, who retired earlier this year.

Criteria and indicators in India

The Indian Institute of Forest Management is publishing a quarterly newsletter called *C&I India Update*. Its purpose is to spread knowledge on sustainable forest management in general and criteria and indicators (C&I) for sustainable forest management in particular. Funded by ITTO through ITTO PROJECT PD 8/99 (F), it can be subscribed to by contacting: IIFM-ITTO Project, Indian Institute of Forest Management, Nehru Nagar, Bhopal Pin 462003, India; Fax 91–755–772 878; itto@iifm.org; www.iifm.org

Carbon credits for plantation charcoal

An agreement signed between the World Bank and the steel company Plantar S/A last September aims to reduce carbon emissions by substituting mineral charcoal with wood charcoal from certified sustainably managed eucalypt plantations in its steel production process. Plantar S/A, which is based in the Brazilian state of Minas Gerais, will reduce its emissions of carbon dioxide and methane by about 13 million tons, for which it will earn carbon credits that can be sold in the market. The Bank's Carbon Prototype Fund will buy credits from Plantar to the value of US$5.3 million over seven years.

Reported by Mauro Reis

Congo solution to Chad?

The continued decline in water levels in Lake Chad has sparked calls for the diversion of water from the Congo River Basin. Lake Chad receives water from seven countries; four of these, Nigeria, Niger, Chad and Cameroon, abut the lake itself. In recent years the surface area of the lake has reportedly shrunk from 25 000 km² to about 2000 km², less than 10% its original size, with dire consequences for many fishers in the region and for the lake's rich biodiversity. One suggestion to replenish Lake Chad is through the construction of a 150-km canal through the Central African Republic to allow water from the Congo River Basin to flow into the Tumi River and thence to the lake. This has sparked fears of ecological damage, while Congo Basin country governments have called for financial compensation for any such diversion. Some experts say that improved water management in the Lake Chad Basin would significantly reduce the threat to the lake.

Elements of the situation

The ITTO Secretariat's Steven Johnson presented 'Elements of the Annual Review and Assessment of the World Timber Situation 2002' at the 33rd Session of the International Tropical Timber Council, held in Yokohama last November (see page 20 for an account of the session). He reported that the total volume of tropical log imports was expected to fall significantly in 2002; of the major markets, only China will record an increase. Conversely, China's imports of plywood will fall dramatically, while their plywood *exports* will grow at an extraordinary rate (see also *TFU* 12/3). Japan's imports of tropical logs will decline in 2002, continuing a trend that started in the late 1990s. Another noteworthy trend reported by Dr Johnson is the sustained growth in exports of secondary processed wood products from ITTO tropical producer members, particularly in Asia and Latin America.

ITTO continues to assist producer member countries to improve timber production, consumption and trade statistics and improvements have been noted in several countries, including Bolivia, Colombia, Ghana, Honduras, Thailand and Togo. Nevertheless, much more work needs to be done—including in consumer countries—to produce reliable global data on the international tropical timber trade. The 2002 *Annual Review and Assessment of the World Timber Situation* will be published in the first half of next year.

Mahogany listed in Appendix II of CITES

The 12th Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which convened in Santiago, Chile last November, has voted to include big-leaf mahogany (*Swietenia macrophylla*) in its Appendix II. The trade in mahogany has been the subject of considerable debate and controversy in recent years (see *TFU* 12/1). An Appendix II listing means that any mahogany products to be traded internationally must be accompanied by an export or re-export certificate issued by the country from which the product is being exported or re-exported. An export permit may be issued only if the mahogany product was legally obtained and if the export will not be detrimental to the survival of the species. A re-export certificate may be issued only if the mahogany product was imported in accordance with CITES procedures. Appendix II is intended for species not necessarily now threatened with extinction but which may become so unless trade is closely controlled. Mahogany becomes subject to the new regulations twelve months after the vote was taken.

ITTO appoints regional officer

Dr Rubén Guevara has been appointed ITTO's new Regional Officer for Latin America and the Caribbean. To be based in Brasilia, Brazil, Dr Guevara will assist in the monitoring, evaluation and implementation of ITTO projects, assist member countries to develop high-quality project proposals, and carry out other functions. Dr Guevara, a national of Honduras, was formerly Director General of the Tropical Agricultural Research and Higher Education Centre (CATIE) and, most recently, a regional officer for the International Centre for Research in Agroforestry. The ITTO regional officer for Africa, to be appointed shortly, will be based in Libreville, Gabon.

Recent editions

Edited by Alastair Sarre

Johnson, N., White, A. & Perrot-Maître undated. **Developing markets for water services from forests: issues and lessons for innovators.** ***Forest Trends, Washington, DC, USA.***

Scherr, S., White, A. & Kaimowitz, D. 2002. **Making markets work for forest communities.** ***Forest Trends, Washington, DC, USA. ISBN 0-9713606-1-8.***

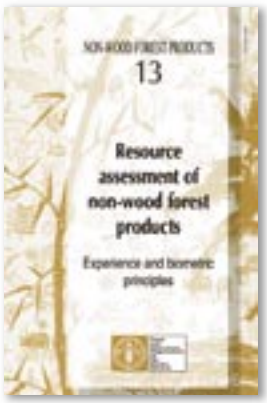
White, A. & Martin, A. 2002. **Who owns the world's forests? Forest tenure and public forests in transition.** ***Forest Trends, Washington, DC, USA. ISBN 0-9713606-2-6.***

Available from: *Forest Trends, 1050 Potomac Street NW, Washington, DC 20007, USA; Fax 1–202–298 3014; info@forest-trends.org; www.forest-trends.org*

These three publications, all of which can be downloaded from the web for free, are the product of a new think-tank on forests, Forest Trends. The third-listed report notes that, worldwide, the picture of forest ownership is changing from one dominated by governments to one in which local, community and indigenous ownership is increasingly acknowledged; the report "is an initial attempt to capture the pieces of this global picture using the available information". It was launched at the 33rd Session of the International Tropical Timber Council, convened last November.

Wong, J., Thornber, K. & Baker, N. 2001. **Resource assessment of non-wood forest products: experience and biometric principles.** ***Non-Wood Forest Products 13. FAO, Rome. ISBN 92-5-104614-X. US$18.***

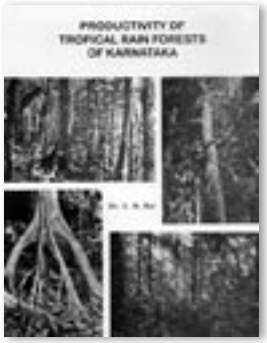
Available in English, French and Spanish from: *Marketing Group, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy; publications-sales@fao.org*



The purpose of this publication is to guide the design and selection of appropriate methods for quantifying non-wood forest product resources in different situations and for different products.

Rai, S. 2000. **Productivity of tropical rain forests of Karnataka.** ***Punarvasu Publications, Karnataka, India. ISBN 81-901073-1-3. Rs360 (for India and other developing countries) or US$36.***

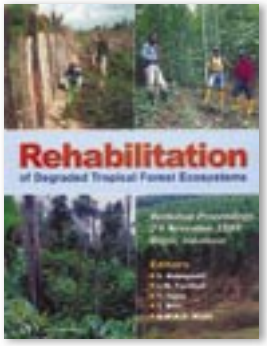
Available from: *Punarvasu Publications, Venkateshwara Complex, PB Road, Dharwad 580 001, Karnataka, India; Fax 91–836–747915; or contact the author at snrai@satyam.net.in; Fax 91–80–334 0465.*



This book contains a wide range of information on the seasonal rainforests of the Western Ghats in India. According to its sleeve, it is "a must for every forester, biologist and researcher". The author is a Principal Chief Conservator of Forests in the Karnataka Forest Department.

Kobayashi, S., Turnbull, J., Toma, T., Mori, T. and Majid, N. 2001. **Rehabilitation of degraded tropical forest ecosystems. Workshop proceedings, 2–4 November 1999, Bogor, Indonesia.** ***Center for International Forestry Research, Bogor, Indonesia. ISBN 979-8764-70-6.***

Available from: *Center for International Forestry Research, PO Box 6596 JKPWB, Jakarta 10065, Indonesia; Tel 62–251–622 622; 62–251–622 100; cifor@cgiar.org; www.cifor.cgiar.org*

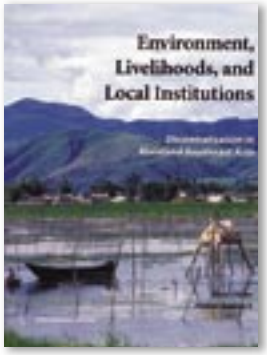


This publication contains 26 papers by scientists reporting their work on the rehabilitation of degraded tropical forests.

Dupar, M. & Badenoch, N. 2002. **Environment, livelihoods, and local institutions: decentralization in Mainland Southeast Asia.** ***World Resources Institute, Washington DC USA. ISBN 1-56973-506-9.***

Available from: *World Resources Institute, 10 G St, NE, Washington DC 20003, USA; Tel 1–202–729 7600; Fax 1–202–729 7610; www.wri.org*

This publication reports the effects of decentralising development planning and natural resources management to local governments and communities in eight case-studies in upland areas of Vietnam, Laos, Cambodia, Thailand



and southwest China. It recommends what might be dubbed the 'crossword puzzle' approach: "There is no one simple governance model—centralized, decentralized, or privatized—that alone holds the promise of environmental sustainability and secure upland livelihoods. But the cases explored in this study suggest that a decentralized approach to development planning and natural resources management that is founded upon multiple levels of decision-making and multiple forms of downward and upward accountability and horizontal coordination holds the greatest promise of accomplishing these goals."

Anon. undated. **Guidelines and modules to support implementation of the Asia-Pacific Forest Havesting Practices Code and reduced impact logging (RIL).** ***Indonesian Ministry of Forestry, Jakarta, Indonesia and ITTO, Yokohama, Japan.***

Anon. undated. **State of the art reporting on improved forest harvesting and reduced impact logging in Asia Pacific region.** ***Indonesian Ministry of Forestry, Jakarta, Indonesia and ITTO, Yokohama, Japan.***

Applegate, G., Kartawinata, K., Machfudh & Klassen, A. 2001. **Reduced impact logging guidelines for Indonesia.** ***CIFOR, Bogor, Indonesia and ITTO, Yokohama, Japan.***

Applegate, G., Kartawinata, K., Machfudh & Klassen, A. 2001. **Pedoman reduced impact logging Indonesia.** ***CIFOR, Bogor, Indonesia and ITTO, Yokohama, Japan.***

Available from: *Information Officer, ITTO, International Organizations Center – 5th Floor, Pacifico-Yokohama, 1–1–1, Minato-Mirai, Nishi-ku, Yokohama 220-0012, Japan; Tel 81–45–223 1110; Fax 81–45–223 1111; itto@itto.or.jp*

The first report reviews existing and past training programs related to RIL and the Forest Harvesting Practices Code, identifies appropriate approaches to such training, presents sample training modules, and makes recommendations for the effective implementation of RIL and Code-related training programs in the Asia-Pacific region. The second report reviews recent efforts to improve forest harvesting in 29 countries in the region, and the third and fourth (which are the same except that one is in English and the other Bahasa Indonesia) have been prepared for use by production supervisors, field planners and machine operators; they are pocket-sized for easy use in the field. All are outputs of ITTO PRE-PROJECT PD 19/99 REV. 1 (F) 'Strengthening sustainable management of natural forests in Asia-Pacific'; recently, ITTO funded the development of a RIL training school in Indonesia, building on the results of the pre-project.

Eba'a Atyi, R. & Simula, M. 2002. **Forest certification: pending challenges for tropical timber.** ***ITTO Technical Series No 19. International Tropical Timber Organization, Yokohama, Japan. ISBN 4-902045-001***

Available from: *Information Officer, ITTO, International Organizations Center – 5th Floor, Pacifico-Yokohama, 1–1–1, Minato-Mirai, Nishi-ku, Yokohama 220-0012, Japan; Tel 81–45–223 1110; Fax 81–45–223 1111; itto@itto.or.jp*

An article based on this report on the current status of forest certification and some of the challenges that lie ahead was published in the previous edition of the *TFU*.

Shi Kunshan, Lin Fengming, Tang Xiaowen, Shi Feng & Xu Zhisheng 2002. **Establishment of sustainable tropical forest products information system in China.** ***Institute of Forestry Policy and Information of Chinese Academy of Forestry, Beijing, China, and ITTO, Yokohama, Japan.***

Available from: *Information Officer, ITTO, International Organizations Center – 5th Floor, Pacifico-Yokohama, 1–1–1, Minato-Mirai, Nishi-ku, Yokohama 220-0012, Japan; Tel 81–45–223 1110; Fax 81–45–223 1111; itto@itto.or.jp*

This report, an output of ITTO PROJECT PD 55/99 REV. 1 (M), contains four parts: a report on the design of a tropical timber statistics system in China and an analysis of the existing situation; opinions and suggestions on amending and supplementing the regulation on the customs import and export tariff in China; an analysis of the impacts of China's natural forest protection program on its timber market; and an appendix which contains a discussion of issues in China's tropical timber statistics. As China's imports of tropical timber grow, so too does the importance of establishing a reliable reporting system.

Engaging the private sector

Sir

Historically the forestry 'agencies' (United Nations, development banks and the donors) rather than individual countries have assumed or, by default, been given a leading role in forestry development. Unfortunately, results over the last 50 years or so have fallen short of expectations. One reason for this is that the agencies have tended to conform to a politically correct, low-risk agenda and to shy away from crux issues. Engaging the private sector in forestry development is a case in point.

A quarter of a century ago the agencies tended to focus on industrial forestry development. It then became apparent that forestry embraces wider issues and so the emphasis shifted to supporting fuelwood projects, social forestry, biodiversity—but much less emphasis was placed on commercial aspects. The private sector was left outside the loop. Once again, results fell very short of expectations.

The emphasis changed again, and 'getting policy and legislation right' has become a catchphrase. Unfortunately, the agenda is drawn up by bureaucrats rather than practitioners.

One major problem is that the agencies, with few exceptions, don't know how to engage the private sector and know even less about how to mobilise the combined power of the private and community sectors into a powerful symbiotic relationship for positive development. Being uncomfortable with the commercial dimension, the agencies tend to settle for carefully crafted rhetoric about the need to 'engage all stakeholders'.

As a result of a reluctance to incorporate all entities, forestry development projects continue to fail. Like it or not, the best projects and programs are the ones that pay positive dividends yet are designed to be environmentally friendly and socially equitable. In order to identify such projects and truly engage all stakeholders, the private sector must be brought into centre stage and given a pivotal role in the development of balanced and workable solutions—and urgently.

Raymond M. Keogh
International Coordinator
TEAK 21
27 Loreto Grange, Bray
County Wicklow, Ireland
t *353–1–2864697*
10 October 2002

Limiting the harvest

Sir

Through a letter issued on 14 March 2002, the Director General of Production Forest Development in Indonesia has instructed that under the modified Indonesian harvesting and silvicultural system (TPTI), harvesting intensity is to be limited to eight trees per hectare. This recommendation was inspired by research conducted in East Kalimantan by Cirad-Forêt within the STREK (Silvicultural Techniques for the Regeneration of the logged-over forests of East Kalimantan) project framework (1989–1996) and confirmed in the Bulungan research project funded by ITTO and implemented by CIFOR-Cirad and FERDA (ITTO PROJECT PD12/97 REV.1 (F)).

The adoption of our recommendation by the Forestry Department of Indonesia is very good news. Your readers may recall a short article published in the *TFU* in 2000 (*TFU* 11/2, page 5) on the need to find new silvicultural rules to complement RIL; this summarised information presented in a number of papers published since 1997 on the subject, including one published in the proceedings of a conference on reduced impact logging (RIL) held in Kuching, Malaysia in February 2001. Readers interested in knowing more about the history of and need for such a limit to harvesting intensity in mixed dipterocarp forests are welcome to contact me. They can also write to Ms Kallaya at Kallaya.Meechantra@fao.org for a copy of the RIL conference proceedings.

Plinio Sist
sist@cirad.fr
5 November 2002

Bank opens its doors

Sir

I draw the attention of your readers to the revised forest strategy and new operational forest policy for the World Bank Group recently adopted by the Bank's Executive Directors. This new policy package replaces the previous Bank strategy, which was adopted in 1991 and focused primarily on reducing deforestation, forest resource creation and conservation. The new strategy was adopted after reviews conducted by the Bank's Operational Evaluation Department showed that the 1991 strategy had been ineffective as a conservation and development strategy.

The Bank's new operational forest policy replaces the prohibition on the financing of commercial logging operations in primary tropical moist forests "under any circumstances" with more comprehensive but more targeted conservation provisions. These provisions require the identification of critical forest or other critical habitat areas in all forest types in all the countries where the Bank operates. The policy explicitly prohibits the financing of any commercial harvesting or plantation development in these critical forest areas or other critical natural habitats in all forest types. The policy *does* allow for proactive investment support to improve forest management outside these critical forest areas; it contains explicit safeguards to ensure that Bank financing is restricted to operations that comply with independent certification standards acceptable to the Bank, or operations where there is a time-bound action plan agreed between the Bank and the borrower to establish compliance with these standards. The new policy package will enable the Bank to more proactively support efforts by member countries to sustainably conserve and manage tropical forests.

David Cassells
Senior Environmental Specialist, Forest Resources
World Bank
12 November 2002

Courses

Tropical dendrology

17–29 March 2003 (English)
14–26 April 2003 (Spanish)
23 June–5 July 2003 (English)

Costa Rica (San José and the field)
Cost: US$1800

This course, which has been run since 1993, includes visits to four different 'life zones' within Costa Rica. Participants will gain skills in tree and shrub species' identification in the American tropics using a technique developed by Dr L. R. Holdridge. They will learn to identify 70–80% of neotropical species to family level, and to species level for some of Costa Rica's most important species.

Contact: *Dr Humberto Jiménez Saa, Apdo. 8-5857-1000, San José, Costa Rica; Fax 506–291 0862; hjimenez@racsa.co.cr; www.hjimenez.org*

Plant Families of Southeast Asia

6–23 May 2003 **Leiden, the Netherlands**
Cost: €500

This course, which is held once every two years, is designed for undergraduate and postgraduate students interested in the botanical wealth of Southeast Asia. Participants learn how to make good plant collections, describe field characters and recognise some of the important plant families. The necessary botanical terms are explained at the beginning of the course. Therefore, anthropologists and environmentalists as well as biologists are able to follow the course. If foreign participants are present, the course will be given in English.

For more information contact: *Dr J.W.F. Slik (slik@nhn.leidenuniv.nl) or Dr M.C. Roos (roos@nhn.leidenuniv.nl), Nationaal Herbarium Nederland, Leiden University Branch, Van Steenisgebouw, Einsteinweg 2, Postbus 9514, 2300 RA, Leiden, the Netherlands; www.nationaalherbarium.nl*

International Seminar on Forestry and Natural Resources Administration

24 August–11 September 2003 **Colorado, USA**
Cost: US$5600

Offered jointly by USDA Forest Service International Programs and Colorado State University, this three-week seminar presents a broad spectrum of natural resource management techniques and institutional arrangements so that participants may selectively gather ideas that can assist in the management of their lands. The seminar focuses on strategies and methods to develop, manage and conserve natural resources for the sustained delivery of goods and services to meet the full range of human needs. *Contact details below.*

International Seminar on Protected Area Management

7–23 August 2003 **Western USA**
Cost: US$4750

Designed for senior-level planners and managers of nationally significant protected areas worldwide, this three-week, integrated state-of-the-art course examines strategies to conserve the world's most special places. Sponsored by the USDA Forest Service International Program and the universities of Montana, Idaho and Colorado State, the seminar will evaluate policies and institutional arrangements that sustain both people and natural resources. *Contact details below.*

International Seminar on Watershed Management

15–28 June 2003 **Wisconsin, USA**
Cost: US$4000

Organised jointly by the University of Wisconsin and USDA Forest Service International Programs, this seminar offers a mixture of instruction and facilitated discussions to engage participants on critical global and regional watershed management issues, emphasising innovative approaches to watersheds to work across a wide range of biophysical and socioeconomic settings. Particular attention will be given to the management of watersheds in developing and newly emerging market economies.

For more information go to www.fs.fed.us/global/is/welcome.html

By featuring these courses, ITTO doesn't necessarily endorse them. Potential applicants are advised to obtain further information about the courses of interest and the institutions offering them.

Obituary

The member countries of the African Timber Organization (ATO) were deeply grieved by the death of Paul Ngatse-Obala, in Paris, France earlier this year. He was elected the Secretary-General of ATO in October 1998 during the 3rd ATO Extraordinary Ministerial Conference held in Libreville, Gabon.

Born in Congo, Mr Ngatse-Obala studied natural sciences in the former USSR and successfully defended the thesis of his PhD at the University of Paris in June 2000. In his career he headed several ministries in the Government of the Republic of Congo, including the ministry of forestry.

During his term as ATO Secretary-General Mr Ngatse-Obala helped increase cooperation between ATO and ITTO; the two organisations have similar objectives and also nine producer member countries in common in Africa. Mr Ngatse-Obala contributed to the development of formal collaboration between ATO and ITTO on the issue of criteria and indicators as a reference tool for the promotion and evaluation of the sustainable management of African natural tropical forests; this initiative led to the adoption of the Harmonized ATO/ITTO Principles, Criteria and Indicators by the 20th ATO Ministerial Conference (see page 24). Indeed, continuing and increasing the close cooperation between ATO and ITTO in their common member countries would be the best way for both the organisations to sustain Mr Ngatse-Obala's legacy.

Polycarpe Masupa-Kambale

ITTO Secretariat

Yokohama, Japan

Noticeboard

Teak conference planned

ITTO, the Kerala Forest Research Institute and IUFRO Working Party 5.06.02 will convene an international conference on quality timber products of teak from sustainable forest management in December 2003. Funded by ITTO Project PD 151/02 (I), the conference will deliberate on and examine:

- teak quality in plantation, including the role of teak plantations in carbon sequestration;
- the potential of teak in sustainable management; and
- the upgrading and transfer of technology.

Other organisations that will play a role in the conference include TEAKNET, TEAK 2000, FORSPA, CIRAD-Forêt and the School of Bioagricultural Science at Nagoya University, Japan. See page 30 for contact details.

Australian plantations

Papers presented at a conference on the prospects for Australian forest plantations, held in August 2002, are available at www.affa.gov.au/brs (click on 'Forest and Vegetation Sciences').

Meetings

3–5 February 2003. Workshop of Experts on Mangroves. Managua, Nicaragua. Sponsored by ITTO. *Contact: Jorge Illueca, Secretariat of the United Nations Forum on Forests; illueca@un.org*

3–7 February 2003. FAO/ITTO/INAB International Conference on Criteria and Indicators for Sustainable Forest Management (rescheduled from July 2002). Guatemala City, Guatemala. *Contact: Eva Mueller or Steven Johnson, ITTO Secretariat; Tel 81–45–223 1110; Fax 81–45–223 1111; rfm@itto.or.jp or eimi@itto.or.jp*

17–21 February 2003. ITTO/IUCN Workshop on Increasing the Effectiveness of Transboundary Conservation Areas in Tropical Forests. Ubon Ratchathani, Thailand. *Contact: Eva Mueller or Alastair Sarre, ITTO Secretariat; Tel 81–45–223 1110; Fax 81–45–223 1111; rfm@itto.or.jp or editor@itto.or.jp, or Stewart Maginnis at Stewart.Maginnis@iucn.org*

11–14 March 2003. **National Symposium on Agroforestry in 21st Century.** Ludhiana, India. ***Contact:*** *Dr S.S. Gill, Professor and Head, Department of Forestry and Natural Resources, PAU Ludhiana 141 004, India; Tel 91–161–401 960 ext 380 (0); Fax 91–161–400 945; Chauhansk@dr.com*

11–15 March 2003. **Properties and Utilization of Tropical Woods.** IUFRO 5.03.00 and 5.06.00. ***Contact:*** *Gan Kee Seng, Forest Research Institute Malaysia, 52190 Kuala Lumpur Kepong, Malaysia; Fax 60–3–636 7753; ganks@frim.gov.my*

16–23 March 2003. **3rd World Water Forum.** Kyoto, Japan. ***Contact:*** *Forum Secretariat, Tokyo; Tel 81–3–5212 1645; office@water-forum3.com; www.worldwaterforum.org*

24–30 March 2003. Maximising the Role of Planted Forests in Sustainable Forest Management. Wellington, New Zealand. Sponsored by ITTO. *Contact: ECPF Secretariat, c/- International Policy, Ministry of Agriculture and Forestry, PO Box 2526, Wellington, New Zealand; Fax 64–4–498 9891; plantedforestrymeeting@maf.govt.nz; www.maf.govt.nz/unff-planted-forestry-meeting*

25–29 March 2003. **3rd Certification Watch Conference.** Vancouver, Canada. ***Contact:*** *Candace Reimer, PO Box 48122, Montreal, QC, H2V 4S8, Canada; Tel 1–514–273 5777; Fax 1–514–277 4448; info@CertificationWatchConference.org; www.CertificationWatchConference.org*

6–12 April 2003. **World Perspective on Short Rotation Forestry for Industrial and Rural Development.** Nauni, Solan, India. ***Contact:*** *Kartar S. Verma, Dr Y.S. Parmar University of Horticulture and Forestry, College of Forestry, PO Nauni, Solan HP 173 230, India; Tel 91–1792–52270; Fax 91–1792–52242; khuranasolan@yahoo.com*

6–11 April 2003. **International Workshop on *Gmelina arborea*.** Samarinda, East Kalimantan, Indonesia. ***Contact:*** *Bill Dvorak, Box 7626, Grinnells Lab. NCSU, Raleigh, NC 27695 USA; info@camcore.org; www.camcore.org*

28–30 April 2003. **4th Ministerial Conference on the Protection of Forests in Europe.** Vienna, Austria. ***Contact:*** *MCPFE Liaison Unit Vienna; Tel 43–1–710 77 02; Fax 43–1–710 77 02 13; liaison.unit@lu-vienna.at; www.mcpfe.org*

12–17 May 2003. 34th Session of the International Tropical Timber Council. Panama City, Panama. *Contact: Collins Ahadome; Tel 81–45–223 1110; Fax 81–45–223 1111; itto@itto.or.jp; www.itto.or.jp*

14–16 May 2003. **2nd Latin American Symposium on Forest Pests.** Belo Horizonte, Brazil. ***Contact:*** *Prof José Cola Zanuncio; sif@mail.ufv.br*

20–24 May 2003. **Mangrove 2003: Connecting Research and Participative Management of Estuaries and Mangroves.** Salvador, Brazil. ***Contact:*** *Conference Secretary, Universidade Federal de Bahia, Instituto de Geociências – Instituto de Biologia, Núcleo de Estudos Ambientais, Campus Universitário de Ondina, Salvador, Bahia, Brazil CEP: 40170-290; Fax 55 71 332 4085; mangrove2003@ufba.br; www.mangrove2003.ufba.br*

22–24 May 2003. **International Conference on Economics of Sustainable Forest Management.** Toronto, Canada. IUFRO 4.04.02. ***Contact:*** *Conference Secretariat; Tel 1–416–9786196; Fax 1–416–9783834; lcsfm@larva.forestry.utoronto.ca*

19–23 May 2003. **International Conference on Rural Livelihoods, Forests and Biodiversity.** Bonn, Germany. ***Contact:*** *William Sunderlin, Center for International Forestry Research, PO Box 6596, JKPWB, Jakarta 10065, Indonesia; Tel 251–622 622; Fax 251–622 100; w.sunderlin@cgiar.org; www.cifor.cgiar.org/livelihoodconference.asp*

26 May–6 June 2003. **3rd Session of the United Nations Forum on Forests.** Geneva, Switzerland. ***Contact:*** *Mia Soderlund, unff Secretariat; Tel 1–212–963 3262; Fax 1–212–963 4260; unff@un.org; www.un.org/esa/sustdev/forests.htm*

15–18 June 2003. **2nd International Precision Forestry Symposium.** Seattle, USA. ***Contact:*** *ForestCE, University of Washington, Box 352111, Seattle WA 98195-2111, USA; Fax 1–206–685 6705; ForestCE@u.Washington.edu; www.cfr.Washington.edu/Outreach/PreFor/index.html*

13–15 August 2003. **6th Brazilian Symposium on Forest Transportation.** Belo Horizonte, Brazil. ***Contact:*** *Prof Carlos Cardoso Machado; sif@mail.ufv.br*

8–17 September 2003. **V World Parks Congress.** Durban, South Africa. ***Contact:*** *Peter Shadie, Executive Officer, 2003 World Parks Congress, IUCN Programme on Protected Areas, Rue Mauverney 28, 1196 Gland, Switzerland; Tel 41–22–999 0159; Fax 41–22–999 0025; pds@iucn.org; http://wcpa.iucn.org/wpc/wpc.html*

21–28 September 2003. **XII World Forestry Congress.** Quebec City, Canada. ***Contact:*** *XII World Forestry Congress, PO Box 7275, Charlesbourg, Quebec G1G 5E5, Canada; www.wfc2003.org*

3–6 October 2003. 3rd International Wildland Fire Conference & Exhibition. Sydney, Australia. Sponsored by ITTO. *Contact: 3rd International Wildland Fire Conference and Exhibition Managers, GPO Box 128, Sydney NSW 2001, Australia; Tel 61–2–9248 0800; Fax 61–2–9248 0894; wildlando3@tourhosts.com.au; www.wildlandfire03.com*

19–31 October 2003. **6th Conference of the Parties to the Convention to Combat Desertification.** Bonn, Germany. ***Contact:*** *CCD Secretariat; Tel 49–228–815 2800; Fax 49–228–815 2898/99; secretariat@unccd.int; www.unccd.int*

3–8 November 2003. 35th Session of the International Tropical Timber Council. Yokohama, Japan. *Contact: Collins Ahadome; Tel 81–45–223 1110; Fax 81–45–223 1111; itto@itto.or.jp; www.itto.or.jp*

2–5 December 2003. International Conference on Quality Timber Products of Teak from Sustainable Forest Management. ITTO PROJECT PD 151/02 (1); IUFRO 5.06.02. *Contact: K.M. Bhat, Kerala Forest Research Institute, Peechi 680 653, India; kmbhat@kfri.org; www.kfri.org/html/ko500frm.htm*

12–14 April 2004. **Management of Tropical Dry Forest Woodlands and Savannas: Assessment, Silviculture, Scenarios.** Brasilia, Brazil. IUFRO 4.00.00. ***Contact:*** *Professor Dr José Imaña Encinas, University of Brasilia, Forestry Department Caixa Postal 04357, 70919-970, Brasilia, DF, Brazil; Tel 55–61–2736026; Fax 55–61–3470631; iufro@unb.br*

15–20 August 2004. **Forest Diversity and Resistance to Native and Exotic Pest Insects.** IUFRO 7.03.07. Hammer Springs, New Zealand. ***Contact:*** *Andrew Liebhold, Northeastern Research Station, USDA Forest Service, 180 Canfield St, Morgantown, WV 26505, USA; Fax 1–304–285 1505; aliebhold@fs.fed.us; http://iufro.boku.ac.at/iufro*

15–21 August 2004. **XII International Congress of Entomology.** Brisbane, Australia. ***Contact:*** *Ashley Gordon, Congress Director; Ashley@ccm.com.au; www.ccm.com.au/icoe/index.html*

8–13 August 2005. **Forests in the Balance: Linking Tradition and Technology. XXII IUFRO World Congress.** Brisbane, Australia. ***Contact:*** *Dr Russell Haines, Queensland Forestry Research Institute, PO Box 631, Indooroopilly 4068, Australia; Tel 61–7–3896 9714; Fax 61–7–3896 9628; hainesr@qfri1.se2.dpi.qld.gov.au; http://iufro.boku.ac.at*

Participation and forest sector governance: the broader participation of stakeholders and particularly of marginalised social groups in the use, management and protection of forests and in the trade of forest products is necessary for long-term sustainability and for combating local poverty. Collaborative forest management, including community-based management, joint forest management and other models can apply, but only when the broader political commitment and institutional enabling environments exist. The forest sector is notorious as a locus of corruption, vested interests and rent-seeking behaviour and for its lack of transparency in the allocation of resource rights and trade in forest products. For ITTO and others, the reality is that in most cases when forests are economically and environmentally significant, additional effort is needed to assure participation of local social groups and to improve sector governance. Until these are dealt with effectively, it is risky to focus solely on technical inputs such as improving forest management, forest industry development and timber trade.

Harvesting: deforestation and forest degradation can be slowed by the adoption and enforcement of appropriate policies. Significant areas of closed natural forests are likely to be logged in the tropics over the next ten years and even more will be harvested for non-timber forest products; the question is whether such harvesting will be done well or poorly. The fact that most forest extraction in the tropics is not sustainable, even though the techniques for sustainable management are known, has led some analysts and government officials to conclude that such operations *cannot* be sustainable because of economic and financial barriers. However costs, prices and incentives are usually highly distorted in the timber sector, including by illegal rent-seeking behaviour in logging operations. Combating such illegal practices is a key to improving logging practices, while the harvesting of non-timber forest products must be part of a more holistic approach to forest management.

Forest conservation: few ITTO producer countries can afford or are willing to set aside significant areas of commercially accessible forests as totally protected areas without compensation for lost economic rent. Moreover, a significant proportion of the financial resources needed to effectively manage tropical forest protection areas will have to originate from outside national government budgets. Local people must be given a meaningful role in management, a role that will need to provide at least part of their income. ITTO's engagement in transboundary forest conservation has already been mentioned and could be strengthened in the new agreement.

New markets for forest goods and services: a major impediment to greater sustainability in natural forests is the very different perception of the value of forests between international groups who attach high values to biodiversity and the carbon-storing capacity of forests (although they do not necessarily make a high financial contribution to the maintenance of these values) and national and local groups who need to see immediate and tangible benefits from forest use. In addition, forests and other natural resources have an intrinsic real option value; with uncertainty over the future values of these resources, a premium for waiting is created. In financial markets, options are commonly valued and traded. But for forests and other natural resources these real options are not monetised. Governmental and international institutions have an important role to play in helping to conserve these resources and to bridge the gap between financial and economic values. In such cases ITTO and other international agencies may be able to broker arrangements to increase investments and other financial flows for the protection of forests for biodiversity, carbon, water and other benefits—financial flows that must reach the local level to be effective.

Climate change and forests: forests have a limited ability to cope with climate change. Over the past 20 years droughts, cyclones and fires have severely damaged or destroyed forests worldwide; there is evidence that natural disasters are happening more frequently. Changing climatic regimes have brought about a phenomenon that some call 'the wrong types of fire in the wrong places'. Forest fires, either natural or human-induced, have always occurred in savannas, boreal forests and some specific tropical forest ecosystems. Today, however, large fires are occurring in humid forests in all tropical regions at a rate unprecedented in recorded history. It is estimated that in 1997–98 alone more than 14 million hectares of closed natural humid tropical forests turned to ash in the Brazilian Amazon, Borneo, Mexico and Sumatra. There is a danger that important changes in forest succession patterns will occur over the next few decades in the large remaining massifs of tropical humid forests in the Amazon, Congo Basin and Southeast Asia. This will have unpredictable consequences for people living in these forest areas and for the world as a whole—not only because of the loss of biodiversity but also because of the potential effects on the global climate. The role of the tropical forests as both a source of and sink for atmospheric carbon and their important roles in relation to climate change should be looked at closely in the negotiations for a successor agreement to the ITTA, 1994.

Moving forward

Tackling issues such as those mentioned above will help negotiators understand that there is a lot to learn from local situations and that ready-made solutions might be nice for window-dressing but will not make the impact needed to sustain livelihoods. The forests agenda will move forward if we are able to extend the forester's approach to look beyond the rigid boundaries of timber production and timber trade, to take an holistic view of forest management, and to include local initiatives and approaches that make sustained contributions to social development.

Finally, to close the circle with the two examples in the beginning: for the forester's approach to succeed in Objachevo, the certification process there needs to secure the full economic involvement of existing local social groups in the management and marketing of forest products. We must assess the results of the approach proposed in Rantau Rasau using a range of social indicators, but it is likely that the initiative will stand or fall on its ability to ensure local ownership of the process and an equitable sharing of benefits.

The challenge ahead of negotiators of a successor to the International Tropical Timber Agreement is to find ways of achieving more at the local level

by Jürgen Blaser

Outgoing Chair

International Tropical Timber Council

Intercooperation, CH-3001 Switzerland

Jblaser@intercooperation.ch

OBJACHEVO, a town in the Komi Republic in the northwest of the Russian Federation, lies right under the main commercial flight path between Europe and Japan. In November the landscape is dark and a thick layer of ice and snow reflects the little daylight left. Objachevo is the main centre of an 800 000-hectare forest enterprise, or *leshoz*, which itself is part of an ocean of forests that covers 39 million hectares or 93% of the Republic's land area.

Komi's forest area is stable and even increasing in some places: population pressure is low and the only significant economic land-use is forestry. What makes Objachevo's forests different from other forests in Komi is the fact that it will soon be certified under the Forest Stewardship Council—after massive financial and institutional efforts to achieve the necessary standards. The big question, though, is this: what are the benefits and costs of creating a certified forest in the middle of an ocean of forests? A market for certified wood from remote Komi does not exist, and even if it did the local population would not benefit much because this type of certification is a tool for large companies and markets and has little if any effect on local development. The situation of the population, most of it former forest-worker families once employed in inefficient Soviet forest enterprises, remains desperate. The 'forester's approach', supported by the international community, was to pursue certification as a tool for sustainable forestry in boreal forests. Was it the right choice?

Rantau Rasau in eastern Sumatra is bordered by the South China Sea and a wide river delta; it's a wet land with poor soils and a hot and humid climate. Hundreds of families were brought to this land from fertile Java 35 years ago with the promise of a bright future. The forests have since been removed and a huge financial and institutional effort has been undertaken to claim swamps for settlements and sustainable agriculture. Today, many paddy fields have been abandoned, soils have lost their fertility or become toxic and the livelihoods of many transmigrants are in peril. Very recently, a proposal has been made to grow forest plantations in the area for funding under the Clean Development Mechanism. The question, though, is the same as in Objachevo: who benefits and at what cost? For now, nobody knows. Perhaps when the idea is implemented the social benefits can be assessed. A forester's approach, but is it the right choice?

Objachevo and Rantau Rasau: two destinations in a late-November 2002 travel itinerary. Other examples could be given, but the questions are similar: what are we achieving by taking a forester's approach? How do we influence the fate of the world's forests and improve the circumstances of the people who make their livelihoods out of them? While some of the major impacts and concerns are global and national, the solutions must inevitably be applied at a local level and relate to tenure, rights and ownership, benefit distribution and participation. The forest situations, and the major issues surrounding them, differ widely from one place to the other, and proposed solutions need to be flexible.

Renegotiation

Soon, the ITTO community will be reunited around the negotiating table in Panama City, Yokohama and Geneva—places far away from the forests of Objachevo and Rantau Rasau. Can such negotiations influence local realities? Can they improve upon the forester's approach to increase the benefits accruing at the local level?

As a commodity organisation, ITTO has a strong focus on the tropical timber trade and the sustainable use of its resource base, the tropical forests. The 1994 International Tropical Timber Agreement (ITTA), which succeeded the agreement struck in 1983, did not diminish this focus but it made a timid expansionary step by including all kinds of forests in its information-sharing functions. The 1994 agreement helped make ITTO a recognised player in forest-related development at a global level, and it helped create synergies between countries and to solve conflicts and disputes such as through its transboundary forest conservation program. One of the Organization's strengths is the way its combines policy work with complementary projects in the field. As a successor agreement to the ITTA, 1994 is negotiated in coming months and years, such strengths must be recognised and supported.

Nevertheless, the essential question in the negotiations is how ITTO can have a stronger impact at the local level. Some of the challenges are reviewed below.

Rural poverty: most of the 1 billion people living in or near forested areas in developing countries are considered poor in terms of income, education and access to health. Their dependence on forest products is high, especially where the forests and woodlands are fragmented. A major implication of this is the potential contribution that degraded forests, secondary forests and degraded forest lands can make to local livelihoods: these areas can be brought into sustainable production with relatively small investments as long as local people have secure tenure and access rights and are able to generate income from the forest.

Continued on page 31