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An information bulletin on Non-Wood Forest Products

# non-wood NEWS

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## EDITORIAL

For more than a decade, *Non-Wood News* has provided a forum to discuss themes that are influencing the environmentally friendly, economically viable and socially equitable use of non-wood forest products (NWFPs). This issue of *Non-Wood News* is no different and contains a multitude of interesting information on NWFPs – from bamboo to tamshi, and from Bangladesh to Zambia.

Having celebrated its tenth anniversary last year, this eleventh issue of *Non-Wood News* is looking ahead to a new decade of challenging activities promoting the sustainable use of NWFPs. What will be the challenges that will determine the debate in the coming years?

The original debate on NWFPs was initiated by some enthusiastic reports on the actual and potential value of a wide variety of forest products other than wood/timber, which resulted in the creation of new terms – "non-wood" or "non-timber" forest products (NWFP/NTFP) – describing different plant or animal products used for subsistence or commercialization. Over the years, these reports have been complemented by numerous case studies showing not only the important roles of NWFPs, but also the challenges these products and their users are facing.

Last year, during a side event to the XII World Forestry Congress on "Strengthening global partnerships to advance sustainable development of non-wood forest products" [*See Special Features for more information*], three major challenges for the NWFP sector were identified: the "profound lack of *information* to realize the full benefits of NWFPs"; the "lack of technical, financial, political and social *capacity* to influence policies and to generate information"; and the "lack of protected *rights* to access and benefit from NWFP resources".

Data on NWFPs indeed remain rudimentary and are still not collected in a systematic way. Reports on NWFPs often focus on commercial products while the description of subsistence uses often remains anecdotal. Sound information is urgently needed in order to provide the necessary information for decision-makers at all levels, such as producers, traders and politicians.

However, the NWFP sector cannot be seen as a coherent one. A quick Internet search resulted in 11 100 entries being found on NWFPs, 30 000 on NTFPs, but 25 000 on bushmeat and even 279 000 on medicinal plants, two major NWFPs. It is important to keep in mind that most experts are working on their individual or institutional specialities without being involved in the entire NWFP sector or even without putting their work into an overall context. Interdisciplinary collaboration and partnerships, e.g. among research institutions, private companies and

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***Non-Wood News* is open to contributions by readers. Contributions may be edited to fit the appropriate size and focus of the bulletin. If you have any material that could be included in the next issue of *Non-Wood News* for the benefit of other readers, kindly send it, before 15 January 2005, to:**
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## EDITORIAL

government and non-governmental organizations, still remain the exception rather than the norm. Therefore, more efforts are required from all of us to improve this interdisciplinary collaboration, which will lead to the sustainable use of NWFPs being promoted in a more effective way.

Better data on NWFPs are urgently needed, but these data need to be demand-driven and user-friendly. Priorities need to be set. What kind of information is required? For whom? When? These priorities should be decided together with the data users, who should be the stakeholders most closely involved in NWFP use. Their capacities need to be strengthened in order to help them to collect and analyse the information they require – be it on resources, markets or the legal framework.

However, the main driving force for the development of the NWFP sector will be the benefits they provide to producers, users and all the other stakeholders involved in the production, trade and use of NWFPs. Only by ensuring these benefits to the people involved will NWFPs be able to play an important role in the overall economic development and thus contribute to local livelihoods. The challenge for us will be to find appropriate mechanisms to balance these benefits in an adequate way among the different interest groups; e.g. rural populations without secured access to land, urban traders and multinational exporters and importers. All these, and many other stakeholders, are involved in the sector and only if their various, and often conflicting, views can be balanced will the sustainable use of NWFPs be ensured.

The FAO NWFP Programme will continue to promote the sustainable use of NWFPs by improving methodologies, supporting institutional capacities, strengthening global networks and promoting best practices. *Non-Wood News* will remain one of our prime vehicles to share information on all aspects covering NWFPs and to provide an open forum for its readers to exchange information and to discuss these and other emerging issues.

*Sven Walter*

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**Non-wood forest products (NWFP) are goods of biological origin other than wood, derived from forests, other wooded land and trees outside forests. Non-timber forest products (NTFP), another term frequently used to cover this vast array of animal and plant products, also includes small wood and fuelwood. However, these two terms are used synonymously throughout this bulletin. Other terms, such as "minor", "secondary" or "speciality" forest products, are sometimes used to keep original names and/or titles.**

## WORLD FORESTRY CONGRESS

The XII World Forestry Congress, held from 21 to 28 September 2003 in Québec, Canada, attracted 4 061 participants from more than 140 countries. A wide spectrum of issues was considered in the context of the Congress theme, "Forests, source of Life", and under three programme areas: Forests for people; Forests for the planet; and People and forests in harmony. The final statement represents the views of the Congress, identifies areas of priority concern, and is intended to encourage decisions and action by those involved with various aspects of forests and forestry, and in other related sectors.

**XII World Forestry Congress**
**FINAL STATEMENT**
***Forests, source of life***

**"*The subject of forests is related to the entire range of environmental and developmental issues and opportunities ...*"**
**(United Nations Conference on Environment and Development, 1992)**

**Forests are a source of life: for the planet, and for its people.**

**Québec, Canada**
**28 September 2003**

**Final Statement**

All societies are dependent on forests and trees, and have responsibilities for biodiversity, climate regulation, clean air, soil and water conservation, food security, wood and non-wood products, energy services, medicines and cultural values.

The Congress is convinced that the needs of the planet and its people can be harmonized, and that forests have enormous potential to make a vital contribution to environmental security, poverty alleviation, social justice, enhancement of human well-being, equity for present and future generations.

The Congress is impressed by the notable progress towards this end by development of principles and practice, concepts and tools; within global and regional treaties and national programmes; through varied partnerships among governments, international organizations, corporations, and non-governmental organizations; and in a variety of activities at the local level, notably those involving communities in ownership, decision-making and management, increasing the scope for enhancing their livelihoods.

At the same time, the Congress is deeply disturbed that permanent forest loss and degradation, largely due to activities outside the forest sector, continue at an alarming level. If current threats to forests continue, all human life will suffer. People in countries with low forest cover, indigenous peoples and local communities are particularly vulnerable. There is a need to address the widening gap between present trends and the potential of forests to contribute to the societal agenda, given increasing demand for forest products and services.

By harmonizing the needs of people and of the planet for forests, the world can progress along the path of sustainable development. But this harmonization cannot be achieved by the forest community alone. Bridges must be built with other sectors of society and a variety of actors.

The Congress calls on everyone for urgent and deep commitment to sustain this long-term process.

We envision a future with:
SOCIAL JUSTICE, where poverty is alleviated, livelihoods sustained, food and fuelwood secured, tenure rights and ownership recognized, and access to resources assured; where rights and benefits for forest workers are enhanced, gender equity is attained, intergenerational equity is pursued, and where access to education, training and health services is guaranteed, traditional knowledge is respected, and peace prevails.
ECONOMIC BENEFITS, where the full value of renewable and environmentally friendly forest products and services is recognized and leads to a flow of benefits, where sustainable forest management is profitable, where compensation mechanisms are established, and where the forest products industry operates competitively.
HEALTHY FORESTS which supply the full spectrum of products and services whilst conserving soils, maintaining biodiversity, regulating climate, sequestering carbon; where forest fragmentation is decreasing, deforestation is reduced, degradation is halted, and forest cover is increasing.
RESPONSIBLE USE, where forest resources are efficiently used and processed, and where consumption is sustainable.

And where:
GOVERNANCE is participatory, transparent and accountable; management and decision-making are decentralized, people are empowered, and partnerships flourish.
INTERGOVERNMENTAL DELIBERATIONS on forests have advanced to action.
RESEARCH, EDUCATION and CAPACITY BUILDING foster better understanding: of forest benefits and dynamics, of the complex relationship between ecosystems and human well-being, and of the impacts of human activities and management on forests.

Congress participants are determined to accelerate progress in closing the gap between the present situation and the long-term vision outlined above. This is in the collective interest of all. We recognize that forests exist within larger landscapes, are vitally connected to other sectors, and that they cannot be treated as enclaves in an interdependent biosphere.

To realize this vision, Congress participants highlight the following prerequisites:

- sustained political commitment and adequate financing;
- a strong, responsible forest sector;
- bridges with other actors and sectors;
- sustained and more effective international cooperation;
- policies based on best available science and information;
- competencies to address issues of complexity and multiple objectives;

- recognition of the considerable capital of culture, knowledge and good practice of indigenous peoples and local communities;
- management of forests and trees at local and regional scales, interfacing with human settlements, agroforestry systems, non-wood forest resources and other natural resources systems.

Congress participants commit themselves, and urge the world community, to actively pursue the above prerequisites and to accelerate progress through promotion of the following strategies and actions:

POLICY, INSTITUTIONAL and GOVERNANCE FRAMEWORKS

Formulate and enforce legislation that relates to sustainable forest management.

Recognize and respect the rights of owners, indigenous peoples, users and workers; and protect cultural values.

Establish effective governance arrangements for ensuring meaningful participation and equitable sharing of benefits, and for facilitating a diversity of models conferring tenure and access to resources reflecting local context.

Develop forest policies and implement programmes to reduce deforestation and forest degradation in coherence and synergy with policies of related sectors.

Encourage positive incentives and discontinue incentives that are impediments.

PARTNERSHIPS

Draw upon the energy and talent of youth in pursuing sustainable forest management.

Encourage collaborative partnerships involving women, forest owners, indigenous peoples, non-governmental organizations, local communities, industry and public agencies.

Foster active international and regional partnerships, including those between public and private institutions.

RESEARCH, EDUCATION and CAPACITY BUILDING

Implement comprehensive education and extension programmes designed to promote innovation at all levels and strengthen positive behaviour and attitudes towards forests.

Reform education curricula to address interdisciplinary dimensions, as well as global and regional considerations.

Realize the potential synergy between traditional and scientific knowledge.

Increase investment in research, dissemination of information, and learning processes that underpin all these strategies.

MANAGEMENT

Develop and disseminate methodologies for assessing, reporting and managing the complete array of forest products.

Promote the reconciliation of uses and activities for adding value to forest goods and services.

Improve watershed management, intensify forest landscape restoration and rehabilitation activities: to support livelihoods, increase forest cover, enhance biological diversity and functionality, and minimize the impact of invasive alien species.

Promote planted forests and planting of trees outside forest systems, including in urban areas, which make a contribution to sustainable development.

Prevent, manage and combat forest fires, and restore forestlands as appropriate.

MONITORING

Foster mutual recognition of criteria and indicator processes and certification schemes, which include social, cultural, environmental and economic dimensions of sustainable forest management.

Develop tools for better monitoring, assessing and reporting on the state of forests and on achieving the balance between the needs of people and the planet.

Congress participants resolve to pursue the above vision and strategies with renewed vigour and commitment to ensure that forests make a strong contribution to achieving the Millennium Development Goals and other internationally agreed targets.

The Congress invites all governments, related agencies, professional organizations, private companies and cooperatives, communities and individuals to urgently, and with full commitment, pursue the vision and strategies of this Statement. The Congress also requests that they promote these strategies with related professional communities and organizations in other sectors, in order to consolidate resources and efforts in realizing these goals.

The Congress requests FAO to present an assessment of progress on the strategies outlined in this Statement to the XIII World Forestry Congress and, in the interim, promote the statement through other relevant fora.

The Congress expresses its sincere appreciation and gratitude to Natural Resources Canada and to Ministère des Ressources naturelles, de la Faune et des Parcs du Québec, who together have formed the host institution, as well as to FAO and all the people and organizations who have made this Congress possible.

The Congress invites Canada to promote this Statement to relevant bodies, in order to achieve the commitment required at all levels for pursuing this vision.

**NWFP side event at the World Forestry Congress**

The NWFP side event "Strengthening global partnerships to advance sustainable development of non-wood forest products" took place on 20 September 2003 and was an official side event to the World Forestry Congress, held in Québec City in September 2003. It was organized by the International Union of Forestry Research Organizations (IUFRO), the Center for International Forestry Research (CIFOR) and the Food and Agriculture Organization of the United Nations (FAO Non-Wood Forest Products Programme).

The day-long event was the culmination of a global dialogue among stakeholders. An electronic-consultation took place for approximately three months in early 2003; and the discussion themes formed the basis for further exploration and discussion.

Two working groups explored issues and developed recommendations relevant to themes of the World Forestry Congress – "Forests for people" and "Forests for the planet".

## QUÉBEC DECLARATION ON: STRENGTHENING GLOBAL PARTNERSHIPS TO ADVANCE SUSTAINABLE DEVELOPMENT OF NON-WOOD FOREST PRODUCTS

**XII World Forestry Congress side event, 20 September 2003**

The full-day side event was organized by the International Union of Forestry Research Organizations (IUFRO, Group 5.11 Non-Wood Forest Products), the Center for International Forestry Research (CIFOR) and the Food and Agriculture Organization of the United Nations (FAO Non-Wood Forest Products Programme) and was attended by approximately 50 participants from around the world. The objectives of the meeting were: to identify and prioritize emerging issues for the development of the NWFP sector; and to draw the attention of the World Forestry Congress and forest resources decision-makers to key policy and research recommendations for the years ahead.

Background documents were prepared based on the outcome of a pre-Congress global e-consultation process along the themes: Commercialization: a reality check; Linking NWFP management with livelihood development; and Institutional and policy dimensions. The three background papers and participant contributions were presented and discussed in plenary, followed by group discussions along the World Forestry Congress (WFC) themes: Forests for the planet; and Forests for people.

### RATIONALE

NWFPs are of growing importance in both the North and the South. There is increasing evidence of this importance in the North.

NWFPs are harvested from wild to intensively managed systems.

NWFP uses, users and production approaches change over time, and are significant at all levels of society, from local to global.

There are important opportunities to manage forests for multiple purposes and products that will increase forest values.

*Issue 1.* There is a profound lack of the information necessary to realize the full benefits of NWFPs for individual, community and national well-being; decision-makers, forest managers and resource users alike lack information about economic, ecological and social characteristics of NWFPs and their uses.

*Recommendation 1a.* The participants of the side event on NWFPs of the WFC recommend that government efforts be strengthened to conduct research and generate, compile and disseminate information and statistics to key stakeholders on NWFP resources and their socio-economic and ecological values.

*Recommendation 1b.* The participants recommend that governments and development agencies support education and public awareness programmes for NWFP conservation and sustainable use.

*Issue 2.* Lack of protected rights to access and benefit from NWFP resources can adversely affect their conservation and sustainable use and discourage investment in the resource.

*Recommendation 2a.* The participants recommend that governments, with assistance from concerned agencies and organizations, develop and implement policies and legislation to provide secure access and benefits to the people whose livelihoods are dependent on or supplemented by non-wood forest products.

*Recommendation 2b.* The participants recommend that governments, with assistance from concerned agencies and organizations, ensure that stakeholders, particularly collectors, growers and traders, are provided incentives to sustainably manage NWFP resources.

*Issue 3.* Individuals, communities and institutions generally lack the technical, financial, political and social capacity to influence policies and generate information necessary to manage and monitor NWFP resources effectively.

*Recommendation 3a.* The participants recommend that governments, with assistance from concerned agencies and organizations, support programmes and projects to build individual, institutional, and community-based capacity to manage NWFPs through multistakeholder participation.

*Recommendation 3b.* The participants recommend that governments and research agencies give priority to research and the development and dissemination of management practices to be integrated into multipurpose forest and agroforest resource management.

These statements and recommendations are supported by documents and summaries of the side event produced by contributors and participants of the side event and e-consultation and will be found at: www.sfp.forprod.vt.edu

The results of the side event, coupled with the discussion documents of the e-consultation formed the basis for the Québec declaration on non-wood forest products. The Declaration identifies the major issues and provides recommendations for actions that would enhance the integration of NWFP/NTFPs into forest management, research, development and conservation.

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### INBAR side event at the World Forestry Congress

The side event "Resources, trade and market structure for bamboo and rattan" was organized by the International Network for Bamboo and Rattan (INBAR) on 21 September. The workshop was attended by approximately 25 participants and consisted of plenary presentations followed by discussions. FAO's Paul Vantomme chaired the morning session and presented two papers, one on the use of bamboo poles for construction and the other on the perceived imbalance between supply and demand for rattan.

There were presentations/discussions on how to improve country statistics on the production and trade in bamboo and rattan products, as well as to further improve global reporting on the status and trends of bamboo and rattan resources.

The proceedings of this meeting have been published in the *Journal of Bamboo and Rattan*, Vol. 2, No. 4, December 2003.

## IMPORTANCE OF NWFPS FOR FOOD SECURITY

[*Please also see the section on Bushmeat under Products and Markets.*]

### Contribution of forest insects to food security – caterpillars in central Africa

Since ancient times, insects have represented an important part of nutrition in many cultures, e.g. in Mexico and in many Asian and African cultures. All over the world insects are consumed as a daily dietary supplement, an occasional delicacy or a substitution product in times of food shortages, droughts, floods, war etc. Today, delicacies made from insects can also be found on restaurant menus in a few European countries, such as France and Belgium.

Edible insects should be considered more seriously as a potential in the efforts to improve food security and to alleviate poverty in sub-Saharan Africa. FAO notes that in particular it is the very poor who harvest insects and other NWFPs, and that gathering activities are usually carried out by women.

Realizing the need to raise more awareness on the potential of edible insects in livelihood strategies of forest-dependent people, FAO's NWFP Programme initiated a review in 2002 aiming at documenting their significance in the central African region. This article mainly outlines some of the results of case studies commissioned to local experts in Cameroon, the Central African Republic, the Republic of the Congo (Brazzaville) and the Democratic Republic of the Congo (Kinshasa). The focus is mainly on caterpillars as they are very common insects in forests and can be easily gathered.

***Contribution of caterpillar collection to livelihood security***

About 85 percent of the population of the Central African Republic consume caterpillars, the rate in rural areas being slightly higher than in urban areas. Investigations in the Democratic Republic of the Congo show that 70 percent of the respondents eat caterpillars.

The harvesting of caterpillars is a periodic activity in the rainy season. The caterpillars are preserved by sun-drying or smoking. Regional diets have a wide range of methods of consuming insects, alive or dried, as side dishes or sometimes as snacks. Caterpillars are eaten as a delicacy but are a planned part of the daily diet according to the seasonal availability. Even if in principle they are not to be considered as a substitute to meat from livestock, people rely more on caterpillars and other available insects when bushmeat and fish supplies decline in the rainy season and their market prices are rising.

The intensity of caterpillar consumption and species preferences depends on culinary traditions. In the Central African Republic, for instance, people living close to forests prefer among others *Imbrasia truncata, Nudaurelia oyemensis* and *Imbrasia obscura*. In some cultures traditional restrictions exist for consumption patterns. Some Cameroonian tribes, for example, withheld caterpillars from dignitaries or more wealthy social classes.

***Nutritional values.*** One case study gives a good overview of the nutritional values of various caterpillar species and basically confirms the empirical knowledge of local people in a scientific way. The average nutritional proportions of 24 fresh caterpillar species investigated are (based on dry matter): 63.5 ± 9.0 percent proteins and 15.7 ± 6.3 percent fat, resulting in an energy value of 457 ± 32 kcal/100 g. By comparison with beef and fish, the insects' high proportion of these nutrients and thus their high energy value is obvious.

Insect proteins tend to be low in specific amino acids, e.g. methionine

and cysteine, and very high in others, particularly lysine and threonine. Depending on the species, they are rich in different minerals (e.g. K, Ca, Mg, Zn, P, Fe) and/or vitamins (e.g. thiamine/$B_1$, riboflavin/$B_2$, pyridoxine/$B_6$, pantothenic acid, niacin). Research shows that 100 g of cooked insects provide more than 100 percent of the daily requirements of the respective vitamins/minerals contained. The daily consumption of 50 g dried caterpillars meets the human needs of riboflavin and pantothenic acid as well as 30 percent of niacin.

Owing to the high nutritional value, in some regions flour made of caterpillars is mixed to prepare a pulp which is given to children to counter malnutrition. Species that are particularly rich in protein (e.g. *Imbrasia epimethea, Imbrasia dione, Antheua insignata*), calcium (e.g. *Tagoropsis flavinata*) or iron (e.g. *Cinabra hyperbius*) are given to anaemic people, or to pregnant and breastfeeding women. Several other species have an important role in traditional medicine.

***Income generation.*** Caterpillars are widely available in local village markets, while some of the favourite species do reach urban markets and restaurants. The commercialization of alive or dried larvae takes place either directly between producer (gatherer) and consumer or, more frequently, through one or more intermediaries (wholesalers, retailers) who significantly mark up prices. Direct as well as indirect commercialization is practised in a very traditional, informal way and is usually carried out by women and children. For the majority of merchants, dealing in caterpillars is not their main activity but supplements their sales of other foodstuffs such as fish, nuts, manioc or other vegetables.

Merchants may occasionally organize themselves into formal associations to facilitate such logistic activities as renting a car to transport insects to markets. In Zimbabwe, a well-established formal marketing system for the commercialization of *Imbrasia belina* already exists. Although most caterpillars are sold for cash, in some regions they are bartered for food, clothes, household utensils, cigarettes, alcohol or machetes. The pygmies of the Central African Republic, for example, are still accustomed to bartering.

There is also a significant transborder trade in edible insects among all the countries in the central African region, but also with the Sudan and Nigeria and, on a smaller scale, as exports to France and Belgium. France and Belgium annually import respectively about 5 tonnes and 3 tonnes of dried *Imbrasia* sp. from the Democratic Republic of the Congo. In the case of Belgium, the quantity exported is valued at some US$41 500, corresponding to an average price of US$13.83 per kilogram.

***Linkages between forest resources and insect populations***

Several caterpillar species are known to defoliate trees as they develop at the beginning of the rainy season by feeding on fresh leaves. Foresters therefore often consider caterpillars as pests. The defoliation causes a temporarily confined growth but the trees usually respond by producing a second crop of leaves. The insects' attack, if it is not an irregular outbreak, generates only weak permanent damage to the host plants in the dense moist forest zone. The application of chemicals in these forests to control caterpillar outbreaks is therefore non-existent.

However, caterpillars do have a negative impact when feeding on farm crops. Pest control of caterpillars is usually carried out by applying huge amounts of chemicals, thus killing the insects and making them unsuitable for human consumption. There is a positive effect of harvesting the pests. A characteristic example is the plentiful occurrence of *Augosoma centaurus* and *Rhynchophorus phoenicis* on *Raphia sese* and *Elaeis guineensis*. Even if there is often severe damage to these plants, the extensive harvesting of the grubs contributes to maintaining natural plant regeneration. The question is often raised as to whether the increased harvesting of insects for food might serve as a form of biological pest control. Such a practice might result in the reduction of pesticide use as well as creating new economic opportunities for local people.

Harvesting caterpillars is often carried out in a non-destructive way by picking them by hand. However, in some cases, cutting down host trees is widespread; and lopping large branches has an adverse effect as it predestines trees for felling afterwards. In this way, harvesting caterpillars can contribute to forest destruction.

On the other hand, forest degradation has negative impacts on insect populations. It can be assumed that the disappearance of certain host tree species may in the long term be followed by a gradually decreasing supply of some insect species, particularly those dependent on specific host plants. Tree species disappear, for instance, because of selective logging as in the case of high-value timber species such as sapelli (*Entandrophragma angolense*).

Another serious problem is bush fires which disturb both habitats and insect populations. For instance, the extensive use of fire for hunting game and more frequently to catch bush rats has a significant negative impact on the forest habitat. It may result in reduced survival possibilities for highly favoured edible caterpillars, while at the same time other insect populations (e.g. non-edible beetles) may increase. A very interesting aspect is the positive feedback of caterpillar harvesting on the frequency of bush fires in Zambia. This research found that there have been of late very few fires in those areas where people were harvesting caterpillars as the villagers were aiming to protect the insects.

Deforestation may indirectly alter local microclimates in the short term and does contribute to climate changes in the long term, which disrupts the life cycles of the insects. For instance, drought might become a problem, causing among other negative impacts the disappearance of host plants and the corresponding edible insect species, and/or an invasion and proliferation of other (non-edible) species.

The case studies and other investigations show that research on caterpillars is not only recommended because of their contribution to local livelihoods but also because of the mutual influence of caterpillar production and forest/woodland management. (*Contributed by:* Daniela Göhler, volunteer with FAO's NWFP Programme; written under the supervision of NWFP Coordinator Paul Vantomme. The complete study and results of Daniela's work will be published shortly by FAO's NWFP Programme as a Working Paper.)

**Mopani worm in danger of extinction**

For Anna Mathathu, it is incomprehensible that the protein-rich mopani caterpillar could be facing extinction in the Matabeleland region of Zimbabwe if urgent steps are not taken to conserve its habitat. All her life, the 56-year-old villager has relied on the seasonal delicacy to supplement her meagre diet. But it has become obvious to her, and countless other residents of Matobo district – located about 70 km south of Bulawayo – that unless conservation strategies are adopted, the mopani caterpillar will not accompany future rains as it has done for decades.

The delicacy is known to the Ndebele-speaking people of Matabeleland as *amacimbi*, to the Kalanga as *mahonja* or *mashonja* and to the Shona as *madora*. Encased in a tough and spiky skin that protects its nutritional flesh, the mopani caterpillar has gained popularity as a delicacy in the countries of southern and central Africa. To the rural communities of Matabeleland, where it thrives, it has become an important source of food.

However, a brisk trade in the delicacy is threatening its survival and worrying villagers, who say there is no regulatory system to control the mopani caterpillar business that has become a source of livelihood for hundreds of people from within and outside Matobo district. "That [threat] is because people from outside the district have been overexploiting the resource without considering that the caterpillars need to regenerate every year. Such people care more about the profits they derive from the resource than its sustainability," Mathathu said. The villager, who is from the Manyane area of Matobo district, added: "Even the prime *amacimbi*-producing parts of the district still do not have the caterpillars despite the rains this year. We fear they may not appear next year."

Villagers say that the steady decline in the supply of *amacimbi* began three years ago when groups of women from Bulawayo and Harare began invading the area to buy the mopani worms, leading to overharvesting of the delicacy. Traders from Zimbabwe's main urban areas export the caterpillars to Botswana, the Democratic Republic of the Congo, South Africa and Zambia. The caterpillars were initially taken to the Democratic Republic of the Congo in 1998, where they were an instant hit, with Botswana, Mozambique, South Africa and Zambia also becoming major consumers.

The absence of regulations or legislation to control the harvesting of the mopani worms has made it impossible for rural communities in Matabeleland to limit the trade in the delicacy, some villagers told *The Daily News*.

Canaan Ncube, a ward development committee member in the Donkwe area, said that the harvesting of *amacimbi* had become so commercialized that the mopani tree, the caterpillars' habitat and source of food, was endangered every rainy season. "People fell down decades-old mopani trees just to get a kilogram of immature caterpillars," he noted. "In the process, the habitat is destroyed and once the immature caterpillars are harvested, there is no hope of others reappearing in the same area."

Although local authorities in whose areas the caterpillars thrive have been advised to introduce by-laws to manage harvesting as well as to safeguard the environment and the caterpillars' habitat, most councils in Matabeleland South have yet to implement such regulations.

Knowell Dube, the Matabeleland South provincial natural resources officer, said that authorities in the province were aware of the destruction of habitat and were attempting to come up with solutions. "We are working with a number of councils to form local groups that will monitor the harvesting and protect the trees. The theory is that, given incentives such as exclusive harvesting permits, villagers can take better care of their trees and protect the mopani worm from overharvesting. But we need regulatory support from the councils to achieve this." (*Source: The Daily News* [Harare], 27 May 2003.)

**Dehydrated peach palm nut is a dietary option in Amazonia**

The consumption of manioc meal and fish is the customary diet of the people of Amazonia. It would difficult to imagine how this custom might be substituted. However, new processing technologies are slowly changing the Amazonian diet. Diverse native products may be conserved in a dehydrated form. A project developed by researcher Jerusa de Souza Andrade of the National Institute for Amazonian Research (INPA) is studying the possibility of dehydrating the peach palm (*Bactris gasipaes*) nut (pupunha), a process which improves its nutritional value.

The dehydration process concentrates the nutrients and allows the product to be

stored at room temperature, facilitating transport and is an ideal technology for a region as vast as Amazonia. The final product is similar in texture to the ubiquitous manioc meal. (*Source: Amazon News*, 10 April 2003.)

[*Further information on the peach palm can be found at: www.hort.purdue.edu/newcrop/1492/peach-palm.html*]

***FOOD FOR LIFE: INDIGENOUS FRUIT-TREES IN SOUTHERN AFRICA***

**This paper looks at the status and contribution of indigenous fruit-trees (IFTs) to food security in southern Africa, and reviews and assesses the physical situation of IFTs in the miombo woodland. It contains information on use and trade of IFTs, and on biological developments in domestication and dissemination. It covers processing and marketing and explores avenues for the future of IFTs.**

**The paper was produced in 2003 by the FAO Subregional Office for Southern and East Africa (SAFR).**

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**NWFPs as food in India**

*The following has been extracted from a recent paper, by A.K. Bhattacharya, V.K. Sinha and Piyusha Tiwari of the Indian Institute of Forest Management, entitled* "Seasonal availability and consumption pattern of NWFPs as food among the Baiga Primitive Tribe Group of Dindori District of Madhya Pradesh, India".

NWFPs constitute an integral component of food for the communities dependent on forests. The role of NWFPs becomes more significant for less agriculture-dependent communities with small landholdings residing in remote forest villages. In order to assess the role of NWFP-based food habits of such communities, a preliminary study was carried out in one of the most forest-dependent tribes of India, i.e. Baigas. This study was carried out with people of the Baiga Primitive Tribe Group (PTG) living in remote "Chadha" village of Dindori district of Madhya Pradesh.

Since time immemorial people, especially tribals, have been dependent on the forests for various valuable biological resources such as timber, fuelwood, food resources, medicines and other extracts, many of which have no replacement by modern cultivation options. NWFPs play an important biological and social role in local food systems for the people living in and around forests as they depend heavily on forest resources to meet their day-to-day requirements. The communities living in the close vicinity of forests are especially dependent for their livelihood needs and food security. NWFPs are most extensively used to meet dietary shortfalls and to supplement the household income during particularly lean seasons. Many agricultural communities suffer from seasonal food shortages, generally known as "hunger periods". These commonly occur at the time of the year when stored food supplies have dwindled and new crops are only just arriving. During this period the consumption of NWFPs increases. In many Indian states, especially Bihar, Orissa, Madhya Pradesh and Himchal Pradesh, 80 percent of forest dwellers depend on forests for 25 to 50 percent of their annual food requirements.

The specific objectives of the study included: analysis of the consumption pattern of NWFPs among the Baiga PTG in different seasons; analysis of the food intake of the Baiga tribe; and identification of the NWFPs that play an important role in food availability during the different seasons.

***Results and discussion***

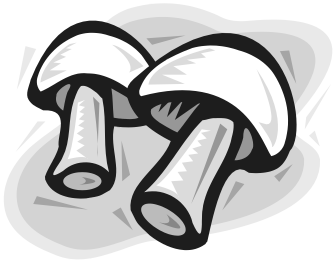
• *Food (agricultural produce) availability in different seasons*

Agricultural crops such as maize, kodo, kutki and ramtila are grown in the area. The inadequate irrigation infrastructure restricts farmers to the kharif crop only. The villagers' landholdings are small (2 to 3 acres per household) and the average family size is six. Maize and chirota bhaji (NWFPs) form the staple diet of the villagers and are consumed throughout the year. Food availability declines during the summer and at the onset of the rainy season. This is the time of the year when villagers are most dependent on forest food to meet the shortfall in agricultural produce and the family's food requirements.

• *NWFP availability in different seasons*

Fifty-three NWFPs are reported as being collected by the villagers in Chadha (not including fish). Out of these, 46 are used for domestic consumption, with the remaining NWFPs being collected for sale. NWFPs such as sal seeds, tendu leaves and harra are collected by the villagers and sold to the Forest Department. Some NWFPs are also sold in the open market after domestic consumption has been met. The collection period and quantity depend on the availability of the NWFP. Most species are available from March to July, the maximum being available in June (62.78 percent), followed by May (44.18 percent), April (41.86 percent) and July (41.86 percent).

Out of the total NWFPs consumed, 49 percent are consumed as fruits, 26 percent as leaves, 16 percent as rhizomes and 5 percent as the entire plant.



Most of the NWFPs, other than mushrooms and leaves, are collected from March to June. Villagers go deep inside the forests and cover long distances, ranging from 2 to 5 km, to collect NWFPs. Some NWFPs, such as chirota bhaji and gular, primarily used for consumption, are found in adequate quantities in and around villages. Some NWFPs are consumed mainly as leaves, for example, chirota, pepal, dhoodia, saroota and kanjari. These are collected from June to September when the leaves are new and young. Chirota leaves are collected from July to September and dried and stored for consumption throughout the year. Rhizomes of a few species, such as kanhaya kand, birar kand and kadukand, are collected and consumed throughout the year. Mushrooms ("pehri" in the local dialect) are collected by the villagers from July to August. Their consumption depends upon the quantity collected.

The average collection period per household varies from species to species and also depends upon the availability in a particular year. In a good production year the period extends to two months for some species such as mushroom, mango, lorangi kand, birar kand, chirota bhaji and kachhar bhaji. The average collection period for the majority of the NWFPs is 10 to 30 days. The average total quantity of NWFPs collected per household per year is around 558.8 kg. Mango is the product collected in the maximum quantity (40 kg per household per year), followed by chirota bhaji (35 kg per household per year) and maruha (30 kg per household per year). Most NWFPs are consumed cooked (46.5 percent), others raw (34.9 percent), while the remainder are consumed both raw and cooked.

***Conclusion***

NWFPs form an integral part of the food intake of the Baiga tribe. Some NWFPs such as mushrooms and chirota leaves are stored and consumed throughout the year. The consumption of mushrooms to a large extent depends upon availability in the area, while other NWFPs are collected and consumed from March to September. After the kharif crop is harvested, not much emphasis is laid on NWFP collection, partly because of low availability and partly because of the availability of agricultural crops. Chirota leaves and mushrooms form an important part of the diet throughout the year, and their consumption does not decline significantly with the seasonal availability of agricultural produce. The leaves of dhoodia, bhramrakas, sarota and kachar are only consumed during the rainy season. NWFPs such as khamar, kachnar, bhilwa, goolar and aam are consumed as fruit from March to June, depending upon availability. (*Contributed by:* Dr Ajoy K. Bhattacharya, IFS, Associate Professor, Indian Institute Forest Management, Nehru Nagar, Post Box 357, Bhopal 462003, India; fax: +91 755 772878; e-mail: ajoykb@sancharnet.in *or* ajoy@iifm.org)

**Indigenous fruit-trees: *Irvingia gabonensis* and *Dacryodes edulis***

Edouard Kengni advises that he has successfully defended his Ph.D. thesis at the University of Yaoundé in Cameroon. His thesis was on "Food value of fruits from indigenous fruit-trees in the Lowland Humid Tropics of West and Central Africa: case of *Irvingia gabonensis* and *Dacryodes edulis* in Cameroon".

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**Fruits comestibles de forêt vendus sur les marchés du nord-est du Gabon**

Les forêts du nord-est sont également riches en fruits comestibles comme la plupart des forêts du Gabon. Nous donnons ci-dessous quelques fruits comestibles vendus sur les marchés de Makokou; ville située à 10 km de la station de recherche d'Ipassa où nous avons effectué la plupart de nos observations de terrain, il y a plus d'une quinzaine d'années.

Les populations de Makokou (Fang, Bakota, Bakwélé) consomment les fruits de forêt dès que ceux-ci arrivent à maturité. La saison des récoltes est brève chaque année (quelques semaines). Les fruits sont consommés de deux manières: soit sous forme de pulpe, soit sous forme de graine. Les fruits à graines comestibles sont les moins nombreux sur le marché, tandis que ceux à pulpe comestible dominent les étales des marchés à partir de septembre à août.

Si les fruits à pulpe comestible sont les plus nombreux, force est de constater que ceux-ci sont beaucoup moins présents sur les marchés tout au long de l'année, comme c'est le cas pour les fruits à graines comestibles qui sont représentatifs à cause de leur mode de traitement mis au point par les populations locales pour mieux les conserver aussi longtemps que possible.

| Nom scientifique | Famille | Noms vernaculaires | Partie utilisée |
|---|---|---|---|
| *Anonidium mannii* | Annonaceae | Yinda, money, libanga | Pulpe |
| *Antrocaryon klaineanum* | Anacardiaceae | Osongongo, mungongubogu, onzabili | Pulpe |
| *Coula edulis* | Olacaceae | Coula, mugumunu, ogula, éwumi, ingomba | Graine |
| *Dacryodes klaineana* | Burseraceae | Nomeba, abatom, muninga | Pulpe |
| *Gambeya lacourtiana* | Sapotaceae | Obambo, mobami, mumbampfu, bébambé | Pulpe |
| *Irvingia gabonensis* | Irvingiaceae | Andok, oba, uba, wiba, mubè, mwiba, ondimba | Graine |
| *Panda oleosa* | Pandaceae | Ovanda, afan, ovaga, nkuba | Graine |
| *Pseudospondias longifolia* | Anacardiaceae | Andok, musungubali, ikongo, iposu | Graine |
| *Scyphocephalium ochocoa* | Myristicaceae | Sorro, ossoko, nsoko, otchoko, issombo | Graine |
| *Trichoscypha abut* | Anacardiaceae | Owura, lebuta, mumbundu-kenga | Pulpe |
| *Trichoscypha acuminata* | Anacardiaceae | Anvout, oléla, owura, elola | Pulpe |

Ainsi, on note par exemple que les graines de *Scyphocephalium ochocoa* (forme de poudre), de *Panda oleosa* (poudre) ou celles d'*Irvingia gabonensis* (graines et forme de pain) sont présentes sur les marchés locaux pendant l'année.

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**No need for iron supplement – eat grewia fruits**

*Grewia tenax* is a tropical bushy tree with rounded, pendulous fruits, 5 to 10 mm across. Fruits change gradually from green to bright red when quite ripe. The firm, fleshy layer surrounding the stone is edible and is relished by children and adults alike. Its fruit juice is regarded as a great thirst-quencher, especially during the hot months from March to July. A thin porridge (*nesha*), prepared by boiling fruit pulp and millet flour is given to pregnant and lactating women to improve their health and milk production.

And now we know why grewia fruit is so prized by Sudanese people that it is even considered a substitute for iron supplement: of the wide range of nutrients in the grewia fruit, its iron content has attracted most attention. Indeed, the iron content is important to local communities who know well that it is a simple safeguard against iron-deficiency anaemia. It has, on average, two to three times the Fe content of oranges, with up to 74 mg per 100 g edible portion. The iron in the fruit juice, in particular, is noted for being much more easily assimilated than manufactured forms of iron. The fruit is also rich in carbohydrates, minerals and vitamins, and low in fat and sodium.

In spite of its potential, which is well recognized, wild shrubs are continuously exploited to meet the increasing demand. A plant that is easy to cultivate and tolerant to harsh conditions deserves more research and development efforts than it has so far received. There is an urgent need to study the growth, development and utilization of *G. tenax* more comprehensively to facilitate the improvement of this species for the benefit of humankind in the future.

A joint project is being launched between the Arid Land Research Center, Tottori University, Japan and the Agricultural Research Corporation, the Sudan to address these topics. We welcome any inputs from those who have experience with this species. (*Contributed by:* Dr Kamal El-Siddig, Visiting Associate Professor, Arid Land Research Center, Tottori University, 1390 Hamasaka, Tottori 680-0001, Japan; fax: +81 857 296199; e-mail: elsiddig@alrc.tottori-u.ac.jp)

**Experts encourage rural people to plant fruit-trees**

A joint effort by the Uganda Agroforestry Development Network, the National Agricultural Advisory Services and the International Center for Research in Agroforestry (ICRAF) aims to use fruit-trees as a weapon against poverty. They expect millions of Uganda's poor in the rural areas to be their allies by planting many trees. Some 80 percent of Ugandans (approximately 19 million people) live in rural areas.

A survey carried out by ICRAF recently showed that 52.6 of households in Uganda had not planted any trees during the previous 12 months. This was mainly due to the limited access to quality planting material. Most households reported that they had no tree seedlings to plant. The report also reveals that 10 percent of formerly arable land had been degraded owing to overcultivation and that abandoned land is increasing at the rate of 3 percent every year.

The experts say that fruit-tree planting has a huge potential given that there are currently more than 1 000 species of fruit-trees in the Tropics that are still in the wild. These, they say, can be domesticated and turned into products. Some fruit-trees from the wild have already been used to produce high-value products. The shea nut tree produces butter which is a major ingredient in high-quality cosmetics and foods, and the amarula is a major ingredient in high-quality beverages. (*Source: New Vision* [Kampala], 21 May 2003.) ●

# NEWS AND NOTES

**"Non-Wood Forest Products (NWFP) consist of goods of biological origin other than wood, derived from forests, other wooded land and trees outside forests."**

**«Les produits forestiers non ligneux sont des biens d'origine biologique autres que le bois, dérivés des forêts, des autres terres boisées, et des arbres hors forêts.»**

**«Productos forestales no madereros son los bienes de origen biológico distintos de la madera derivados de los bosques, de otras tierras boscosas y de los árboles fuera de los bosques.»**

**(FAO's working definition)**

## BICYCLE MADE FROM AMAZONIAN VEGETABLE LEATHER

The Giant bicycle, made using vegetable leather, is a success for the "Business for a Sustainable Amazonia" partnership. The bicycles come equipped with bags made from vegetable leather, stamped with the World Wide Fund for Nature (WWF) logo. The range was launched at the Botanical Garden in Rio de Janeiro during the opening of a new exhibition from Business for a Sustainable Amazonia, a partnership between the Ministry of the Environment, AmazonLife and WWF-Brazil.

The vegetable leather, known as Treetap®, is made from natural rubber and was produced by three rubber-tapping communities in Amazonia, with support from the Rio-based company Amazon Life, WWF-Brazil and the Nawa Institute.

The aim of the vegetable leather project is to develop new products made using natural rubber which guarantee the sustainable use of forest resources and increase the income of the local population.

The bicycles have already attracted great interest from consumers in Holland. (*Source: Amazon News*, 20 June 2003.)

## BOTANICAL MUSEUM OPENS "THE GIFT OF THE NILE" EXHIBITION

The botanical museum at the Instituto Politécnico de Beja, Portugal (Beja Polytechnic Institute) has recently opened a new exhibition named "The Gift of the Nile or the Uses of Plants in Ancient Egypt". The exhibition displays 216 items, including plants, plant products and Egyptian art reproductions brought to the workshops of the major world museums that have Egyptian collections.

The exhibition covers the period between 3100 and 30 BC and is divided into major themes: food plants, medicinal and aromatic plants, clothing plants, plants used in the mummification processes, spices, etc.

Some of the plants included in the exhibition are native of Egypt (papyrus, blue water lily) but others were imported through legendary commercial routes (spices, resins).

Among the many plants and plant products displayed are: papyrus (*Cyperus papyrus* L.), doum palm (*Hyphaene thebaica* [L.] C. Mart.), flax (*Linum usitatissimum* L.), henna (*Lawsonia inermis* L.), pomegranate (*Punica granatum* L.), ebony (*Dalbergia melanoxylon* Guill. & Perr.), frankincense (*Boswellia sacra* Flueck.), myrrh (*Commiphora myrrha* [Nees] Engl.), mastic (*Pistacia lentiscus* L.), coriander (*Coriandrum sativum* L.), garlic (*Allium sativum* L.) and onions (*Allium cepa* L.).

A catalogue of the exhibition has been published (in Portuguese and English).

For more information, please visit the museum's Web page (www.esab.ipbeja.pt/museu/index.htm). (*Contributed by:* Luís Mendonça de Carvalho [museu@esab.ipbeja.pt] and Francisca Maria Fernandes [ffernandes@eseb.ipbeja.pt], Portugal.)

## CERTIFICATION

**Beyond timber: certification of non-timber forest products**

Certification is part of a growing trend with regard to defining standards for social and environmental performance in natural resource management. Started in response to consumer demand for sustainably sourced products, the concept has taken hold in a number of sectors including the food, health care and forest product industries. In forestry, certification began in the wood products industry, only recently including non-timber forest products. Because the term non-timber forest products (NTFPs) encompasses such a vast array of goods, various certification schemes are being applied, with varied success and relevance. This review positions NTFPs within the context of sustainable forest product certification and within the development of broader standards and certification for NTFPs and related products (organics, authentication and quality control). There are broader implications of standards, for example as a tool to influence consumer choice, to form the basis of industry association standards (of collecting and management), corporate policies, and/or legislation.

There are 36 products that have standards established within the forest certification standards, 32 of them in Brazil. Certification has focused on products with commercial relevance but for which there is a good information base of management concerns and a known set of collectors whose activities can be monitored and confirmed. They are also products with a marketing chain

to a product for which the NTFP is the main or primary ingredient.

Recent efforts to certify NTFPs raise questions about the impact of this market-based tool on local producers and communities. Drawing from case studies in Latin America, we find that there are many impediments to the successful implementation of NTFP certification. These impediments range from unorganized and powerless labourers to basic difficulties in commercializing NTFPs in the face of an undeveloped demand for certified products among businesses and consumers. The next generation of NTFP certification will be more complex owing to faulty information on management and biological characteristics of the species, multiple chains of collectors, managers and processors, the volatility of NTFP markets and the importance of many NTFPs which are only a small part of the final product to be marketed.

There are strong interests in developing standards from industry associations interested in the sustainability of the supply of threatened species and in preventing competition from lower-quality products. Health organizations and governments are increasingly concerned with standards, while producers seek clear guidelines for harvesting and management that can be communicated clearly and successfully applied to ensure their own income streams. In most cases there is a lot of conflicting information: a plethora of guidelines, the weakness and inconsistency of standards and a lack of integration into market chains or other trade labelling initiatives (organic or fair trade, for example).

Apart from a limited set of products, NTFP certification can be extremely costly as regards standards development and application to varied ecological settings. Even within a given region in a given country, standards can be impossible to apply where there are multiple types of collectors over dispersed areas with public tenure. Small producers may be unable to apply these standards owing to a lack of information or lack of market return for their application. Particularly in the cosmetic industry, where individual NTFPs are only a small portion of the final product, there is little market incentive to certify. In addition, some products can be quite vulnerable to product substitution or fashion and expensive processes of certification should only be applied to those NTFPs likely to maintain a reasonable market share over time.

A number of successful experiences can be expanded to other products – rattan, maple syrup, chicle, palm heart and wood carvings. For species which are difficult to certify there are a number of alternatives which could be more systematically applied to new countries and new markets, including ethical standards for collectors' associations, permit systems which coincide with collection options and requirements, fair trade models and the provision of greater tenure security to specific sets of collectors and producers. Parallel to this, government regulations often need modifying in order to remove market barriers for small-scale producers and to eliminate counterproductive permitting and taxation systems that reduce the returns available to the producer.

It appears that the process of creating NTFP certification standards may create positive ripple effects among producers, traders, companies and policy-makers by planting the seeds for a vision of more socially and environmentally responsible management of NTFP resources. We conclude that the ability of certification to bring about wider social change indirectly may prove to be of greater lasting impact to rural livelihoods and NTFP management than labelling and marketing. (*Source: ETFRN News*, 39/40.)

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**Benefit-sharing using certification**

Fair trade certification of non-wood forest products (NWFPs) is an example of benefit-sharing that is being developed. Typically, collectors of NWFPs receive only small payments for the products that they collect. These products may eventually be sold at prices that are many times higher, particularly if they are exported from developing to developed countries. Fair trade certification and other types of certification have been used to try to redistribute some of these benefits back down the production chain, to increase the profitability of NWFP collection, raise the incomes of local people and help to protect forest areas. As with wood certification, such arrangements may have the potential to increase the profitability of forestry for local people, but they currently account for only a small share of total NWFP production. (*Source:* Extracted from an article in *Unasylva*, 212 by A. Whiteman "Money doesn't grow on trees: a perspective on prospects for making forestry pay".)

**First FSC-certified non-timber forest products from the Brazilian Amazon**

The fruits and palm hearts of *Euterpe oleracea* are non-timber forest products of major economical importance in the Brazilian Amazon. This multistemmed palm is widely distributed in the swamplands of northern South America and the greatest concentrations are in the Amazon estuary. People harvest the fruits

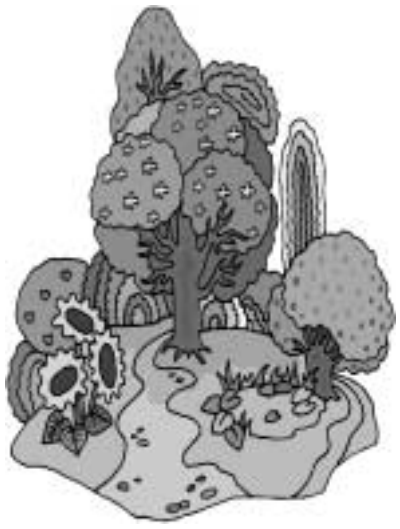
by climbing the palms, cutting the inflorescence and extracting the fruit pulp mechanically or by hand. A highly nutritious liquid, locally known as *açai,* is processed into beverages, ice-cream and pastries and is sold at local or regional markets. Mixed with cassava flour or rice, it is consumed in huge quantities by the poor section of the Amazonian population. Palm hearts consist of the young, undeveloped leaves in the crown shaft of the *Euterpe* palm and can be consumed raw or cooked. To harvest a palm heart, the entire stem is cut down and its crown shaft removed. Palm hearts are processed and canned in factories on the banks of the Amazon and are worth some US$120 million annually in domestic consumption and export value.

Repeated harvesting with short rotation periods leads to the weakening of individual palm clumps and a slower regeneration. Ecological research on *Euterpe* populations has pointed out that harvesting at short intervals (one to two years), as is mostly the case in Brazil, causes clump mortality and a steady decline in production. Overharvesting and low-quality (immature) palm hearts have already weakened Brazil's position on the world market. Obviously, the indiscriminate felling of *Euterpe* palms also has a negative effect on the availability of *açai* resources.

Fortunately, alternative land-use practices permitting both fruit harvest and palm heart extraction are being increasingly implemented by the rural Amazonian population. Harvesting palm hearts after longer intervals (four to five years) causes less damage to the natural stands and produces a higher palm heart yield. Leaving one mature stem per cluster intact increases the vitality of the clump and supplies the extractor with fruits. Because of its frequency and clonal, self-regenerative habit, *Euterpe oleracea* is able to sustain a viable industry, as long as rotation periods are long enough and producers strictly follow their management plans. As long as people climb the trees to collect the fruit, instead of cutting all mature stems, *açai* production can be considered sustainable. Other sustainable management practices are the selective thinning of forest competitors (lianas) and pruning to increase production.

Some 4 000 ha of *Euterpe* forest on Marajó Island (Amazon estuary) were recently certified by the Smartwood Programme, according to the sustainability guidelines of the Forest Stewardship Council (FSC). The canning company, Muaná Alimentos, buys palm hearts and *açai* from forest-dwelling communities. In 2000, the company produced 540 tonnes of palm heart with a value of US$4 million. In the same year, seven tonnes of pure and sweetened *açai* pulp were exported to the United States.

Muaná employees are hired and organized through a labour cooperative and training courses in responsible forest management are held periodically. Other technical training courses are made available to the community as a whole. New harvesting methods have been developed that enable adults to gather the fruits and the children now go to school. The newly founded producers' association provides boats and fuel for school transportation. The state government continues to provide support as well since eradication of child labour is high on their agenda. The school curriculum includes forest management and the basic concepts of nature conservation. (*Source: ETFRN News*, 39/40.)



**This study was carried out for the Guiana Shield Initiative, which is an ambitious ecoregional project, coordinated by the NC-IUCN with the aim of setting up sustainable financial mechanisms to conserve the unique intact ecosystems of the Guiana Shield. The development of commercial non-timber forest products is often one of the ways by which local communities generate income from their surrounding biodiversity.**
**(Full reference: van Andel, T.R., Bánki, O.S. & MacKinven, A. 2003.** ***Commercial non-timber forest products of the Guiana Shield: an inventory of commercial NTFP extraction and possibilities for sustainable harvesting.*** **Amsterdam, Netherlands Committee for IUCN.)**

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## COMMERCIALIZING NWFPS

**Identifying the "winners & losers"**

The commercialization of non-timber forest products (NTFPs) has an impact on many groups of people, from poor farmers to small-scale entrepreneurs, and on the resource base.

Examining different NTFP market chains can help to identify suitable development paths, so that commercial returns are not achieved at the expense of ecological sustainability and other social, cultural and environmental benefits.

Over the past three years, our group at the Centre for Ecology and Hydrology (CEH) Wallingford has been leading an

# NEWS AND NOTES

international multidisciplinary team examining the distribution, use and marketing of NTFPs from two species, marula (*Sclerocarya birrea*) in South Africa and Namibia, and crabwood (*Carapa guianensis*) in Guyana, to assess the economic and ecological impacts of their commercialization on the forest resource base and people's livelihoods.

Our research has shown that NTFP use can provide important income for poorer households, especially for women, diversify their livelihood options, and at the same time lead to improved management and conservation of the resource. We have also highlighted the fact that the potential economic benefits of NTFP commercialization must be weighed against social, cultural and ecological costs that may arise, particularly when products become the focus of large-scale enterprises.

The marula tree and its fruit are well known across southern Africa, thanks to its widespread distribution, its common use among rural communities (especially for brewing beer), and its popularization through the advertising efforts of the producers of Amarula Cream liqueur. The marula tree has many uses and it is an example of an NTFP with considerable commercialization potential. Its bark provides medicine, its wood is used for carving, its fruits for the preparation of juice, beer and jams, and its kernels provide a wholesome snack and high-quality oil.

Crabwood is a tree found across Amazonia and Central America and is a much sought-after hardwood. But the benefits of the oil derived from its seeds are also known throughout the region. In Guyana, crabwood oil is a highly prized household item among Amerindian peoples, having multiple uses, especially for the treatment of common ailments. Its other properties and uses have important potential, and have been examined so that appropriate management regimes can be developed.

The "Winners & Losers" project team includes specialists in environmental economics, ecology, natural resource management, community development, marketing, and intellectual property rights. We set out to identify the winners and losers in forest product commercialization to help establish methods of sustainable harvest of resources, benefit local producers, and resolve conflicts. This knowledge can help forest-dependent communities worldwide to profit from their natural resources in an equitable and sustainable way. The United Kingdom Department for International Development (DFID) is funding the research as part of their Forestry Research Programme, and will use the results to inform local communities as well as national and international forest policies.

The research has shown that in identifying the winners and losers in forest product commercialization we can conclude that an enterprise, community, or individual household may experience both winning and losing situations and that they may win and lose at different times of the year or season depending on certain circumstances. The lesson that has emerged is that there are winners' and losers' qualities or behaviour that influence the distribution of benefits in commercialization.

Outputs from the Winners & Losers project are extensive and diverse, ranging from scientific papers to educational materials. One such output is a half-hour professional quality video film, *Trees of Life: 10 lessons from the marula and crabwood trees*, due to be shown on national television in the study countries and available on VHS for wider educational dissemination.

More information about the project and (coming soon) downloadable reports and other outputs can be found at the Winners & Losers Web site (www.ceh-wallingford.ac.uk/research/winners/).

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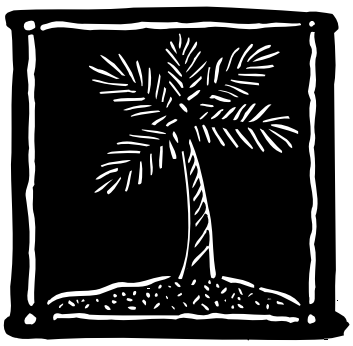
**Commercialization of NTFPs in the Amazon**

The Rainforest Alliance has awarded the 2003-2005 Kleinhans Fellowship for study of non-timber forest products (NTFPs) to Carla Morsello, Ph.D. Carla will examine how the commercialization of NTFPs in the Brazilian Amazon is affecting local indigenous communities and forest conservation. The NTFPs in the study will include local oils, nuts, flowers and herbs used by the cosmetics and medicinal industries. (For the full story, please see the press release at: http://ra.org/news/archives/news/news69.html) (*Source:* Rainforest Alliance [ra.rm.m2483@forest.ra.org], 5 August 2003.)



# NEWS AND NOTES

## FORESTRY COMPENDIUM 2003 EDITION

The *Forestry Compendium* is an encyclopaedic, mixed media tool, available on CD-ROM and the Internet. It has a user-friendly interface so it can present text, pictures, maps and abstracts together, without the user having to search numerous sources.

**For more information, please contact:**
**CAB International, Wallingford,**
**Oxfordshire, OX10 8DE, UK.**
**Fax: +44 1491 829292;**
**www.cabicompendium.org/fc**

## GLOBAL FORUM CALLS TO CURB ILLEGAL LOGGING AND PROMOTE RESPONSIBLE FOREST INVESTMENT

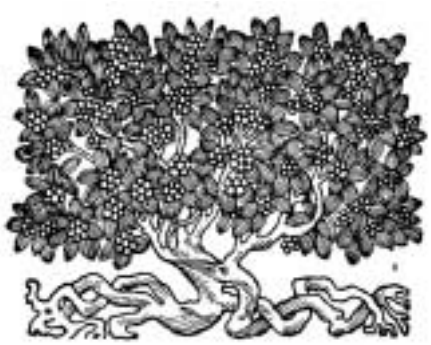
With a call to curb illegal logging – which today represents worldwide annual losses in revenues and assets in excess of US$10 billion – and to increase responsible forest investments in developing countries and economies-in-transition, a two-day multistakeholder Forest Investment Forum ended today in Washington.

A statement issued by the sponsoring organizations – the World Business Council for Sustainable Development (WBCSD), World Wide Fund for Nature (WWF), Forest Trends, Program on Forests (PROFOR), the World Bank, and the International Finance Corporation (IFC) – emphasized that this gathering, which included leaders of multinational forest companies, governments, ministries, international development and financial institutions, and environmental and civil society organizations was a crucial platform to move ahead a sustainability agenda for the forest sector.

According to Ian Johnson, World Bank Vice President for Sustainable Development, it is important to act now to implement sustainable forest management, as forests are fundamental in the fight against poverty and the maintenance of biodiversity.

It is estimated that some 1.6 billion people worldwide depend on forests for their livelihoods. Sixty million indigenous peoples depend on forests for their subsistence. Forest resources also represent a survival base for as many as 200 to 300 million small farmers around the world.

Forests worldwide harbour 90 percent of land-based biodiversity, including numerous threatened and endangered plant and animal species. Forests provide valuable goods such as timber and medicines, and important services such as regulating climate change by storing carbon and filtering drinking-water. Despite their importance, many of the world's richest forests are rapidly disappearing. (*Source:* Extracted from a World Bank [Washington, DC], Press Release, 24 October 2003.)



## INTERNATIONAL FELLOWSHIP OPPORTUNITY

The World Forest Institute (WFI) is seeking individuals working in forestry and natural resources to apply for their International Fellowship Program. WFI is a division of the World Forestry Center, which is a small, private non-profit educational organization based in Portland, Oregon, United States. The Forestry Center promotes education and information exchange regarding forests and forestry.

The Fellowship Program brings natural resources professionals from around the world to work at the World Forest Institute for six to 12 months. More than 50 Fellows from 17 countries have participated in the programme. Fellows staff country desks at WFI and work with colleagues from around the world. They work on a primary research project developed in cooperation with their sponsors, and also participate in group activities which include site visits to forestry agencies, universities, companies and mills.

WFI seeks individuals with initiative, interest in international forestry issues, and a good command of English.

**For more information, please contact:**
**Angie DiSalvo, International**
**Fellowship Program Manager,**
**World Forest Institute,**
**World Forestry Center,**
**4033 SW Canyon Road,**
**Portland, OR 97221, USA.**
**E-mail: adisalvo@worldforestry.org;**
**www.worldforestry.org/wfi**

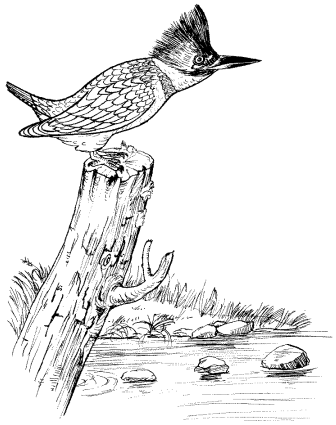
## JOURNALS

***Journal of Tropical Medicinal Plants***

Medicinal plants in the tropics are integral to health care and constitute one of the richest forms of tropical forest biodiversity. There is a need for scientific information on utilization, conservation, safety, efficacy and quality control to match the rapidly growing demand in this field. The *Journal of Tropical Medicinal Plants* has been established to provide a forum for sound science and education of medicinal plant species from the Tropics that are of benefit to humanity.

**For more information, please contact:**
**Prof. A.N. Rao, Editor-in-Chief,**
**Journal of Tropical Medicinal Plants,**
**Level 2, Wisma Zuellig,**
**9 Jalan Bersatu (13/4),**
**Petaling Jaya, Selangor, Malaysia.**
**E-mail:**
**info@totalhealthconcept.com**

# NEWS AND NOTES



***World Bamboo and Rattan***

*World Bamboo and Rattan* is a new quarterly journal.

**For more information, please contact: Fu Jinhe, Ph.D., Program Officer, International Network for Bamboo and Rattan, Beijing 100101-80, People's Republic of China.**
**Fax: +86 10 64956983;**
**e-mail: jfu@inbar.int;**
**www.inbar.int *or***
**www.geocities.com/zhuzi.geo**

***Nature and Environment Law Times***

Print World (Nature Book Shop) has announced the publication of a quarterly journal *Nature and Environment Law Times* to cater to the intellectual and professional requirements of foresters, environmentalists, lawyers, social activists, academicians and nature lovers. (For information regarding subscription and pre-publication offers please contact: printworld@vsnl.com)

## NEEM TREE EXTRACTS TO KILL VEGETABLE PESTS

Farmers could use extracts of the neem tree to control pests that attack vegetables, research done in Makerere University, Uganda, has revealed. Dr Anne Akol, a lecturer at the Department of Zoology, Faculty of Science, found that neem tree extracts could kill several cabbage pests. She said only low doses of the extract were needed to kill the insects, and that farmers in Kenya were already using the neem extracts to control pests. Neem doesn't kill the insects immediately, but it causes their abnormal growth.

She advised farmers not to collect extracts from different neem trees as trees vary in the concentration of the natural pesticide. Some trees have higher concentrations than others.

Dr Akol completed her research in 2001. By setting up experiments in a laboratory, she established that the neem extract could kill such cabbage pests as aphids and caterpillars. However, she did not establish how many other pests could be killed using neem. (*Source: New Vision* [Kampala], Uganda, 26 March 2003.)

**For more information, please contact the author: Prof. Mark Chase, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, UK.**
**E-mail: m.chase@kew.org;**
**www.kew.org**

## NTFPS REVISITED

In June 2003, the *International Forestry Review* published a special issue "NTFPs revisited", guest edited by Dr Anna Lawrence of the Environmental Change Institute (ECI).

Some of the papers are available for downloading from the ECI Web site: www.eci.ox.ac.uk/humaneco/he_IFR.htm. (*Contributed by:* Sarah Gillett [sarah.gillett@environmental-change.oxford.ac.uk], UK.)

## SUSTAINABLE DEVELOPMENT OF RATTAN IN ASEAN COUNTRIES

Rattans belong to the palm family (Palmae or Arecaceae) and to the Calamoideae, a large subfamily. They are thorny climbing palms with around 600 species belonging to 13 genera and found in the lowland tropical forests of the Old World. Most of the species have very restricted natural ranges and grow from sea level to 3 000 m altitude.

The Southeast Asian region is endowed with diverse species of non-wood forest products (NWFPs) owing to its vast tropical forests. Of the 13 known genera of rattans, ten genera with about 574 species are found in the Southeast Asian and neighbouring regions, from Fiji to the Indian subcontinent, and from South China to Queensland in Australia. These are *Calamus* (400 species), *Daemonorops* (115 species), *Korthalsia* (26 species), *Plectocomia* (16 species), *Ceratolobus* (six species), *Plectocomiopsis* (five species), *Pogonotium* (three species), *Myrialepis*, *Calospatha* and *Retispatha* (one species each). Owing to this great number of rattan species, Southeast Asia is considered to be the centre of biodiversity of rattans. Commercial species of rattan are only approximately 10 percent of the total known species worldwide.

Rattan is an important commodity in international trade and at the local level. It was estimated that the external trade of rattan generates about US$4 billion. Southeast Asian countries are the major international traders of rattan, with local usage amounting to US$2.5 billion.

Worldwide, about 700 million people use rattans and about two million people in the Asian tropics are said to be directly dependent on rattan or connected with rattan harvesting and trade. Most local people in Southeast Asia use rattans primarily for thatching, handicrafts, food, furniture and other uses. In fact, over the years Asian artisans have perfected their skills in making attractive, distinctively

styled rattan articles that are renowned and valued all over the world.

Trade in rattan products has become very profitable for many Asian countries and is a source of income for many rural inhabitants. The rattan industry also provides employment opportunities to local people and contributes to the national and international economies.

At present, rattan resources are being exploited in their natural habitat. The external trade and commercial value of rattan furniture amounts to US$7 billion to $8 billion. However, nearly 90 percent of the raw materials being used for the industry are mainly from wild forests and very few from cultivated areas. The situation is being aggravated by the losses during post harvest operations of 20 to 30 percent of the materials being gathered. Inadequate replenishment, poor forest management and loss of forest habitats also contribute to the problems regarding the depletion of rattan resources.

A limited number of rattan species are suitable for plantation establishment and plantations are found in few countries, e.g. Indonesia, Malaysia, Thailand and the Philippines. Other plantation establishments have started recently in some countries while large-scale plantations have yet to be developed and encouraged.

Thus far, the plight of rattan production and utilization cannot be ignored. It is apparent that there is a need for improved techniques in planting and management of rattan in degraded forest. Collaborative efforts and exchange of information and/or experts concerning the management of rattan to a broader perspective are imperative. This could turn to the formulation and adoption of improved technologies for sustainable development of rattan. Building a strong collaboration between governmental, international and private organizations for more information exchange and cooperation is an important undertaking.

As a first step towards this, the Ecosystems Research and Development Bureau – Department of Environment and Natural Resources (ERDB-DENR) and the Forest Products Research and Development Institute – Department of Science and Technology (FPRDI-DOST) are implementing a pre-project entitled "Application of production and utilization technologies for sustainable development of rattan in the ASEAN member countries" (ITTO PPD 51/02 Rev.1 [I]) with funding support from the International Tropical Timber Organization (ITTO). This Asia-wide endeavour will cover Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Thailand, Singapore, Viet Nam and the Philippines.

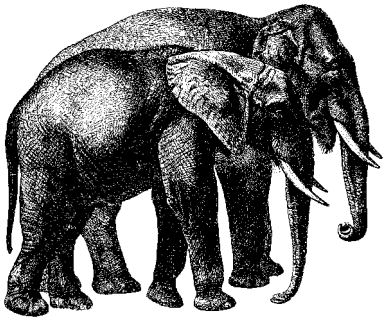
The development objective of the pre-project is to assess the socio-economic acceptability, the financial and market feasibility of rattan production and utilization technologies in the ASEAN member countries. Specifically it aims to: conduct a situational analysis of the rattan industry and determine the socio-economic, production, harvesting, processing, utilization and market dimensions of rattan both in plantation and community-based levels in the ASEAN member countries; and determine future actions needed to enhance ASEAN regional cooperation through collaborative research in rattan sustainable development.

This pre-project will capture the status quo of the region's socio-economic situation in relation to the rattan industry. Other factors such as sociodemographic information, acceptability, preferences and attitude towards rattan as a raw material will also be studied. The information will provide decision-makers with bases for the rationale and viable decisions for future market-related actions.

A Regional Rattan Conference was held in January 2004 as a culmination of all the activities in the pre-project and presented papers on the status of rattan resources in participating ASEAN countries, their uses, extent and management of natural stands and appropriate silvicultural activities related to sustainable development.

Formulation of a framework for the sustainable development of rattan in the region is anticipated to be carried out by the Research Team. Indeed, through this pre-project it is foreseen that the status of the rattan industries will be improved or modified with the appropriate technologies, information, and economic and social interventions through the efficient and effective exchange of information and/or experts and the collaboration among the ASEAN member countries. (*Contributed by:* Jessie R. Fortus, Research Assistant, ITTO Rattan Project.)

**For more information, please contact: Dr Aida Baja-Lapis, Project Leader (Production and Management), Project Management Office, Ecosystems Research and Development Bureau, College, Laguna 4031, the Philippines. Fax: +63 049 5363481; e-mail: acbl2002@yahoo.com, itto_rattan@yahoo.com *or* opc_rattan@hotmail.com**



## THE SOUTHERN AFRICAN NATURAL PRODUCTS TRADE ASSOCIATION

If you asked Chapeto six months ago how he saw his role in a global economy, he would have laughed at you. Chapeto lives in the remote district of Rushinga, in northeastern Zimbabwe; a hot, dry, dusty place, where the daily struggle for survival can be especially harsh. But if you ask him today, Chapeto will tell you exactly how he fits into the global economy and how he is benefiting from being linked to one of the world's fastest growing industries.

# NEWS AND NOTES

Chapeto and his partner Kasoro, together own one of the latest businesses to benefit from a new regional trade association, SANProTA (the Southern African Natural Products Trade Association) that aims to bring people like Chapeto into the global economy. Chapeto's company is called C&K Investments and they produce oil from the seeds of the baobab tree. They have recently invested in an oil press and established a small oil processing facility that employs five local people. At current production levels they are purchasing 6 tonnes of seed per month from rural producers throughout their district in return for much-needed cash.

The global trade in natural products is a rapidly growing market sector valued at more than US$40 billion a year worldwide. SANProTA's goal is to unlock the market potential of natural products in southern Africa, giving global companies access to new and exciting African natural products while developing a long-term supplementary income source for poor rural people in the region, thus enabling them to improve their livelihoods from the sustainable exploitation of natural products. Established in 2001, SANProTA is a representative body for producers in Botswana, Malawi, Namibia, Zambia and Zimbabwe. The association provides the institutional conduit for the collection, processing, ordering and dispatching of natural products. Its membership encompasses the full range of rural producers, private sector players, NGOs and research institutions.

With their team of specialist staff in southern Africa and Europe, SANProTA provides its southern African members with technical advice on the latest product development and processing innovations, supply chain management, quality control, export procedures and sales negotiation. SANProTA represents its members at all major European natural products trade shows, feeding members with market information and contacts, and facilitating fair and environmentally sound trading partnerships between members and buyers. The association also helps members to get to grips with often complicated export procedures, while lobbying for improved trade regulations and an increased understanding of the natural products industry among governments and regulatory bodies. SANProTA therefore gives African producers like Chapeto a place at the cutting edge of the natural products industry alongside some of the leading international commercial players, enabling him to gain an equitable and profitable stake in the global marketplace.

If you would like to know more about SANProTA, or are interested in becoming a member, please contact them at the following address: Lucy Welford, Liaison and Information Officer, SANProTA, 9 Lezard Ave, PO Box BE 385, Belvedere, Harare, Zimbabwe (e-mail: info@sanprota.com; www.sanprota.com)

## USE OF AN ESSENTIAL OIL AGAINST DENGUE

The essential oil of rosewood (*Aniba rosaeodora*), vastly used in the perfume industry, could also be useful for public health purposes. Researchers from the Federal University of Amazonas (UFAM), Brazil, discovered that it has substances capable of exterminating the larvae of the mosquito *Aedes aegypti* that transmits dengue. Tests showed that linalool, the principal oil in this tree native to Amazonia, is able to eliminate 92 percent of the larvae present in a sample.

The chemist, Katiuscia de Souza, arrived at this discovery following a change of course in her investigation. The initial objective was to verify whether linalool was thrown out with the water in which it was distilled. The extraction process occurs by vaporization separation. Trunks, sticks and leaves are immersed in water which is then boiled. Because this water is very fragrant, Katiuscia imagined that it still contained a certain amount of linalool. The tests proved that she was correct. However, another factor attracted her attention: she discovered that many regions in the interior of Amazonia use this material as a disinfectant in bathrooms, toilets and even on walls and in hospital dispensaries. She thought that the linalool could be responsible for the larvicide's activity of the waste water.

As the ideal conditions did not exist at UNAM, Katiuscia used the laboratories at the National Research Institute of Amazonia (INAP). The results were very good: in a sample where larvae were exposed to linalool for 24 hours, 88 percent of the *Aedes aegypti* larvae died. She extended the exposure for another 24 hours. In the final results, 92 percent of the larvae had died.

The next step is to use the essential oil to develop a product to combat the dengue mosquito larvae. According to chemist Jamal Chaar, Katiuscia's adviser in the investigation, it is possible to exploit linalool or even the waste water to develop a larvicide. He also added that another aspect that needs to be highlighted is that the waste water cannot be dumped into the environment since it could by very toxic to micro-organisms, many of which have not yet been examined. (*Source: Amazon News*, 7 December 2003.)

# NEWS AND NOTES

## VASUNDHARA

Vasundhara is a non-governmental, not-for-profit organization, working primarily in Orissa, India with natural resources management focused on sustainable rural livelihoods. Vasundhara has been extensively involved in the forestry sector, trying to improve community-state collaboration and facilitate policy changes in the direction of sustainable community-based forest management systems. The main areas of work have been policy advocacy, research and documentation, capacity building and networking. It has been instrumental in initiating coordinated action and response from the civil society on forestry issues, and contributed to the process of alliance building and networking among forest-protecting villages and forest users in various parts of Orissa.

Vasundhara has also played an extremely relevant role in the documentation of community forestry initiatives and in establishing the richness and diversity of their experience. This documentation has rendered visible internationally the self-initiated forest protection efforts in Orissa as important examples of sustainable resource management systems.

Research is focused on supporting Vasundhara's efforts to improve access and control of "ecosystem people" i.e. people who depend on their immediate ecosystem for sustenance, on their natural resources, especially forests. Some of the key research issues include NTFPs, NTFP policies, institutional issues relating to community forest management (CFM), ecological and economic aspects of CFM, biodiversity conservation etc.

**Vasundhara has produced a series profiling individual NTFPs. The first six publications in this series cover: Char seeds; Hill broom; Tamarind; Mahua; Siali leaf; and Lac.**

**For more information, please contact:**
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**Bhubaneswar–751005, Orissa, India.**
**Fax: +91 674 509237/519237;**
**e-mail: vasundharanr@satyam.net.in**
[*Please also see under Products and Markets for more information on Lac.*]

## WHICH BIODIVERSITY?

In February 2004 thousands of experts gathered at the Seventh Conference of the Parties of the Convention on Biological Diversity in Kuala Lumpur, Malaysia to find ways to conserve biodiversity and to share the benefits equitably. Usually much of the attention in such discussions goes either to animals that are physically attractive or to the genetic resources used by crop breeders and drug companies. The plants and animals that villagers use for food, medicine, fuelwood, rituals, and other uses are often neglected.

That is not just simply unjust, it is downright unwise. If you don't listen to local people's concerns how can you expect them to support conservation?

Doug Sheil from the Center for International Forestry Research (CIFOR) leads a team that is developing new ways for conservation planners to take into account local people's needs. The document, *Local people's priorities for biodiversity: examples from for forests of Indonesian Borneo*, provides an example of this from the district of Malinau. There the team worked closely with families from seven communities to map out which species are most important to them, where they are located, and what needs to be done to protect them.

Hunting remains the main source of animal products for these villagers, particularly in remote places. The villagers prefer to hunt wild boar, but logging has driven away many of the boars, forcing people to hunt less-preferred protected species such as monkeys. While logging drives the boars away, small rice and cassava fields actually attract them. Salt springs and abandoned villages with many fruit-trees also attract a lot of the animals that people want.

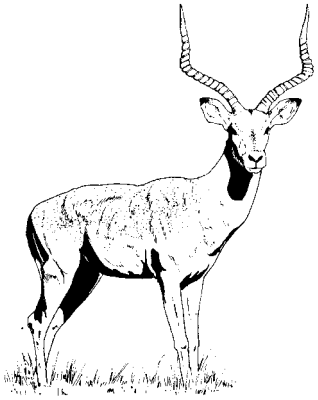
Current Indonesian regulations encourage loggers to slash all the undergrowth and climbers for five years after logging to get rid of "weeds". Unfortunately, many of those "weeds" are actually the plants that local people need. Similarly, loggers are usually told to drive their heavy machinery along the ridge tops to avoid erosion, but that is exactly where the sago palms grow that villagers eat when times are hard. Logging near rivers often kills the river carp that people are used to fishing because those carp eat the fruits of the trees that loggers harvest and can only survive in clear water.

Malinau's villagers are particularly interested in conserving forests near gravesites and limestone formations where they harvest bird-nests. As it turns out, the latter are also rich in endemic species that interest biologists.

Focusing on these sorts of issues leads you to a partially different biodiversity agenda than just worrying about the big animals for the zoos or finding the cure for cancer.

To request a free electronic copy of this paper, contact Indah Susilanasari (isusilanasari@cgiar.org); to send comments or queries to the authors, contact Doug Sheil (dsheil@cgiar.org). A full explanation of the methodology can be downloaded at: www.cifor.cgiar.org/publications/pdf_files/Books/exploring_bio.pdf (*Source:* Polex Listserv [CIFOR], [d.kaimowitz@cgiar.org], February 2004.)

# NEWS AND NOTES



## WILDLIFE AND POVERTY STUDY

International donor agencies, such as the United Kingdom Department for International Development (DFID), are trying to figure out what to do about wild animals. People back home like them, especially the warm and fuzzy ones. But the aid agencies' main focus is reducing poverty, and they are still not sure how fuzzy animals fit into the picture.

Some aid officials wonder whether the poor really need wild animals. Others argue that projects that combine conservation and development cost a lot for each person the project benefits and they worry that more parks might marginalize the poor.

Such concerns recently led DFID to do a "wildlife and poverty study". This study concluded that some 150 million people still rely heavily on wildlife for meat or cash and that wildlife tourism might become an interesting option for marginal remote areas. Given that the World Bank and the Global Environment Facility spent US$7.4 billion on conservation and biodiversity projects over the last ten years, the poor could also benefit from having more of such funds contributing to meeting their needs.

DFID says most poverty reduction strategies fail to recognize that many rural people rely on bushmeat and that declining wildlife populations makes their lives more difficult. (On the other hand, wild animals also cause problems when they eat villagers' crops or livestock, spread disease, or attack people.) Solving the bushmeat problem in countries with weak institutions will not be easy. Efforts so far to find other sources of protein to substitute for wild animals have not had much success. People need to think more about the bushmeat issue from the villagers' perspectives, and not just in terms of conservation. Working with logging companies, traditional forest dwellers, small farmers and commercial hunters will each require separate approaches. In any case it will be a hard nut to crack.

With regards to tourism, the study finds that community-based wildlife management projects have yielded mixed results in eastern and southern Africa. Some households and districts received more money and jobs, but at a high cost to donors. To get beyond that stage requires quick and simple mechanisms for establishing resource rights, clearer and more equitable benefit-sharing arrangements, and building up local business skills.

In 1998, tourism was one of the five leading export sectors in two thirds of the world's 49 least developed countries. But the tourism business is risky and outsiders usually get most of the benefits. Still, serious attempts to promote "pro-poor" wildlife tourism through community enterprises, serious partnerships between companies and communities, and efforts to upgrade the skills of local workers have just begun. No one knows if they will succeed.

The study points out many times that we still know surprisingly little about these issues from a livelihood perspective, much less what to do about them. And financing research is not as popular as it once was. But this is one case where it might just make sense.

To request a free electronic copy of this paper you can write to the DFID public enquiry point (enquiry@dfid.gov.uk); to send comments or queries or if you have any problems you can write to the authors, Joanna Elliott and the Livestock and Wildlife Advisory Group (J-Elliott@dfid.gov.uk). (*Source:* CIFOR-Polex Listserve, 4 March 2003.)

[*Please see under Products and Markets for more information on Bushmeat.*]

## WOMEN PLAY A CENTRAL CONSERVATION ROLE IN AFRICA

"Women in Africa are the most culturally, economically, and politically disadvantaged," said Dr Helen Gichohi of the African Wildlife Foundation (AWF), but "they are also the most dependent on the wildlife and forests for food, water and fuelwood for their families." Dr Gichohi stated this basic fact of life in Africa during a breakfast sponsored by the AWF at the National Press Club in Washington that highlighted the progress being made in the field of conservation in Africa and, specifically, the role of women in that process.

"Women in Conservation" was the topic for a panel discussion that featured Dr Gichohi, AWF's vice-president for programming; Faida Mitifu, the ambassador from the Democratic Republic of the Congo; Katie Frohardt, executive director of Fauna & Flora International; and Kim Sams, manager of conservation initiatives for Walt Disney World. All pointed out the central function of women in the entire conservation movement since they are the front line in the process in Africa.

Gichohi noted that when the political or economic decision is made to build in a forested area, it is the women – who had been excluded from the decision entirely – who have to walk farther for their water, search longer for their food and make more trips to carry their

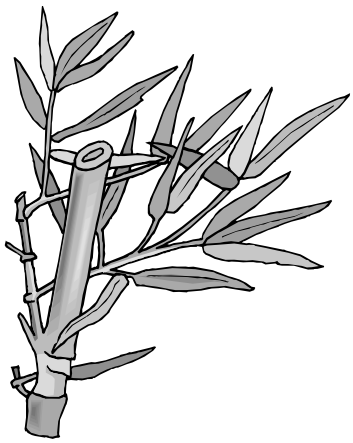
fuelwood. They are the ones most closely connected to the environment and when the environment is degraded, women suffer the brunt of the effects.

In that context, she stated, it is essential that women living in forested areas develop income-generating activities that take advantage of the natural resources around them.

Ambassador Faida Mitifu of the Democratic Republic of the Congo said that her country's history of civil war had resulted in an unusually large number of female-headed households that depend on the forest for "sustainable life". Mitifu said that the United States Agency for International Development (USAID) will work with AWF to develop projects that focus on conserving wildlife and on increasing women's involvement in that effort.

Mitifu observed that there was a continuing contradiction between the traditional roles of women in Africa and the requirements of modern life. While there had been progress towards engaging women in politics and conservation, she said, there was still room for improvement. "In a male-dominated world, the policies are made by men, and the women and their plight are forgotten," explained Mitifu. She encouraged non-governmental organizations with a strong female influence to continue to advance the role of women in conservation projects.

Sams, in applauding the work of women in this vital field, noted that there were few men in attendance. (*Source: United States Department of State* (Washington, DC), 17 November 2003.)



## WORLD CUSTOMS ORGANIZATION APPROVES NEW BAMBOO AND RATTAN CUSTOMS CODES ON THE BASIS OF FAO/INBAR PROPOSAL

**The World Customs Organization (WCO) has approved a series of new Harmonized System customs codes (see details at: www.inbar.int) for bamboo and rattan commodities based on an FAO/INBAR proposal. This historic event will have profound, deep and long-term effects on the global bamboo and rattan production and trade.**

**Thirteen new six-digit codes were introduced to the Harmonized Commodity Description and Coding System (HS) in addition to or for clarification of the existing 12 bamboo and rattan customs codes. The codes represent a wide range of commodities including bamboo shoots, charcoal, plywood, plaiting materials, basketwork, pulp and paper, furniture and furniture parts. It is expected that codes for bamboo flooring – one of the leading items of bamboo and rattan global trade – are to be introduced during the coming 2004 WCO HS Committee meeting in Brussels in March in the context of the European Commission parquet floor proposal.**

**The significance of the new customs codes for the dynamically growing bamboo and rattan sector is difficult to overestimate. The new codes will allow the levying of more preferential tariffs and taxes on bamboo and rattan commodities for the benefit of developing nations and fair trade. They will also significantly improve collection of trade statistics, which is important for economic analysis and policy-making. Harmonized System customs codes are revised only once every four to six years. The next revision will only start in 2008. The newly introduced codes will take effect in 2007.**

**INBAR highly appreciates the overall support of its member countries and contributions of all individuals and organizations which for a few years were working together and contributed to the proposal, including FAO (particularly Messrs Wulf Killmann and Paul Vantomme), the European Forest Institute (particularly Messrs Philip Wardle and Bruce Michie), the International Tropical Timber Organization (particularly Messrs Manoel Sobral Filho and Steve Johnson), the Chinese Customs (particularly Ms Jin Hongman), customs organizations of Indonesia, Malaysia and the Philippines (which provided their comments, statistical data and suggestions), participants of two joint FAO/INBAR Expert Consultations on bamboo and rattan in 2000 and 2002, as well as WCO representatives who were very constructive and cooperative.**

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# PRODUCTS AND MARKETS

## AGARWOOD

Agarwood is a resinous substance occurring in trees of the genus *Aquilaria* (a member of the Thymelaeceae family), a fast-growing forest tree which can be found growing from the foothills of the Himalayas to the rain forests of Papua New Guinea. Outside its native habitat, agarwood is best known in the Near East and Japan.

The most important resin-producing species of *Aquilaria* are *A. agollocha, A. malaccensis* and *A. crassna*.

*A. malaccensis* is protected worldwide under the (CITES) convention. *A. crassna* is listed as an endangered species by the Vietnamese Government.

Agarwood has been used for centuries as incense, for medicinal purposes and in perfumery.

First-grade agarwood is one of the most expensive natural raw materials in the world, with prices in consumer countries ranging from a few dollars per kilogram for very low quality material to more than US$30 000 per kilogram for top quality wood. Agarwood oil fetches similarly high prices. (*Source:* Agarwood "Wood of Gods" International Conference.)

***Aquilaria agallocha* Roxb. – a promising non-wood forest product of Bangladesh**

Agarwood (*Aquilaria agallocha* Roxb.) is believed to have originated from the Indian hills of Assam. This species is synonymous with *A. malaccensis*. It is traded in several forms, ranging from large sections of trunk to finished products such as incense and perfumes. Agarwood chips and flakes are the common tradable forms. Agarwood oil is a highly valuable and frequently traded product. The major constituents of agarwood oil are sesquiterpenes, the chemical structure of which makes them very difficult, hence extremely expensive, to synthesize. Although synthetic agarwood compounds are used to produce poor-quality fragrances and incense sticks, there are currently no synthetic substitutes for high-grade incense or oil. The price of agarwood chips is US$20 to $60 per kilogram; agarwood oil commands US$956 to $7 059 per kilogram on the international market. Agarwood has also been used for medicinal purposes for thousands of years, and continues to be used in Ayurvedic, Tibetan and traditional East Asian medicine. The use of agarwood oil for perfumery extends back several thousand years in the Near East. In India various grades of agarwood are distilled separately before blending to produce attar (scent). Minyak attar is a water-based perfume containing agarwood oil, which is traditionally used by Muslims to lace prayer clothes. Agarwood essences have recently been used as a fragrance in soaps and shampoos. Agarwood incense is burned to produce a pleasant scent, its use ranging from a general perfume to an element of important religious occasions.

In Bangladesh the major agarwood-based industries are located in the Kulaura thana under the Moulavibazar districts, where about 100 agar-based industries are located. Most (90 percent) of the entrepreneurs managed capital from their own sources, 6 percent from moneylenders as loans and the remainder from bank loans. Most of the entrepreneurs claimed that owing to the unavailability of capital they were unable to expand their industries. The majority of the industries (64 percent) were under single ownership while the rest had joint ownership. It was found that a remarkable portion of the industries (72 percent) were set up on their own land and the remainder on rented land. The average number of the workforce in these industries was 16, with both skilled and semi-skilled labourers being employed. Raw materials in these industries are collected from homestead forests; there is, therefore, an acute shortage of raw material owing to the absence of commercial agarwood plantations. The Forest Department has recently initiated agar plantations to meet the demands of agar-based industries. Furthermore, entrepreneurs lack modern inoculation techniques and treatment plants for agar oil production.

Agar oil is an export-oriented product and the demand is very high on the international market. The current annual demand for agar oil in the study area is 120 000 tola [1 tola = 10 g], but the supply in the market is only 84 000 tola. The large gap in the demand/supply situation is due to the scarcity of raw materials, fuelwood and also because of government support. Production costs include raw materials, labour, fuelwood and other costs (rent,

**Agarwood is a one of the most valuable minor forest products of the Southeast Asian tropical forests. In Viet Nam, agarwood is produced from the heartwood of rarely available natural *Aquilaria crassna* trees. In the authors' fieldwork in Viet Nam, a natural *A. crassna* was found in Khanh Hoa province. Information on agarwood exploitation and production was gathered by interviewing local people. The results showed that some of the local people earn their living through agarwood production, but owing to overexploitation the natural resource for this valuable plant has declined dramatically in the past decades, while the demand for the resource remains constant or even increases. The cultivation of *A. crassna* has started in several places in the country as an initiative for conserving this endangered but economically important plant species. (*Source:* Quan-Le-Tran, Qui-Kim-Tran, Kouda-K, Nhan-Trung-Nguyen, Maruyama-Y, Saiki-I & Kadota-S. 2003. A survey on agarwood in Vietnam. *Journal of Traditional Medicines*, 20(3): 124–131.)**

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electricity). In the study area, per unit (tola) production costs were 3 900 taka. The selling price of agar oil per tola is about 5 500 taka and the net income per unit is 1 600 taka [US$1 = 58 taka].

Proper marketing, considered to be the prime constraint for the development of agarwood-based small-scale cottage industries in Bangladesh, needs to be developed considerably. Industry size, the poor financial condition of the entrepreneurs, along with scattered distribution of the industries pose a serious threat to marketing. Entrepreneurs play a significant role in the marketing of agar oil in the study area. In Bangladesh there is no established market for agar oil; the main market is in the Near East. However, small entrepreneurs have no access to that international market. Agents buy agar oil from small industry owners and send it for sale on the Near East market. The marketing of agar products on the international market is highly competitive as it is based on quality standards, advertising and product promotion.

Bangladesh is lagging behind in promotion and marketing; therefore, if we can overcome the prevailing problems in this sector, it is certain that agar-based industries will open up a new window in our small and cottage industries sector. (*Contributed by:* A.Z.M. Manzoor Rashid, Bangladesh.)

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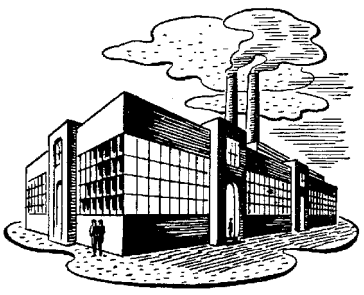

## AGUAJE (*MAURITIA FLEXUOSA*)

**El aguaje, una alternativa alimentaria desde la Amazonía peruana**

La importancia de la presencia de la zanahoria y el zapallo en la dieta diaria, debido a su contenido de vitamina A, hace parte de los conocimientos tradicionales populares. La vitamina A es muy importante para la salud de los ojos, el cabello y la piel, ya que la protege contra los rayos ultravioleta, ayuda al mantenimiento del cutis, previene su resecamiento y el envejecimiento prematuro.

La vitamina A se encuentra en realidad en esos vegetales como provitamina, en forma de betacaroteno, que posee mayor actividad vitamínica y les brinda ese color característico rojo, anaranjado y amarillo. El betacaroteno, además de tener las propiedades ya mencionadas, es uno de los mejores anticancerígenos, previene la arteriosclerosis y actúa como antioxidante neutralizando los radicales libres responsables del envejecimiento.

La ventaja de consumir betacaroteno, en vez de vitamina A, es que ésta consumida directamente y en exceso podría ser potencialmente tóxica pues se acumula en el hígado, mientras que el betacaroteno al actuar como provitamina y siendo liposoluble se acumula como exceso en las grasas y se convertirá en vitamina A en base a las necesidades del organismo.

La industria alimentaria está lanzando al mercado una nueva gama de alimentos enriquecidos con vitaminas A, E, y C que, siendo antioxidantes, se ofrecen como complemento nutricional y para combatir la agresión causada por los radicales libres, satisfaciendo de este modo las crecientes preocupaciones de los consumidores por su salud y bienestar.

En la Amazonía peruana se encuentra el aguaje (*Mauritia flexuosa*) que viene considerada la palmera más importante por su valor económico, social y ecológico. En el Brasil se la conoce como buritĺ o miritĺ y en Colombia con el nombre de canangucha. El producto más valioso del aguaje es el fruto, cuya pulpa es rica en betacaroteno (provitamina A), tocoferoles (vitamina E) y ácido ascórbico (vitamina C). Estudios llevados a cabo en Gembloux, Bélgica, en 1987, conjuntamente por la Facultad de Ciencias Agronómicas de L'Etat y la Universidad Nacional de la Amazonía Peruana, y en otro realizado en 1998 por la Universidad Federal del Estado de Pará, en el Brasil, han demostrado que el aceite de aguaje contiene de 173 a 300 mg de betacaroteno y de 80 a 100 mg de tocoferoles por 100 gramos. La pulpa del aguaje contiene de 50 a 60 mg de ácido ascórbico por 100 gramos.

Haciendo una comparación con los principales vegetales que contienen betacaroteno, vitamina E y ácido ascórbico, se puede afirmar que el aceite de aguaje contiene de 21 a 38 veces más provitamina A que la zanahoria, de 25 a 31 veces más vitamina E que la palta (aguacate), e igual cantidad de vitamina C que la naranja y el limón.

En el Brasil, su aceite se comercializa como protector solar porque absorbe completamente las radiaciones ultravioletas, y también en forma de jabón. En la ciudad de Iquitos, Perú, el aguaje viene comercializado y consumido como fruta, helado («curichi»), refresco («aguajina») y para hacer mermeladas.

En un estudio reciente, efectuado por el Instituto de Investigaciones de la Amazonía Peruana (IIAP), en el 2000, se determinó que el 96,7 por ciento de las unidades familiares en la ciudad de Iquitos la consumen. Proyectando ese resultado al ambiente estudiado, se pudo calcular que se necesitan aproximadamente 657,9 toneladas mensuales (21,9 toneladas diarias) de aguaje para satisfacer la demanda, lo cual en base a los parámetros de producción del estudio lleva a concluir que se necesita cosechar 13 827 árboles al mes (461 árboles diarios). El movimiento económico que produce esta

actividad es de aproximadamente 358 145 dólares EE.UU.

El método tradicional de cosecha comporta el corte de la planta (de 15 a 20 años de edad), destruyendo de esta manera su período productivo estimado en 40 años. El campesino sólo aprovecha 3 o 4 racimos maduros de los 6 u 8 que tiene la palmera. Si se supone que para satisfacer el consumo mensual de la ciudad de Iquitos se están talando 13 827 árboles al mes, se está ante una situación muy alarmante, que aún no se percibe debido a la abundancia del recurso, ya que se estima una reserva de aproximadamente 5,64 millones de hectáreas de «aguajales» (el ecosistema donde predomina la palmera *Mauritia flexuosa*) en la Amazonía peruana. Sin embargo, estos datos no deben llevar a una falsa percepción de abundancia del recurso, ya que hay que tener en cuenta que ésta es una planta dioica, es decir, que existe una planta femenina que produce frutos y una masculina que no los produce, y que en el ecosistema «aguajal» la densidad de árboles de aguaje varía de un 32 a un 57 por ciento de árboles femeninos y masculinos, respectivamente.

Alrededor de Iquitos y de las principales poblaciones de la Amazonía peruana, la tala está agotando las plantas femeninas, afectando económicamente a las comunidades que se dedican a esta actividad. Por ejemplo, en la comunidad de San Miguel que se encuentra a 20 minutos de Iquitos, el IIAP llevó a cabo un estudio para determinar la pérdida económica por extractivismo, haciendo mediciones en diferentes épocas. La primera en 1994 cuando encontró fructificando 62 árboles por hectárea, lo que representaba aproximadamente 124 sacos de aguaje para comercializar que, al precio de 7 soles nuevos por saco (NS 1 = 0,29 dólar EE.UU.), significa que se producía un ingreso de NS 868 por hectárea. El precio varía de NS 7 a NS 60, dependiendo de la estación y de la variedad. La segunda evaluación se realizó en el 2000, encontrándose fructificando 29 árboles por hectárea, lo que representa aproximadamente 58 sacos por hectárea para comercializar que, a un precio de NS 7 por saco, representa un ingreso de NS 464 por hectárea.

Entre 1994 y 2000 ha habido una pérdida en ingresos económicos del orden de 53,5 por ciento para la comunidad que se dedica a esta actividad en esa zona. Ante esta situación es conveniente que el Estado peruano y la comunidad amazónica se decidan a emprender acciones inmediatas para aprovechar en forma sostenible un recurso tan valioso como el aguaje, las mismas que deberían estar orientadas hacia la industrialización del recurso con el máximo valor agregado y al manejo adecuado durante la cosecha.

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## BAMBOO

### Bamboo sector development as a means for sustaining forest livelihoods

Bamboo has always been a vital part of the livelihood of millions of forest-dwelling people in tropical regions. Traditionally, bamboo is harvested in the natural forest and its use is limited to temporal constructions and low-quality utensils prone to rapid decay. Nevertheless, resource management and technical improvements can convert this fast-growing grass into a durable raw material for construction purposes and a wide range of semi-industrialized products. New industrial applications and modern construction design have both demonstrated bamboo's huge potential, but the bamboo sector in China is the only one reported to be thriving. In the last 20 years China has established an integrated production chain of bamboo plantations, semi-processing and industrial plants manufacturing bamboo flooring, furniture, furnishings, charcoal and fresh bamboo shoots for the domestic and export markets.

There are promising trends outside China where bamboo is being grown as a durable building material and income-generating resource for rural people. The Philippines has a rural bamboo handicraft sector that has been able to reach European and United States markets after investments in improved designs. In rural areas, bamboo harvesters and artisans acquire an important part of their income from bamboo. Moreover, in Colombia and Ecuador growing bamboo on small plots is becoming a lucrative option for smallholders and the bamboo construction sector is experiencing a boom period after years of neglect.

However, the bamboo sector is, in most countries, still part of the informal and backward rural economy and seemingly unable to grab the large potential represented by the Chinese bamboo industry. This raises the question of the bottlenecks facing bamboo development. Many of these inhibiting factors are at the policy level and are additional to a lack of knowledge among the important stakeholders and a widespread stigma of bamboo as a poor person's timber. Convincing and informing users and policy-makers of bamboo's versatility may fit in with a strategy of poverty alleviation and reducing pressure on tropical forests. Smallholders at the forest fringe can, in particular, improve their livelihood by processing bamboo or growing it in their backyard. At the same time, a large stock of bamboo contributes to broader environmental goals of erosion control, reforestation and watershed management.

For tropical countries confronted with rural poverty and shrinking forests, bamboo offers a sustainable option with considerable potential. However, it will require joint efforts by the international donor community, research institutes, national governments and pioneer

investors to duplicate China's bamboo boom and turn the belief that bamboo may become the timber of the twenty-first century into a reality. (*Source:* Dr Herwig M. Cleuren, INBAR in *ETFRN News*, 39/40.)

**Innovative bamboo products**

The bamboo industry in China is showing more and more potential. The annual production value is more than US$40 billion and its annual export value more than US$600 million. There are more new bamboo products in China nowadays, for example, bamboo extracts for beer, beverages, medicine and cosmetics. Other innovative bamboo products developed in recent years include bamboo veneer, bamboo fire-proof ceiling material, and bamboo fibre and its fabric.

**BAMBOO FIBRE AND ITS FABRIC**

**Bamboo fibre is made from the bamboo cellulose of natural bamboo and is produced through processing methods such as steaming and boiling. The fibre does not contain any chemical additives and is a genuinely environment-friendly product. The fibre's gloss is bright and beautiful. At the same time, the fibre has a unique antibacterial and deodorizing function, a fine colour, elasticity, wearability, etc. In addition, it is especially moisture absorbent and permits ventilation owing to the bamboo fibre's horizontal cross-section. Wearing bamboo fibre fabric in hot summers makes one feel especially cool, owing to the fibre's special structure and natural "hollows" in the horizontal cross-sections. For this reason experts refer to it as a "breathing" fabric. At the same time, it is soft to touch and easy to wear and is used for knitted underwear, T-shirts, machine-woven bedclothes, etc.**

(*Contributed by:* Fu Jinhe, Ph.D., Program Officer, International Network for Bamboo and Rattan (INBAR), Beijing, China.)

**Green gold: the United States is bamboo's next new frontier**

President Forman of Lake Mary-based CMI Global was searching for investment alternatives for his firm, a consultant to other companies wanting to do business in China. To that end, he travelled to Nanjing University with Dr Zhang Min, a renowned bamboo expert. Min showed him 30 years of research on bamboo, and Forman was sold.

Now the owner of two bamboo manufacturing plants in China, Forman plans to enter the United States market with more than 20 bamboo products, ranging from lotions, soaps and disinfectants to mattress and pillow covers to flower-preserving extracts, water purifiers and pain relievers.

Forman's will be the first company to offer this range of bamboo products in the United States. Outside the United States, bamboo enjoys a large and rapidly growing market. According to a recent study, China sells US$2.4 billion in bamboo products each year, of which exports total US$600 million. The Philippines has also taken an interest in bamboo products, as has the Republic of Korea. Malaysia has recently begun looking to bamboo as both a cash crop and a means to alleviate environmental concerns: the fast-growing plant can be used to reforest areas scoured by logging.

In fact, bamboo is considered to be one of the fastest-growing plants in the world, thriving in rich and sandy soils alike. It is also a potential source for a variety of products. Min, now Forman's partner, has tabulated 50, including medicinal uses long recognized in oriental medicine. Furthermore, according to CMI Global, there is potential for other products yet to be discovered.

The manufacturing muscle behind the United States retailing expansion lies in two factories: a 4 200 $m^2$ factory in Nanjing that does research on and development of bamboo by-products, and a 7 600 $m^2$ factory on the outskirts of Shanghai that processes bamboo. This factory has supplied bamboo products to Japan, a major market for bamboo, for more than 20 years. CMI's wholly owned subsidiary, Yupong International, owns the factories which were purchased for US$3 million and oversees operations. Currently, Yupong deals in more than US$5 million in sales in Japan.

In 2003, Forman expects more than US$45 million in sales from bamboo, mostly in exports, bringing projections for CMI Global's total sales in 2003 to US$90 million, more than doubling 2002 revenue. Forman says he hopes to enter the European and possibly the Latin America markets eventually. (For the full story, please see: www.bizjournals.com /orlando/stories/2003/03/24/story6.html) (*Source:* Extracted from an article by Jill Krueger in *Orlando Business Journal*, 24 March 2003.)

**Utilization of bamboo in Bolivia**

Bamboo is an everlasting, fast-growing plant. In addition, it is a flexible and cheap construction material that allows easy development or repair. "Takuara" is the local name for the native American guadua bamboo species growing in the Bolivian lowlands. This bamboo offers solutions to the housing deficit in Santa Cruz, without compromising its harmonious and aesthetic architecture.

A working group was organized under the name of "Takuara" in Santa Cruz with the objective of promoting the use of bamboo in the region as an alternative

construction material and promoting construction skills using bamboo through short training programmes. Construction using the cheap and available bamboo resources reduces the costs of material, transport and labour, and presents an important advantage compared with current concepts of social housing and construction materials in Bolivia.

Another objective of the Takuara working group is to stimulate the use and culture of bamboo as a sustainable and renewable resource, aiming at environmental protection and improving people's quality of life. To this end, Takuara promotes and demonstrates the wide range of bamboo uses in construction, as well as in all kinds of furniture and handicraft manufacture.

Thanks to support from INBAR, Takuara-Bolivia was able to present its work and mission at the First Bolivian Forest Fair (EXPOFOREST) held in Santa Cruz de la Sierra, Bolivia, in February 2003. (*Source: INBAR News Magazine*, June 2003.)

**BAMBOO IN BANGLADESH**

**Approximately 90 percent of all bamboo harvested in Bangladesh is used for building construction, such as house posts, purlins, rafters, bamboo walling, ceiling and roofing material. (*Source: MFP News*, Vol. XIII, No. 4, 2003.)**

**Manejo biotecnológico de bambúes en Cuba**

Los bambúes son de vital importancia para los programas de construcción y de fabricación de muebles, entre otras aplicaciones. La *Guadua angustifolia* es un bambú originario del Ecuador y Colombia que posee características particulares, como la resistencia a algunas plagas y enfermedades y el rápido crecimiento, que lo hace interesante para los programas de reforestación.

La construcción de 1 000 casas de bambú anualmente, con material proveniente de 60 hectáreas de una plantación equivale a la madera de 500 hectáreas de valiosos árboles tropicales. La regeneración natural de esta especie ocurre estacionalmente por medio de semillas y de manera asexual por la activación de las yemas del rizoma. Estas vías de propagación resultan limitadas, más aún cuando se desea introducir la especie en un plan de producción en gran escala. Una alternativa a la propagación vegetativa es la de la regeneración y multiplicación de plantas *in vitro*. Esta técnica ha sido utilizada para la propagación de otras especies de bambú, utilizando callos derivados de primordios foliares de ápices, de semillas maduras y de hojas inmaduras.

El objetivo de un reciente trabajo llevado a cabo por el Laboratorio de Células y Tejidos del Centro de Bioplantas de la Universidad de Ciego de Ávila en Cuba, fue el de lograr la inducción de callos derivados de tejidos vegetativos de *Guadua* y *Dendrocalamus*, así como el establecimiento de yemas, con vistas a establecer un protocolo de propagación *in vitro*.

El estudio incluye los siguientes temas:

- inducción de callos en segmentos de tejido intercalar de *Guadua angustifolia*;
- evaluación de diferentes concentraciones de cefotaxima en el pretratamiento de estacas para el establecimiento de yemas de *Guadua angustifolia*; y
- evaluación de diferentes concentraciones de cefotaxima en el establecimiento de yemas de *Guadua angustifolia*.

Para la inducción de callos se utilizaron segmentos de tejido intercalar de ramas jóvenes que se desechaban durante el establecimiento de las yemas, siguiendo un protocolo de desinfección con 0,2 por ciento de bicloruro de mercurio durante 10 minutos y enjuagues con agua destilada estéril e implantación en medios de cultivo Murashige y Skoog. Para el establecimiento de yemas, el procedimiento de desinfección fue similar al anterior, pero antes del tratamiento con bicloruro de mercurio las estacas se sumergieron en una solución de cefotaxima a 50 mg por litro, durante diferentes tiempos, para ser luego desinfectadas e implantadas en un medio de cultivo Murashige y Skoog.

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**Participatory development with bamboo in the Andean countries**

The European Community represented by the Commission of the European Communities has approved a proposal from INBAR for participatory development of a replicable model for bamboo-based development in the Andean countries. The project began in mid-2003.

The project rationale is that poor farmers in Andean countries do not benefit from the income opportunities that the native guadua bamboo can offer. Farmers have access to bamboo resources, but lack the skills and knowledge to use these for livelihood improvement. This project will develop a replicable model for the sustainable production and commercialization of bamboo products in order to alleviate rural poverty in the Andean countries. The pilot project is situated in the coastal region of Ecuador and has as a main objective to improve farmers' income with guadua bamboo and to reduce pressure on the forest. The project area is an example of a rapidly deteriorating

forest situation endangering the unique tropical forest biodiversity.

Project activities will address all the major components of the bamboo production-to-consumption chain. It will improve resource management, train people in better processing techniques, explore and create market outlets, and promote linkages between small-scale producers and the private industry. Although the project is based in Ecuador, it will network closely with Peru, Bolivia and other Andean countries. (*Source: INBAR News Magazine*, June 2003.)

## BUSHMEAT

**Bushmeat hunters deplete Africa's forests**

Bushmeat hunters, in forests throughout Central and West Africa, have hunted virtually every type of wild animal, frequently illegally, for use as food.

Reports indicated that deep in the tropical forest of the Congo River Basin, immense sapelli and okoum trees tower over the forest floor, and small antelopes called duikers plunge through the undergrowth, while the calls of bonobos and sooty mangabeys sound from the leafy canopy.

But while indigenous peoples such as the Bantu pygmies have sustainably hunted this bushmeat for centuries, the level of hunting has skyrocketed in the past two decades. Today, species ranging from cane rats to elephants are being hunted at unprecedented levels, and recent estimates suggest a bushmeat harvest of between 1 million and 5 million tonnes each year, a level that is literally emptying forests of wildlife. The situation is most dire for primates such as bonobos, chimpanzees and gorillas.

"As a group, great apes tend to be very much at risk because they breed so slowly," said Elizabeth Bennett, director of the hunting and wildlife trade programme at the Wildlife Conservation Society (WCS).

To be hunted sustainably, some ape species could lose no more than one member per square kilometre every 20 years, but bushmeat hunters are annually killing 6 000 western lowland gorillas (from a total population of less than 100 000) along with 15 000 chimpanzees. Smaller primates end up on the table too, with approximately 7.5 million red colobus monkeys being killed for food each year. In addition, WCS estimates that 28 million bay duikers are killed annually, as are 16 million blue duikers. "And these are conservative figures."

The problem has reached such tremendous proportions that last summer, at a meeting of experts on gorillas in Germany, scientists from WCS and other institutions said that poaching had surpassed habitat loss as the most immediate threat facing western lowland gorillas and could lead to their extinction in the next 20 years.

At the root of the problem is a growing human population and a tumultuous economy. Today more than 30 million people live within forested regions of Cameroon, Gabon, Equatorial Guinea, and other Central African nations, and these inhabitants eat about the same amount of meat each year as most North Americans. More than 60 percent of the meat comes from local wildlife.

Until recently, much of the forest was inaccessible to hunters. This changed in the 1980s when international logging companies expanded into Central African forests. Roads were built to accommodate logging trucks, carving the forest into easily traversed parcels. Armies of workers followed, many bringing their families, and almost overnight formerly pristine areas were flooded with people.

"Areas that had previously been unexploited and unpopulated are suddenly inundated, and every worker may bring eight or ten individuals who are dependent on that salary," said Heather Eves, director of the Bushmeat Crisis Task Force (BCTF), a consortium of more than 30 organizations and institutions formed in 1999 to address the looming problem. "This brings lots of people together who need to be fed, and the forests just open up."

Logging roads have also allowed the influx of shotguns and steel cable for snares and have enabled hunters to carry more carcasses out of the forest. As a result, a burgeoning commercial bushmeat market now stretches far beyond the Congo Basin.

Eves added that bushmeat has always been a commodity in this region, used at varying levels of trade, but wildlife is now being exploited for export to urban centres. The reason for this is economic: bushmeat hunters can earn the equivalent of US$300 to $1 000 per year, more than the region's average household income. The hunters find eager buyers in large cities, where many inhabitants purchase the meat as a way to reconnect to their village origins or to show off their newly acquired wealth. In Libreville, the Gabonese capital, around 1 200 tonnes of bushmeat arrives in the markets daily, and in Pointe Noire, the second-largest city of the Congo, an estimated total of 150 000 tonnes is consumed each year.

And the markets are not limited to Africa. In 2001, two London shopkeepers were jailed for operating a business that sold meat from monkeys, anteaters and other animals. They had offered to custom-order whole lions for around US$8 000 each.

In addition to the obvious loss of prey species, the bushmeat trade has far-reaching consequences. According to the Central African Regional Program for the Environment (CARPE), the bushmeat trade threatens forest carnivores such as leopards and crowned eagles by depleting their main prey species. The forest itself is threatened as well, in that the loss of seed-dispersing animals is permanently changing the forest's composition and structure.

Indigenous pygmies are losing the forests and animals they have depended on for centuries. And even the bushmeat hunters and consumers are at risk: according to BCTF, the hunting, butchering and consumption of bushmeat, especially primates, is placing people at increased risk of contracting virulent animal-borne diseases. Ebola outbreaks have been linked to exposure to gorilla carcasses, and evidence of simian immunodeficiency virus (SIV) infection has been found in 26 different species of

primates, including chimpanzees and sooty mangabeys, which many researchers believe may be a link to HIV/AIDS.

Despite the severity of the problem, some remedial steps are showing signs of success. In northern Congo, WCS has been working with the Ministry of Forestry Economy and a logging company, Congolaise Industrielle des Bois (CIB), to reduce bushmeat hunting in a 1.8-million-hectare logging concession. The project supplies forest workers with alternative forms of protein and provides for enforcement by groups of local "ecoguards" who control traffic on logging roads. "This ensures that protected animals aren't being hunted," said Bennett. "Gorillas and chimps are now easier to see in the concession."

But to reduce bushmeat hunting significantly, many groups are taking the message directly to the consumers. Last year in Ghana, Conservation International undertook a national bushmeat education campaign that BCTF says has been very effective in changing behaviours. "People have an incredibly deep cultural link with wildlife in Africa," Eves said. "Talking about bushmeat as a loss of cultural heritage resonates there."

Until these changes become widespread, however, sections of the Congo Basin continue to be identified as suffering from "empty forest syndrome", filled with trees but devoid of large animals. It is a new situation, but one that has become disturbingly familiar. (*Source: This Day* [Lagos], 23 April 2003.)

**Cameroon demands bushmeat action**

The rate at which Africa is devouring its wildlife is entirely unsustainable, says Cameroon's environment minister. He is demanding international action to control the trade, which produces as much as 5 million tonnes of bushmeat from the Congo Basin alone every year. The trade threatens the survival of several already endangered species, including elephants and great apes.

The minister, Chief Clarkson Oben Tanyi-Mbianyor, was visiting London to address a Bushmeat Campaign conference. The campaign says that Mr Tanyi's call for international cooperation is the first time any African leader has made such a proposal. The aim of the conference is to secure agreement on how to tackle the unsustainable bushmeat trade, in which London plays a prominent part.

**While deliberations at the Bushmeat and Forest Actions for Sustainable Management Conference were taking place in London, the Yaoundé Court of First Instance slammed a one-month prison sentence and a fine of CFAF 300 000 on two illegal dealers in elephant products, bringing the number of wildlife criminals jailed since July 2003 to four. This is part of an operation being undertaken by the Ministry of the Environment and Forestry in collaboration with the forces of law and order and the Last Great Apes Organisation (LAGA).**

**According to Cameroonian law, any person found in possession of live or part of protected animal species is liable to a fine and imprisonment. The law targets only protected wildlife species (gorillas, chimpanzees, crocodiles, elephants, drills, etc.). It attacks the trade chain of protected species in different places. Anyone breaking the new law in Cameroon, where bushmeat is a prized delicacy for rich city-dwellers, faces three years in jail and a CFAF 10 million fine. The ministry authorities have been calling on restaurant dealers to help save protected wildlife by taking gorillas, chimpanzees and elephant meat off their menus.**

**About 100 years ago, more than a million chimpanzees lived in 25 African countries. Today, fewer than 150 000 remain, with healthy reproduction populations found only in six African countries. (*Source: Cameroon Tribune* [Yaoundé], 31 December 2003.)**

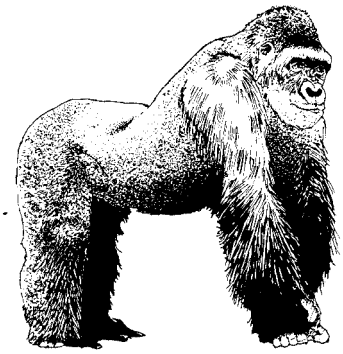
Other speakers included Ghana's Minister for Lands and Forests, Dominic Fobih, the Okyenhene (tribal king) of Akyem Abuakwa in eastern Ghana, United Kingdom Minister for International Development, Gareth Thomas, MP, and representatives of the timber trade.

Mr Tanyi told BBC News Online: "What we are saying is that we cannot go on selling bushmeat, because people believe in looking after the environment. It's not local consumption that's the problem, but the wider trade, taking the meat into the towns and out of the country. So we're calling on our partners to fight the trade by helping us to recruit and train ecoguards, and by providing local people with alternative ways of earning a living that will keep them out of the forest. Some of these forest concessions can be up to 70 000 ha in size, so the guards will need to be able to communicate with each other. We're hoping other countries will help us to equip them. This is in the context of Cameroon itself. But I am also speaking in a wider context, about the need to fight the bushmeat trade across West and Central Africa. And I'll be asking Mr Thomas for his help in stamping it out in the United Kingdom. But the best way to tackle it is to fight it at source, and keep the animals in the forest."

Adam Matthews, the Bushmeat Campaign's director, is hoping Mr Thomas will spell out how the United Kingdom Department for International Development plans to implement the conclusions of a recent study it carried out on the links between wildlife and poverty. Mr Matthews told BBC News Online: "That study said 150 million people – one in eight of the world's poor – depend on wildlife for both protein and income. The report's recommendations were excellent, but we have yet to see any move towards carrying them out. I hope the United Kingdom will incorporate wildlife into its poverty strategies."

Some zoologists believe the bushmeat trade is so important to people's survival that it would be better to try to control it than to stamp it out. They say it may be possible to tell when large species such as apes are reaching a dangerous point

by seeing when smaller animals such as cane rats enter the market. The smaller species tend to do so just before the flagship animals reach crisis point, and this could serve as a warning mechanism. (*Source:* BBC News Online, 15 December 2003 [http://news.bbc.co.uk/].)
[*Please see under News and Notes for more information on DFID's wildlife and poverty study.*]



**Bushmeat consumption in Ghana**
Since Ghana held a national conference on the bushmeat crisis in August 2002, Ghanaians have been made more aware of the threatened state of some creatures in their forests.

It is believed that with this knowledge Ghanaians have become more selective in their consumption of bushmeat. To help sensitize Ghanaians further on the animals, reptiles and birds faced with the danger of extinction, Environmental Watch would begin write-ups on these endangered species, courtesy of a document entitled *Endangered bushmeat species in Ghana*, produced by Conservation International-Ghana.

The creatures are categorized as Endangered (EN), Critically endangered (CE), Vulnerable (V) and Data deficient (DD). Environmental Watch begins the write-ups with the more than 40 globally threatened species of mammals, fishes and birds that can be found in Ghana. (*Source: The Independent* [Accra], 16 June 2003.)

**Illicit trade in bushmeat in Kenya**
Unauthorized trade in game meat is reportedly the second largest illegal business in the world after drug trafficking. With populations of animals having been decimated in West and Central Africa, the focus is now turning to Kenya. Ian Saunders of the African Environmental Film Foundation made this revelation during a talk in Nairobi on the "Bushmeat Crisis" in Kenya, which was hosted by the Kenya Wildlife Coalition (KWC).

Mr Saunders wants Kenyans to be sensitized on the illegal bushmeat business. "When one talks of the illegal bushmeat trade, it is the countries of West and Central Africa that immediately spring to mind. But it is these countries and those further afield that pose an external threat to one of Kenya's greatest natural resources: wildlife."

According to an Irish non-governmental organization (NGO), the illegal global bushmeat trade is worth more than US$5.5 billion a year. The meat is smuggled from Africa to various destinations in Europe and the United States. Mr Saunders fears that countries such as Ghana, Sierra Leone, Liberia and Côte d'Ivoire could soon become like Nigeria, where the numbers of game become very low and warns that the eyes of the cartels will turn to other countries such as Kenya to supply the massive demand.

The conservationist says bushmeat is probably already being exported from Kenya. According to Mr Saunders, gangs or cartels operate from Nigeria and Ghana. In 2001, two West Africans were jailed in the United Kingdom for smuggling and illegally selling endangered species and bushmeat in London's Dalston Market. Their market is thought to be primarily African expatriates in the United Kingdom. British police uncovered more than 2 tonnes of bushmeat.

The KWC is made up of several NGOs, including the African Environmental Film Foundation, the Born Free Foundation, the East African Wildlife Society, Youth for Conservation, Friends of Conservation, Pan African Conservation Network and the Bill Woodley Mount Kenya Trust.

But just what exactly is bushmeat? According to a recent rapid survey (as opposed to a full scientific study) carried out by the International Fund for Animal Welfare (IFAW), bushmeat is the term used to refer to meat from both the small and large wildlife species. These include rodents, birds, duikers, bush pigs, impala, gazelles, elephant and buffalo. According to the IFAW survey, over time the hunting of these wildlife species for commercial and domestic purposes has been on the rise. The survey concludes that this fact, coupled with deforestation and interference with nature, poses a grave danger to wildlife.

The IFAW survey was meant to establish the extent of bushmeat consumption in Kenya. Like IFAW, other conservationists believe that one of the main causes of declining animal populations in much of Africa is this illicit trade.

Some participants argued that unless benefits to landholders were increased, and proceeds from wildlife used in community development, the animals would continue to be seen as a freely exploitable and uncared-for resource that benefits only those who get to it first.

Historically, in the East African region, bushmeat has been seen purely as a subsistence activity undertaken by traditional hunter/gatherer societies. The increasing human population, acute poverty and widespread unemployment, however, have led to a greater reliance on natural resources.

Bushmeat is in demand because it is generally cheaper than domestic meat. In various surveys, it was found that affordability was the main reason why rural households cited bushmeat as the most important meat protein source. The larger species are generally preferred owing to the greater quantities of meat per carcass.

In addition, respondents in many areas surveyed showed a preference for their taste. With declining wildlife numbers, a hunter's catch per effort has reduced in most survey areas. Profit motives and the increased value of bushmeat have led hunters to continue supply although the hunting effort required is now far greater. To improve

catch per effort, more sophisticated and unsustainable hunting methods are used such as wire snaring, night torch hunting, and the use of semi-automatic weapons.

According to a report by the NGO Trade Records Analysis of Flora and Fauna in Commerce (TRAFFIC), the year-round demand for bushmeat has resulted in the gradual erosion of traditional hunting seasons. Increased numbers of hunters and traders that rely on bushmeat revenues have led them to hunt and trade for longer periods of the year. The Youth for Conservation group, working in tandem with the David Sheldrick Wildlife Trust, have carried out research on snares and other hunting techniques. Speaking at the KWC gathering, the youth group programme officer, Steve Itela, said that these devices of death are largely non-selective, explaining that a wire snare set for a small antelope could also cause the slow and agonizing death of an elephant. He added that whereas this traditional form of hunting used to be for the subsistence of impoverished families, today it has become commercialized with bushmeat being sold regionally and also internationally. Youth for Conservation and the David Sheldrick Wildlife Trust de-snaring teams have removed 34 852 snares since 1999.

According to a survey by TRAFFIC, all hunters using snares reported a catch per effort of 1.539 kg per hour of effort, while a hunter using traditional traps reported a catch effort of 0.723 kg per hour of effort. Hunters using night torching (use of powerful lights to blind animals combined with ringing a bell) reported 1.198 kg per hour of hunting effort. (*Source: The Nation* [Nairobi], 26 October 2003.)

**Wild meat, livelihoods security and conservation in the Tropics**

The Bushmeat Project is the latest undertaking of the Forest Policy and Environment Group at the Overseas Development Institute (ODI). The project is funded by a grant from the John D. & Catherine T. MacArthur Foundation, in the Conservation and Sustainable Development Area of its Program on Global Security and Sustainability. The project aims to research the livelihood dimensions of hunting for consumptive use in tropical forests, including bushmeat and the bushmeat trade, and offers a dissemination channel for innovative policy-relevant research.

To date, research on the bushmeat issue has mostly been driven by conservation priorities and livelihood concerns have tended to be secondary and contingent. But the importance of bushmeat in range state economies requires that policy development takes the human dimension fully into account.

The project provides an opportunity to explore the differences in perspective which arise when the human dimension is brought to the fore, and priority is given to livelihoods, economic and sociocultural concerns.

The project is pan-tropical in coverage, and will seek to identify possibilities for the sharing of experience, both intraregionally and across continents (Africa, Latin America-Caribbean, Asia-Pacific). The main, though not exclusive, emphasis will be on mammals in tropical moist forests, for it is here that the conservation challenges are greatest.

ODI is interested in publishing and disseminating innovative work on wildlife management issues, with a strong social and livelihood focus, and solicits contributions from professionals from the range states.

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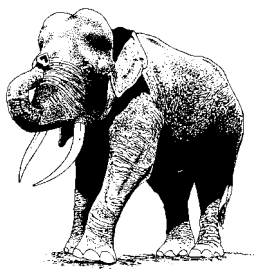

## CUPUAÇU (*THEOBROMA GRANDIFLORUM*)

**Cupuaçu**

Cupuaçu (*Theobroma grandiflorum*) is a small-to-medium tree in the rain forest canopy which belongs to the cocoa family and can reach up to 20 m in height. Cupuaçu fruit has been a primary food source in the rain forest for both indigenous peoples and animals alike. Cupuaçu fruit is known for its creamy exotic tasting pulp. The pulp is used throughout Brazil and Peru to make fresh juice, ice-cream, jam and tarts. The fruit ripens in the rainy months from January to April and is considered a culinary delicacy in South American cities where demand outstrips supply.

Indigenous peoples as well as local communities along the Amazon have cultivated cupuaçu as a primary food source for generations. In former times, cupuaçu seeds were traded along the Rio Negro and Upper Orinoco rivers where indigenous people drink cupuaçu juice after it has been blessed by a shaman to facilitate difficult births. The "beans" are utilized by the indigenous Tikuna people for abdominal pains.

Because of the close relationship to the cocoa tree (*Theobroma cacao* L.), in addition to pulp production the seeds of *T. grandiflorum* (about 20 percent of fresh weight) can be used for manufacturing chocolate-like foodstuffs. There are initiatives throughout Brazil to develop cupuaçu chocolate, also known in Brazil as "cupulate".

In Japan this product is already being produced and commercialized. In the first quarter of 2002 alone, Amazonas state exported 50 tonnes of cupuaçu seeds to Japan. It is expected that the Japanese will buy approximately 200 tonnes of cupuaçu seeds for chocolate production next year. Once again, Brazil assumes the insignificant role of a supplier of raw material.

There is a series of patents on the extraction of the fat from the cupuaçu seeds and the production of cupuaçu chocolate. Almost all of them were

registered by the company Asahi Foods Co. Ltd from Kyoto, Japan. Besides the patents, Asahi Foods has registered the plant name "Cupuaçu" as a trade mark for various product classes (including chocolate) in Japan, the European Union and in the United States. (For the complete story, please see: www.amazonlink.org/biopiracy/cupuacu.htm)

**Amazonia unites against biopiracy**

The campaign against biopiracy in Amazonia, launched by the Acre-based non-governmental organization (NGO) Amazonlink.org, has been joined by the Amazonian Working Group (AWG), which is composed of 513 local organizations. The campaign is a result of an attempt by Amazonlink to support a project by rural producers to export sweets made from cupuaçu to Germany. The organization discovered that the name "Cupuaçu" had been registered as a trade mark by the Japanese multinational company Asahi Foods in Japan, Europe and the United States. This means that Amazonlink cannot use the name cupuaçu on the packaging of its product even though it is a plant native to Amazonia. Asahi also holds patents on the manufacture of chocolate from cupuaçu seeds (cupulate) and the extraction of vegetable oils. (*Source: Amazon Newsletter*, 6 March 2003.)

**NGOs try to stop cupuaçu patent in Europe**

The European Patent Office is analysing an application from the Japanese multinational Asahi Foods to patent "the production and use of fat from cupuaçu seeds". This would give the company the right to produce and commercialize cupulate, chocolate made from cupuaçu, explained Michael Schmidlehner, president of the NGO Amazonlink.org, which has been campaigning against cases of biopiracy involving cupuaçu, açai and other native Brazilian products.

Alongside German NGOs, Amazonlink.org has promised an offensive to stop the patenting process on the grounds that the request does not fulfil the basic legal requirements for a patent to be granted: the processing of cupuaçu is not a new technique. It has been used by traditional communities in Amazonia for hundreds of years. Furthermore, cupulate was not invented by Asahi Foods, but by the Brazilian agricultural research agency, EMBRAPA.

Asahi Foods does not currently hold any patents in relation to cupuaçu. It has registered "Cupuaçu" and "Cupulate" as trade marks in Europe, the United States and Japan, which theoretically prevents Brazilian companies from selling products made from cupuaçu on the international market. (*Source:* Carta Maior, in *Amazon News*, 2 October 2003.)

## GUARANA (*PAULLINIA CUPANA*)

*Guarana*

**Guarana**

Guarana is a creeping shrub native to the Amazon (and particularly the regions of Manaus and Parintins). In the lushness of the Brazilian Amazon where it originates, it often grows to 12 m high. The fruit is small, round, bright-red in colour, and grows in clusters. As it ripens, the fruit splits and a black seed emerges – giving it the appearance of an "eye" about which Indians tell legends.

The uses of this plant by the Amerindians predates the discovery of Brazil. South American Indian tribes (especially the Guaranis, from whence the plant's name is derived) dry and roast the seeds and mix them into a paste with water. They then use it in much the same way as chocolate – to prepare various foods, drinks and medicines. The rain forest tribes have used guarana mainly as a stimulant and astringent, and in treating chronic diarrhoea. Botanist James Duke cites past and present tribal uses in the rain forest: as a preventive for arteriosclerosis; as an effective cardiovascular drug; as an analgesic, astringent, febrifuge, stimulant and tonic used to treat diarrhoea; and for hypertension, migraine, neuralgia and dysentery.

Nowadays, guarana is taken on a daily basis as a health tonic by millions of Brazilians. Guarana has also been used as an ingredient in shampoos and in hair-loss treatments. In Peru, the seed is used widely for a variety of ailments.

Today the plant is known and used worldwide and is the main ingredient in the "national beverage" of Brazil, guarana soda. Eighty percent of the world's commercial production of guarana paste is in the middle of the Amazon rain forest in northern Brazil – still performed by the Guarani Indians who wild-harvest the seeds and process them into paste by hand. The Brazilian Government has become aware of the importance of the local production of guarana by traditional methods employed by the indigenous inhabitants of the rain forest. Since 1980, the National Indian Foundation (FUNAI) has set up a number of projects to improve the local production of guarana. Now, under the direction of the FUNAI regional authority in Manaus, many cooperatives in the rain forest support indigenous tribal economies through the harvesting and production of guarana.

While the Indians have been using guarana for centuries, Western science has been validating that the indigenous uses are well grounded. In 1989, a United States patent was filed on a guarana seed extract which was capable of inhibiting platelet aggregation in mammalian blood. A Brazilian research group has been studying guarana's apparent effect of increasing memory, thought to be linked to the essential oils found in the seed. A United States patent

has been filed on a combination of plants (including guarana) for promoting sustained energy and mental alertness "without nervousness or tension". Guarana (often in combination with other plants) has also been found to facilitate weight loss.

Guarana's good health benefits and its standing as a natural stimulant have caused its popularity to grow steadily worldwide. It can be found under many labels and as an ingredient in many herbal formulas, energy drinks and protein bars. Unfortunately, too many (unethical) manufacturers are simply adding the guarana name to their labels to capitalize on its popularity – and adding caffeine to their products instead. (*Source:* www.rain-tree.com/guarana.htm)

**The taste of guarana is distinctive and unique, and is the main reason for its success in Brazil as a soft drink. The main ingredient of guarana is guaranine, which is chemically identical to caffeine.**

**Guarana-based drinks are common in Brazil, but hard to find in most other countries. The success in Brazil was reason enough for Pepsi and Coca-Cola to start the production of their own guarana soda varieties. Pepsi tried to market "Josta" in the United States (and failed); Coca-Cola still sells "Kuat" in Brazil (with some success). In most cases, imitation brands still cannot compete with the original Brazilian brands. (*Source:* www.guarana.com/)**

**The battle over Amazonia's guarana**

The dispute involves millionaire investments, spying and a true battle of words. The battleground is Amazonas state. At issue is the guarana fruit, discovered by indigenous people at the end of the eighteenth century and industrialized into a drink in 1900. On one side is Guarana Antarctica, of AmBev, which is proud of being "originally from Brazil" and which has, for more than 40 years, bought its seeds from small farmers in Maues, a city located about 260 km from Manaus and considered the birthplace of guarana. On the other side is Guarana Kuat, of Coca-Cola, which has just harvested (in the municipality of President Figueiredo, 120 km from Manaus) its first crop of guarana with plans to transform the region into the newest pole of this Amazonas' fruit.

In its favour, AmBev has the tradition. Before the actual founding of Maues in 1798, the Satere-Mawe, an indigenous people in the region, discovered the fruit's energetic ingredients. With the dried tongue of the pirarucu fish (*Arapaima gigas*), this indigenous people would scrape the trunk, extracting a powder which would then be mixed with water, a concoction that guaranteed improved results while hunting. In 1921, a chemist treated the fruit and was successful in making a drink that maintained the guarana flavour without its characteristic bitterness: Guarana Antarctica champagne.

Maues guarana, the Brazilian leader in production up until the 1980s, began to lose its productivity and the Bahia guarana plants assumed the leadership. One reason for this is time: the average age of Maues guarana plant is 40 years, with productivity beginning to decrease after 30 years. A bush native to Maues produces 80 g of seeds, whereas plants that have been genetically altered can increase production thirtyfold.

This reduced productivity is exactly what Coca-Cola wants to take advantage of in the attempt to valorize its own guarana, a plant that the corporation introduced three years ago. The crop is sown in the Jayoro Sugar Factory, which supplies all the sugar utilized by Coca-Cola in Brazil. Over five years, Coca-Cola has invested $R 10 million in research, planting, harvesting and improving the guarana plant. According to Coca-Cola, the technicians have reached an average production of 1 kg of seeds per bush. The altered plants are reproduced in a nursery that houses more than 180 000 shoots.

At the end of this year, Coca-Cola gathered its first guarana harvest: 40 tonnes of seeds extracted from 410 ha. By 2005, it hopes to be self-sufficient in its production and to increase production to 160 tonnes.

In addition, the multinational is also interested in commercializing the fruit for other purposes, for example, cremes, shampoos and even lipstick.

Perceiving Coca-Cola's competitive advancing and the loss of productivity in Maues guarana, AmBev responded: it elaborated an investment plan of $R 61 million in diverse projects in the region up until 2013; additionally, it has created 12 development poles to offer assistance to the rural communities and to finance the expansion of guarana farming and the recovery of the Maues guarana plants.

At the centre of AmBev's research is the Santa Helena Plantation, inaugurated in 1972 in Maues. AmBev's agricultural engineer, Renato Cardoso Costa, Jr, explained that more than 280 000 shoots have been distributed, with an average of 1.5 kg of seeds per plant. In the distribution, the corporation faced strong resistance from the local farmers. "Some said that the plants that they cultivated were from the grandfather of the great-grandfather of the great-great-grandfather; so the modernization and technology's incorporation had to be accompanied with a process of re-education and persuading the farmers," explained Gileno Correia, the manager of the AmBev factory in Manaus.

Guarana is responsible for 25 percent of sodas in Brazil. According to an October report by the AC Nielsen consulting office, Guarana Antarctica controls 75 percent of the market, while Kuat maintains the other 25 percent. (*Source:* O Estado de S. Paulo, in *Amazon News*, 7 December 2003.)

# PRODUCTS AND MARKETS

## HONEY

**Honey factory in Uganda**

Beekeepers in Uganda will no longer have to hassle for the local market for their honey with the opening of a new honey processing plant in Kampala by the Mazima Group of companies next month. The plant, to cost U Sh 500 million, is under construction in Nalukolongo near Kampala and on completion will process honey from various parts of the country, for local consumption and export.

The Mazima Group's managing director, Harshad Barot, said they were undertaking this venture to exploit the untapped value in organic honey that is plentiful in Uganda but not yet fully tapped. The Mazima Group is working together with the Uganda Beekeepers Association to provide materials and some financial assistance. (*Source: New Vision* [Kampala], Uganda, 25 March 2003.)


**Honey in Slovakia**

Rich sources of bee forage allow efficient beekeeping in most areas of the country. The landscape in Slovakia is rugged – lowlands, hills and high mountain ranges lie close to each other. Therefore, Slovak honeys are usually mixed. In the southern part of Slovakia in the early spring beekeepers determine the survival of wintered colonies and observe their spring growth rates. These are dependent upon important early nectar and pollen sources, including fruit-trees and willows and oilseed rape. At the end of this initial season, *Acacia* is in bloom and during the summer, clover, seed crops and sunflower provide pollen and nectar.

In northern Slovakia, coniferous honeydew is found, especially on spruce and fir. This is the principal bee forage in the highlands and mountains of Slovakia. Other nectar sources in these places include bilberries, meadow flowers and raspberries, all of which are hardy in the cooler climate. Dark honeys produced from forest fir and spruce are of outstanding quality and are much sought after by international markets.

The long-term annual Slovakian honey yield is 12 to 15 kg per colony; however, top yields can surpass 80 kg per colony.

Honey is used by the beekeepers themselves, sold directly to consumers, or purchased by a number of companies and exported, mostly to European Union countries: 1 500 to 2 000 tonnes are exported annually, representing one third to one half of the total annual yield. Honey consumption in Slovakia is just 0.25 kg per capita. It is marketed in a variety of ways – cakes, nuts with honey, mead.

Venom and royal jelly were used as additives in famous pharmaceutical products, but owing to the low prices of these raw materials on the global market, beekeepers are no longer motivated to produce them. (*Source:* Extracted from "Zoom in on Slovakia" in *Bees for Development Journal*, September 2003.)

**BEEKEEPING IN RURAL DEVELOPMENT**

**Two weeks of lectures at the University of Sheffield, United Kingdom, followed by two weeks of practical experience with tropical bees in the United Republic of Tanzania at Njiro Wildlife Research Centre, Serengeti Wildlife Research Institute.**

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**Indigenous communities begin to produce honey in Mato Grosso, Brazil**

The honey produced in the Xingu region is now being sold outside the state. This month, the indigenous communities will send a shipment of honey to three São Paulo supermarkets. They are negotiating with the Pão de Açúcar supermarket chain, which has shops in 12 Brazilian states and which could open the door to the international market. The communities currently produce 1 500 kg of honey per month, and are beginning to increase production.

The product has strong commercial appeal as it is produced by Indians. The honey has organic certification from the Biodynamic Institute. The certificate is only awarded to products produced by sustainable practices which do not harm the environment. The honey is the first indigenous product to receive a Federal Inspection Seal from the Ministry of Agriculture, which means that the honey is produced in accordance with health and safety legislation. The seal authorizes the sale of the honey in other states. (*Source:* Gazeta de Cuiabá, in *Amazon News*, 17 July 2003.)

## LAC

**Lac-based livelihood in Orissa, India**

Lac is the encrusted secretion of an insect, *Laccifer lacca*. This insect grows on some suitable trees from which it consumes the sap as its food and

produces a fluid that envelops its body as a protective cover. This fluid, when hardened, becomes the resin that is known as lac. Brood lac is the twig of the host tree carrying lac encrustation.

**Gone are the days of gramophone records and so also the days of their basic raw material, lac. The advent of synthetic substitutes and degeneration of age-old practices have badly damaged the regime of this non-timber forest product, thus affecting the livelihoods of the people traditionally dependent on it.**

This tiny insect completes two life cycles in a year, but in certain cases there may be three cycles in 12 or 13 months. The number of lac crops per year varies according to the number of life cycles; there are usually two crops harvested in a year from a single host tree.

The female insects secrete most of the lac fluid. The quality of this fluid may vary according to the nature of the host tree. Other factors that affect the quality and quantity of production include climatic conditions (e.g. above 20°C facilitates the activity of lac insects), protection from pests and predators and soil characteristics (that affect the growth of the host trees).

Wild lac grows by itself in the forest with little or no human intervention. With cultivated lac, there is a possibility of controlling the quality as well as the quantity of the product, which is not possible with the wild variety.

Two different strains of the lac insect have been identified: "kusumi" and "rangini". The kusumi strain, which produces the best quality of lac, grows better on such trees as kusum (*Schleichera oleosa*) and khair (*Acacia catechu*). The rangini strain prefers trees like palas (*Butea monosperma*). Host trees for the kusumi strain are significantly fewer in number than those for the rangini strain and thus the production of kusumi lac is also less than that of the rangini lac in India.

Kusumi lac has a number of advantages over the rangini variety: it is comparatively heavier and harder and best suited for artistic work. However, for dyeing and similar uses, rangini lac is said to be preferable.

In some forest areas near the coast, climatic conditions sometimes facilitate the production of three crops a year, but the encrustation in each crop is reportedly thinner.

Traditional uses of lac include making bangles and lacquerware and as a source of dye. There may also be therapeutic applications, with scientists confirming its antibacterial properties. Modern applications of this resinous substance and its derivatives are found in the plastic, leather, electrical, adhesive, wood finishing and hat industries.

Indian lac dominated the world market for many years until 1950, when production in Thailand increased significantly and gained a major share of the lac market. Development of synthetic substitutes has also affected the lac market badly. However, almost 85 percent of the lac produced in India is exported. (*Source: Banabarata*, Issues II & III, 2002-2003 [www.vasundharaorissa.org].) [*Please see Vasunhara in News and Notes for more information.*]

## MEDICINAL PLANTS

**Herbal medicine boom "threatens plants"**

If the huge boom in herbal medicine continues unchecked, up to a fifth of the plant species on which the industry depends could disappear, according to new reports. This could in turn jeopardize the health and livelihoods of the poor in India and China who harvest them.

Studies are showing that the industry – which fuels a world market worth US$20 billion – largely fails to ensure its raw material is harvested sustainably. The conservation group Plantlife International published a report that reveals an uncertain future for many of the wild plants.

One species highlighted by Plantlife as being under threat is tetu lakha (*Nothatodytes foetida*), a small tree found in the rain forests in South India and Sri Lanka and used for anti-cancer drugs in Europe. Others include a saw-wort known as costus or kusta (*Saussurea lappa*) from India whose root is used for chronic skin disorders, and the tendrilled fritillary (*Fritillaria cirrhosa*) from Sichuan, China, used to treat respiratory infections.

The market for African cherry (*Prunus africana*), the bark of which is popular in Europe as a treatment for prostate enlargement, has collapsed because too many trees have been destroyed. In the past the trees, which grow in Africa's mountain regions, survived because traditionally less than half of their bark was harvested. But according to a recent study by Kristine Stewart, from consultants Keith and Schnars in Florida, growing commercial pressures have led to whole forests being stripped or felled. Exports of dried bark halved between 1997 and 2000 and the main exporter, Plantecam, had to close its extraction factory in Cameroon.

In its report, Plantlife urges the industry to invest in cultivation. It also proposes the introduction of a kite mark to identify products that have been sustainably harvested.

Some experts say Plantlife's criticism is too conservative. Only a concerted effort by herbal practitioners, environmental groups and the industry itself can, they say, turn the tide.
(For the full story, please see: www.newscientist.com/news/news.jsp?id=ns99994538) (*Source:* NewScientist.com, 9 January 2004.)

**European Union to promote plant sustainability**

European companies and researchers should share the profits made on products using exotic plants such as ginseng and green tea with the countries of origin, urges a European Commission (EC) communication issued on Friday.

The statement, which encourages "international solidarity", follows a new report from the United Kingdom's Plantlife International that shows many wild plants are under threat of extinction from the booming herbal medicine industry. This in turn threatens the livelihoods of numerous populations, mainly in developing countries.

The use of exotic plants such as *Aloe vera*, ginseng, green tea and jojoba oil is widespread in the European Union (EU), particularly in cosmetics, but there is also a growing demand for extracts of these plants in dietary supplements and functional foods. The EC urges companies and research institutes not to take genetic resources from other countries – usually developing countries that are rich in biodiversity – without their consent.

Genetic resources, defined by the EC as materials of plant, animal or microbial origin, are usually found in the Southern Hemisphere, mostly in Latin America, Southeast Asia, Oceania and Africa.

The communication suggests that companies and research institutions use standard agreements with the providers of genetic resources, such as governments or local populations, which set out terms and conditions under which the plants could be used and how the benefits from their use should be shared. All users of genetic resources are also encouraged to develop their own codes of conduct as a means of respecting the 1992 United Nations Convention on Biological Diversity (CBD) and the Bonn Guidelines on Access and Benefit Sharing (ABS) adopted under the Convention in 2002.

Europe will also take measures to raise users' awareness of their obligations under the United Nations agreements, said the communication, such as creating a European network to provide information on international and European laws on access and benefit sharing.

It also opens the debate on the introduction into EU law of a requirement for patent applicants to reveal where they got their genetic resources from and if they made use of the "traditional knowledge" of indigenous peoples or local populations.

The Council of Ministers and the European Parliament have been invited to give their views on the proposals and the public will also be consulted before further steps are taken on the proposals.
(For the full story, please see: www.beveragedaily.com/news/news-NG.asp?id=48955) (*Source: Beverage Daily*, 12 January 2004 in BIO-IPR [grain@baylink.mozcom.com].)

**Medicinal plants: chainsaws in the drugstore**

Medicinal plants are used by a surprisingly high percentage of the world's population. This is partly for cultural reasons and partly because they tend to be cheaper than drugs made by big companies. People also use plants to cure problems Western medicine still cannot solve.

Many medicinal plants are readily available. Women grow them in their gardens or they grow naturally all around. However, some key plants are becoming scarce owing to logging, overharvesting and deforestation, which has put many families' health at risk.

For nearly a decade, Patricia Shanley from the Center for International Forestry Research (CIFOR) and Leda Luz from the State Forestry Institute in Minas Gerais, Brazil have been studying this problem in the Amazon. Their results, presented in "The impacts of forest degradation on medicinal plant use and implications for health care in eastern Amazonia" in *Bioscience*, are hardly reassuring.

The authors focus on the Amazon city of Belém and find that most of its 1.7 million inhabitants use medicinal plants to treat a wide range of ailments. The city's markets, shops, pharmacies, petrol stations and curbside vendors sell more than 200 different plants, of which about half grow naturally in the Amazon. The main downtown outlets alone make more than one million sales each year, generating several million dollars, and sales are growing fast. Some plants are just sold unprocessed, but there is also a

growing variety of capsules, powders, liquid medications and shampoos.

Of the 12 top-selling medicinal plants in Belém, eight come from forests. Logging companies use five of these trees for timber which has depleted their supply. Many important medicinal tree species are particularly vulnerable to logging because they grow slowly and occur in low densities. Fewer trees mean less access for the rural poor and higher prices for medicinal tree barks, roots and oils. That has made sick people's lives much harder.

Politicians always like to talk about health care because they know it affects all of us. But they pay too much attention to white coats and high-priced drugs and not enough to the plants that so many people turn to when they get ill. To get the chainsaws out of our drugstores, that has got to change. (To request a free electronic copy of this report in pdf or Word format, write to Titin Suhartini [t.suhartini@cgiar.org]; to send comments or queries to the authors, write to Patricia Shanley [p.shanley@cgiar.org].) (*Source:* David Kaimowitz, Polex, CIFOR, 30 June 2003.)

**Guidelines on the Conservation of Medicinal Plants**

At a meeting in 2003 organized by the World Wide Fund for Nature (WWF)-UK and WWF/TRAFFIC-Germany, representatives from the World Health Organization (WHO), the World Conservation Union (IUCN), Trade Records Analysis of Flora and Fauna in Commerce (TRAFFIC) and WWF discussed the need to revise the 1993 Guidelines on the Conservation of Medicinal Plants. These are global guidelines that were published by WHO, IUCN and WWF following the historic 1988 Chiang Mai Declaration "Saving Lives by Saving Plants".

All participants recommended the revision of the 1993 guidelines in the light of significant new developments in the field of medicinal plant conservation and use over the past decade (e.g. community involvement in conservation, incentive-based approaches/certification). The usefulness of an up-to-date global framework document was strongly highlighted. Apart from governments and non-governmental organizations, a new key audience for the revised guidelines will be the commercial sector (e.g. herbal medicine industry, traders). This sector can contribute significantly to conservation and sustainable use of medicinal plants through socially and environmentally sound sourcing practices.

To achieve maximum buy-in, the revised guidelines will be developed through a global consultation process, which should be completed by December 2004. TRAFFIC becomes the fourth author of the revised document. The work will be guided by a steering committee comprising two representatives from each organization.

The original 1993 WHO/IUCN/WWF Guidelines on the Conservation of Medicinal Plants can be found at: www.wwf.org.uk/researcher/programmethemes/plants/0000000180.asp

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***Syzygium alternifolium* Walp. – an endemic medicinal plant**

*Syzygium alternifolium* Walp. is an endemic and medicinal plant species of the Tirumala hills which are a part of the Eastern Ghats of India. The plant is found in open areas of rocky terrain on the hills at an altitude of 600 to 750 m, where the soil is red and calcareous shales. Flowering occurs in April and May and fruiting in June and July. The plant is pollinated by insects and propagated by seeds.

*Syzygium alternifolium* Walp. (Myrtaceae) is a small tree, the leaves are sub-opposite, ovate, large, 20 cm long and 15 cm broad; the inflorescence is a cyme usually formed laterally from the axile of fallen leaves; the flowers are small calyx tube turbinate, the limb four-lobed, with four rounded, calyptrate petals; the numerous stamens are bent inwards in the bud condition; the ovary is two-celled with several ovules in each cell; and the fruit berry is globose pyriform, one-seeded. The taxa is reduced to its population density and natural spread and has become rare as it is overexploited for its professed medicinal properties.

Its fruits are fleshy and edible. The fruit pulp and alcoholic extraction of seeds possess antidiabetic properties. The ripe fruits are also used in making squashes, jellies and vinegar. The juice of the fruits is used to cure stomach ache and ulcers while the external application of the fruit pulp reduces rheumatic pains. The extract of the stem bark possess antiseptic properties. The leaves are the best source for such economically important compounds as sitosterol (+) pintol, sideroxylon and sizalterin. The juice of the fresh leaves and pulp of the tender shoots are used to treat bacillary dysentery. The wood is used for crafts, scantlings, beams, poles and agricultural implements. (*Contributed by:* N. Ramamurthy and N. Savithramma, Department of Botany, S.V. University, Tirupati–517 502, India [e-mail: nadipiramamurthy@rediffmail.com].)

# PRODUCTS AND MARKETS

**South Africa: permits to harvest Devil's Claw**

The future of one of Northern Cape's most important medicinal plants, the *Harpagophytum procumbens* DC, or Devil's Claw, as it is more popularly known, has been given a huge boost by the laying down of permit conditions regarding large-scale harvesting of the plant in the province.

Large-scale harvesting is deemed to be the harvesting of more than 40 plants. This was decided by the Department of Agriculture, Land Reform, Environment and Conservation in Northern Cape, to which the survival of this precious plant is very important.

A spokesperson for the department, Thabo Mothibi, said in a statement that the introduction of permit conditions for the harvesting of Devil's Claw in Northern Cape was a proactive step to ensure its long-term survival, and to protect its sustainable commercial use as a natural medicine through the prevention of overexploitation. Mr Mothibi said that there was a sharp increase in the demand for Devil's Claw as a natural medicine and it was estimated that in 2002 more than two million plants were collected from the wild to meet the international demand.

According to the *Northern Cape Government Gazette* (Vol. 10, No. 802), the permit applicant should provide proof of consent from the landowner on whose property the harvesting will take place, as well as the submission of a Resource Assessment and Management Report (RAMR). The written consent from the landowner, or Memorandum of Agreement, must stipulate that the landowner was informed of the reasons for the collection of plants.

The department said the permit applicant should not harvest between November and February as this was the period in which flowering and seed set normally took place.

The same area should also not be harvested again for the following three years, while only secondary tubers may be harvested.

Devil's Claw has gained popularity since the 1900s, when it was recognized as having valuable analgesic and anti-inflammatory properties to assist in the treatment of rheumatism and arthritis. It was therefore no surprise that its demand had steadily increased since the 1960s, leading to the export of the dried tubers to Europe and other countries, making it a much sought-after product outside Africa. (*Source: BuaNews* [Pretoria], South Africa, 19 January 2004.)

**Medicinal plant collection in protected areas in the Balkans**

Stocks of many medicinal plant species in the Balkan countries have declined in the past decades with some species becoming rare or endangered owing to habitat loss, habitat modification and overexploitation, among other reasons. The German Federal Agency for Nature Conservation (BfN), WWF-Germany and TRAFFIC-Europe call for action to fix and implement measures to avert the further depletion of medicinal and aromatic plant populations in the Balkan countries, most of which are preparing for accession to the European Union.

Western Europe's herbal industry, especially in Germany, which is the largest European medicinal plant importer, relies on medicinal plant supplies taken from the wild in the Balkans. Most of the more than 2 000 different plant species that are used for producing medicine or other herbal products in Europe are collected from the wild. A surprisingly large share – about 8 percent of the global medicinal plants trade – originates from the Balkans.

In the countries that supply them, medicinal plants are a controversial topic. The livelihoods of many people in rural areas depend to a considerable extent on the wild collection of such plants, but overharvesting has depleted wild populations of many medicinal plant species in areas where they were abundant only some 10 to 15 years ago.

A study – *Medicinal and Aromatic Plants in Albania, Bosnia-Herzegovina, Bulgaria, Croatia and Romania. A study of the collection of and trade in medicinal and aromatic plants (MAPs), relevant legislation and the potential of MAP use for financing nature conservation and protected areas* – released today [12 September 2003] by BfN and carried out by WWF-Germany and TRAFFIC-Europe looks into the current volumes of the medicinal plant trade, the sourcing of medicinal plants from protected areas and the legal situation in five selected Balkan countries: Albania, Bosnia-Herzegovina, Bulgaria, Croatia and Romania. It also analyses several current projects aimed at a sustainable use of medicinal plants in protected areas in the region and evaluates the potential for using protected areas to link effectively nature and species conservation and the sustainable use of natural resources, thereby involving all stakeholders affected by the chain-of-custody of medicinal plants sourcing and trade. "It is vital that both range and consumer countries are aware of an urgent need to share the responsibility for sustainable sourcing, trade and use of medicinal and aromatic plants," said co-authors of the report, Susanne Honnef from WWF-Germany and Wolfgang Kathe from TRAFFIC-Europe.

The study found that the medicinal and aromatic plant species wild-collected in the largest quantities in the region are currently sage in Albania and Bosnia-Herzegovina, juniper in Bosnia-Herzegovina, dog-rose in Bulgaria, nettle in Croatia, field shave-grass (*Equisetum arvense*) in Croatia, as well as bilberry and raspberry in Romania. Species such as yellow gentian (*Gentiana lutea*) and mountain tea (*Sideritis raeseri*) have

become threatened almost throughout their natural range in the Balkans.

Most medicinal plants in the Balkans are collected from the wild by the local population. As a rule, one or more intermediate traders and wholesalers are involved in the chain-of-custody of the trade; direct marketing by individual collectors or collectors' cooperatives is uncommon. As a consequence, the share of the export price being earned by individual collectors is usually low. At the same time, all five countries have developed a comprehensive system of laws and other regulations related to environmental issues and the conservation of natural resources. With the exception of Bulgaria, however, the implementation and enforcement of legal instruments has so far been relatively ineffective.

In December 2002, a seminar convened by BfN, WWF-Germany and TRAFFIC-Europe in the Isle of Vilm, Germany, brought together medicinal plant experts from the Balkans and Germany to discuss ecological, social and financial implications of medicinal plant sourcing and trade in the Balkans and at the same time served as one of the main incentives to develop the study released today.

Based on the results of the study and the seminar, action at several levels is urgently needed in most areas in the Balkans. Among other things, medicinal and aromatic plant populations and wild collection activities have to be assessed and species-specific and local maximum quantities of annual wild-collection determined.

Effective control and monitoring mechanisms must be established and a comprehensive management plan has to be developed for every protected area, which should guarantee that medicinal and aromatic plant sourcing does not exceed sustainable levels. Based on the effective management of protected areas medicinal plant sourcing could subsequently contribute to nature conservation in protected areas.

In addition, collectors must – over the long term – be guaranteed a certain income level. It may be possible to achieve higher market prices if the raw material is processed in the region or country and products are sold on the national and international markets. (Hard copies of the study and the proceedings of the seminar held in Vilm, Germany – including the Declaration of Vilm – can be obtained from Gisela Stolpe, BfN [Gisela.stolpe@bfn-vilm.de]; an electronic version can be downloaded from the BfN Web site [www.bfn.de/ 06/0602_en.htm].) (*Source:* Traffic Press Release, 12 September 2003.)

## NUTS

**Milk produced from Brazil nuts**

Bread made with nut milk is a speciality of regional cuisine in Acre. As well as being tasty, the product is highly nutritious. An Acre-based company, Sello Industria Comercio, Importação is building a factory to produce pasteurized nut milk, which may be used as an alternative to coconut milk in cooking. The company already has contracts with companies in Europe for the exportation of nut products. The product will begin to be sold in Rio Branco, the capital of Acre, but the company hopes to expand its production and sell the product to other states. This year, Sello hopes to produce 100 000 litres of nut milk. The factory will employ 32 people.

The Brazil nut is considered to be one of the most complete foods available. It is rich in protein, lipids and minerals. Brazil exports around US$3.3 million of Brazil nuts every year but the product has been banned in the European Community owing to concern about contamination with a carcinogenic fungus, aflatoxin. The ban will not affect the exportation of nut milk. (*Source:* Página 20, in *Amazon News*, 31 July 2003.)

**Brazil nuts vetoed in Europe**

Sanctions imposed by the European Commission on the importation of Brazil nuts in their shells, owing to the presence of a fungus which is thought to be carcinogenic, have effectively brought an end to the export of the product to Europe. The Brazilian Government and the private sector lack the minimum infrastructure to meet the European standards.

All Brazil nuts exported to Europe must be accompanied by a certificate stating their origin. All the nuts must also be tested. Brazilian producers at present do not have the means to comply with these regulations. The trade in the nut, which is a symbol of Brazil, is worth around US$3.3 million per year.

The European Commission decision was based on a technical inspection carried out in Pará in January and February 2003. The inspection team found levels of the fungus, aflatoxin, 100 times greater than that permitted under European Commission rules.

Brazilian diplomats in Brussels have criticized the decision as another example of European agricultural protectionism. (*Source:* O Estado de S. Paulo, in *Amazon News*, 17 July 2003.)

**Brazil nuts under threat**

Scientists are warning that the export of Brazil nuts collected in the Amazon region could collapse if intensive harvesting practices continue. Until now, harvesting the nuts has been thought to be a sustainable way of preventing more environmentally destructive activities such as ranching.

However, in this week's *Science*, an international team of researchers, led by Carlos Peres, a tropical conservation biologist from the University of East Anglia, United Kingdom reports that current harvesting practices are not sustainable in the long term.

The scientists surveyed 23 natural Brazil nut tree populations in the Brazilian, Bolivian and Peruvian Amazon. They found that populations that have been extensively harvested over several decades are dominated by older trees,

suggesting that younger trees are unable to establish themselves in such areas. Computer models confirm that, as a result, these tree populations will dwindle over the long term if current practices persist.

Brazil nuts are the only internationally traded seed crop collected from the wild. They are traditionally harvested from trees that can reach 50 m in height and more than 16 m in circumference. At least 45 000 tonnes of nuts are harvested each year in the Amazon region.

In order to avoid a collapse of the Brazil nut industry, the researchers recommend close monitoring and careful management of exploited tree populations to encourage young trees to become established.

They also suggest that the annual quota of seeds that can be harvested should be managed, and that a rotation system should be implemented, alternating areas in which harvesting would not take place. (*Source: Science*, 19 December 2003.)

## TAMSHI

**Tamshi: otro producto no maderable de los bosques amazónicos con importancia económica**

La fibra vegetal de «tamshi» juega un rol importante en la vida del poblador rural de la Amazonía peruana, pues se la utiliza habitualmente en la construcción de casas, utensilios domésticos y artesanías. Sin embargo, hay poca conciencia sobre la necesidad de su conservación y manejo. La especie, que con un manejo adecuado puede contribuir a generar ingresos económicos y a preservar los bosques tropicales amazónicos, se halla gravemente amenazada debido a la excesiva explotación.

El nombre «tamshi» viene dado a un grupo de especies de fibras vegetales de las familias Araceaea y Cyclanthaceae. Estas especies tienen en común la característica de ser hemiepífitas, con raíces aéreas, cilíndricas o planas, largas, en forma de alambres, que cuelgan o están pegadas a los troncos de los árboles en los bosques primarios. Los «tamshies» son especies nativas de los bosques amazónicos clímax y no se encuentran en bosques secundarios.

Los «tamshies» son productos no maderables del bosque, altamente resistentes al ataque de hongos e insectos, que tienen múltiples usos y aplicaciones. En las zonas rurales son material importante de construcción que reemplaza al alambre y se utiliza como elemento de amarre para sujetar vigas, caballetes y junturas.

Es también común su uso en el tejido de canastas, esteras, camas, sombreros y otros utensilios y materiales de pesca. Los «tamshies», dependiendo del grosor y características de la especie, se utilizan también en la construcción de balsas de madera, cercos para protección de animales, armado de camas en reemplazo del somier, tendales para secar ropas y como materia prima para la fabricación de artesanías en diferentes comunidades nativas. En zonas urbanas se los utiliza ampliamente en la fabricación de muebles, pues reemplaza perfectamente a la fibra de mimbre. Como una prueba más de su gran popularidad, la capital de la provincia de Sargento Lores en Loreto se llama Tamshiyacu, nombre puesto por sus antiguos pobladores, posiblemente por la abundancia del «tamshi» en ese lugar.

En la actualidad el recurso escasea a causa de la presión ejercida por su explotación y obliga a los pobladores rurales a buscar en áreas cada vez más distantes de los centros tradicionales de producción. No obstante su utilidad, muy poco se conoce sobre aspectos básicos de su taxonomía, biología, ecología y características físicas y mecánicas, por lo que urge desarrollar investigaciones orientadas a solucionar los problemas vinculados a su manejo y explotación.

**Los «tamshies» son especies nativas no maderables que tienen en común su condición de epífitas, con raíces cilíndricas largas en forma de lianas que cuelgan o están pegadas a los troncos de árboles de gran altura en bosques primarios amazónicos. En las zonas rurales, debido a su flexibilidad y alta resistencia al ataque de hongos e insectos, se los utiliza en las construcciones como material de amarre en sustitución del alambre.**

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***He plants trees to benefit another generation.***

**Caecilius Statius (220–168 BC)**

# COUNTRY COMPASS

## BANGLADESH

**A forest stolen for cash**

The plantation of exotic trees – rubber, acacia and eucalyptus in particular – is a major factor that has changed the Modhupur sal forest (*Shorea robusta*) for ever, with severe consequences for the ethnic communities – Garos and Koch – who have lived in the forest for centuries.

With loan money from the Asian Development Bank and the World Bank, in particular, the government has actually established plantations of alien species all over the public forest land. With the exception of the Sundarbans, only fragments of native forests remain in Bangladesh.

Pineapple and banana plantations have also expanded recently in the Modhupur sal forest, which is a cause of serious concern owing to the heavy use of pesticides (including DDT), and imported hormones to make the fruit bigger and ripen faster. Nowadays both pineapple and banana production and trade are controlled by the Bangalee traders.

In Bangladesh, "social" forestry on public forest land means big cash deals with loans coming from international financial institutions. The practice of "simple plantation" forestry has been passed for "social", "community" or "participatory" forestry. The land belongs to the Forest Department; loan money comes from the Asian Development Bank (ADB); and the Forest Department establishes the plantations on public forest land, cutting native forests and bushes with the argument that the local species are less productive and grow slowly. The local people and often outsiders are drawn into the practice as the so-called participants or beneficiaries who have no say in the selection of species, while production and trade are controlled.

According to some appalling statistics about the state of the Modhupur forest given by the Tangail Forest Office, out of 18 600 ha in the Tangail part of the Modhupur forest, 3 160 ha have been given out for rubber cultivation, 405 ha to the Air Force, 10 125 ha have gone into illegal possession and the Forest Department controls only 3 650 ha.

In Modhupur, once abundant with medicinal plants, one can hardly find native species such as Gandhi gazari, ajuli (*Dillenia pentagyna*), dud kuruj, sonalu (*Cassia fistula*) (golden shower), sesra, jiga, jogini chakra (*Gmelina arborea*), kaika, sidha, sajna, amloki (*Emblic myrobalan*) and gadila.

Currently, the Forest Department is implementing the second rotation of fuelwood plantation throughout the country with loans for the Forestry Sector Project from the ADB. The controversy, debate and protest that the first rotation of plantation (beginning in 1989/90) generated are still alive. The Forest Department continues to ignore all these protests and controversies around plantations. (*Source:* Extracted from *Modhupur. A stolen forest, robbed Adivasis*, by Philip Gain, Society for Environment and Human Development [sehd@citechco.net] in Community Forestry E-News, 2003.16.)

## BHUTAN

**Matsutake export declines**

Exports of matsutake mushrooms to Japan have slumped rapidly in recent years says the National Mushroom Centre (NMC) in Semtokha. According to Dawa Penjor of NMC this is basically because of the large production of matsutake in other exporting countries such as the Republic of Korea, the Democratic People's Republic of Korea and China. Matsutake, locally called sangay shamu, fetches about Nu 3 000 per kilogram in Japan and Bhutan has been exporting the mushroom for about a decade.

There are other reasons for the decline. Despite the vigilance of quality control inspectors, Japanese importers found nails inside the mushrooms, seriously tarnishing the quality of Bhutanese export standards. Bad harvesting practices of mushroom collectors have also contributed to the decline. According to Dawa Penjor, the Bhutanese overpick, collect very young mushrooms, disturb the soil and damage the host plant, and carry plastic bags instead of baskets which prevented spores from being released in the forest. Collectors say that the productivity of the cultivated areas has declined by at least 10 percent in recent years.

Exporters, farmers, agriculturists, foresters, collectors, quality controllers and marketing experts in the business met at a one-day workshop on 18 June 2003 to discuss "sustainable harvesting and marketing of the mushroom". The participants deliberated on various cross-cutting issues affecting the mushroom industry in Bhutan.

Chhimi Tshering of the agricultural marketing section, who presented a paper during the workshop, said that little was known in Bhutan about the Japanese mushroom industry, the place of matsutake in the industry, and the progress and the prospects of Bhutan's exports to Japan. He added that Canada, the Democratic People's Republic of Korea, the Republic of Korea, Mexico, Morocco, the United States, Turkey and China also exported matsutake to Japan, with China and the Democratic People's Republic of Korea dominating the market. Bhutan was the smallest supplier. Bhutan also exported matsutake to Thailand, Singapore, India, Malaysia and China, Hong Kong Special Administrative Region.

Mushroom exporters said that the "low demands and uneconomic prices offered" because of an economic slump in Japan, coupled with high cargo

charges and flight cancellations owing to bad weather, were other reasons for the declining exports to Japan. But a marketing expert with the agricultural marketing section argued that the information Bhutanese exporters had on the Japanese mushroom industry was either very limited or not accurate and assured the workshop that the Japanese matsutake market was steady and that exports were worth continuing.

The programme director of the Renewable Natural Resources-Research Centre (RNR-RC) spoke about the possibility of harvesting matsutake based on the principles of shared ownership. He explained that mushroom producing areas were a "common pool" for which an effective management strategy needed to be developed.

Meanwhile, NMC has been taking various initiatives to keep the industry running and has been training the matsutake collectors in the sustainable harvest of mushrooms. The beginning of the harvest season is now being set every year and the collection of small-sized mushrooms is not permitted so that mushrooms can mature and shed their spores. NMC has also set packaging standards and has been encouraging collectors' group formation to prevent overpicking and mismanagement.

To regain Bhutan's market reputation in exports to Japan, "Bhutan Fresh" will be used as the quality standard brand on matsutake mushrooms exported to Japan. (For the full story, please see: www.kuenselonline.com/article.php?sid=3087) (*Source:* Kuensel online.com, 24 July 2003.)

## BOTSWANA

**San Bushmen launch ecotourism project**

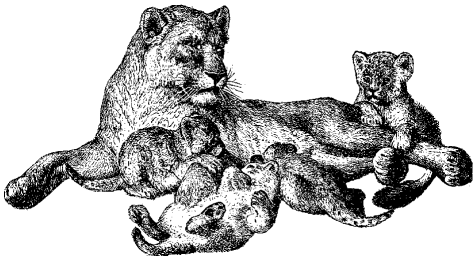
One of southern Africa's most ancient and vulnerable communities, Botswana's Bukakhwe San Bushmen, have launched a community-run ecotourism project built on preserving their traditional values and protecting the region's declining wildlife.

Working in partnership with Conservation International and Wilderness Safaris, the Bukakhwe Cultural Conservation Trust recently inaugurated the new venture called Gudigwa Camp. The ecotourism venture is fully owned by the Bukakhwe San Bushmen and all proceeds will be funnelled back into community development projects. The initiative aims to reduce pressure on wildlife in Botswana's Okavango Delta by providing alternative sources of income that respect the Bukakhwe's cultural heritage.

Hunting, increased human settlement and livestock encroachment have had a negative impact on some of the region's most endangered species such as the African elephant (*Loxodonta africana*) and African wild dog (*Lycaon pictus*). Gudigwa's cheetahs, wattled cranes, lions and leopards are also under pressure. This new project gives the 700 members of the Gudigwa community sustainable alternatives to livestock grazing and incentives to protect local fauna.

The Bukakhwe San Bushmen of Gudigwa live in northeastern Botswana in the upper extremity of the Okavango Delta. Tracing their roots back to Namibia and southern Angola, they have maintained their cultural heritage for thousands of years, amid their unique wetland surroundings.

Gudigwa Camp will host up to 16 guests at a time in comfortable grass huts modelled on traditional Bushmen shelters. Through walking tours, community members will teach guests about the San cultural heritage including the use of medicinal plants, gathering water in the dry season, traditional storytelling, song and dance. (For further information about the project, please visit: www.gudigwa.com) (*Source:* Press Release, Conservation International [Washington, DC], 1 May 2003.)



## BRAZIL

**Environmental protection areas in half of Amazonia**

Brazil should consider the idea of transforming half of Amazonia into an environmental protection area, according to a document published by the World Bank; Brazil should combine "its tremendous natural riches", with higher levels of human capital, foreign trade and innovation to "construct an economy based in knowledge and natural resources".

The document advocates the preservation of Amazonia's ecosystems alongside the existence of highly productive agriculture. (*Source:* O Estado de S. Paulo, in *Amazon News*, 29 May 2003 [newsletter@amazonia.org.br].)

**Secrets of the forests**

Nuts, essential oils, precious stones, certificated tropical hardwoods and handicrafts are some of the treasures hidden deep in the Amazonian rain forest. Despite the fact that it occupies two thirds of the territory of Brazil, the Amazon region contributes 7 percent only of Brazil's annual income. The Brazilian environment agency IBAMA estimates that Amazonia's biodiversity could generate an income of $R 4 trillion, four times more than the current GNP.

On 17 June 2003, 650 representatives of the public, private and "third" sector met in Belém to discuss proposals to make the forest economy the motor which drives the development of the region. During the meeting, the first

group of timber producers with the coveted "green seal" was formed. The group is composed of five companies and two communities in Acre.

An initiative from the federal government, the National Forests Programme, promises to offer incentives for ecologically correct products. The idea is to transform an area twice the size of the state of São Paulo into national forests by 2010. Under this new regime, the exploitation of the forest's natural resources will be permitted as long as it conforms to the criteria of sustainable management, i.e. the extraction of forest resources should benefit local communities without damaging the environment.

Adalberto Verissimo, of the Institute of Man and the Environment in Amazonia (IMAZON), said that the future of sustainable development in the region depends on the urgent resolution of the land question since around 45 percent of the forest has no owner.

Certificated timber continues to be up to 20 percent more expensive than timber which does not have the FSC "green seal". Other ecologically correct products are up to a third more expensive. "The appeal of these products is in the work behind each item and the many families which benefit from this economic alternative which means that they do not have to leave their land," said Verissimo.

One piece of good news is that there is no shortage of projects in the region aimed at bringing about sustainable development. The non-governmental organization Friends of the Earth-Brazilian Amazonia has created a service for sustainable business, which offers advice to local communities in Amazonia. According to Roberto Smeraldi, director of Friends of the Earth, an economy based on sustainable development could generate 500 000 direct and indirect jobs in the next four years. The sustainable business service received an investment of $R 1.5 million from the Netherlands Government in its first year. It helps companies selling forest products to identify markets and find buyers for their products.

**The Sustainable Business Service is an initiative launched by Friends of the Earth-Brazilian Amazonia in December 2002. The project offers training – and not direct financial resources – to small-scale community initiatives in the Amazon region, which includes the states of Acre, Amazonas, Rondônia, Roraima, Amapá, Pará, Maranhão, Tocantins and Mato Grosso.**

**The aim is to strengthen the productive sector in the region through the development and sustainability of community-based initiatives which are socially, economically and environmentally sustainable. The initiative is benefiting rubber tappers, furniture makers, producers of indigenous craft goods, oils, palm hearts, honey, fruit pulps and certificated wood.**

**The Sustainable Business Service is one of a number of initiatives aimed at helping local people to exploit Amazonia's natural resources responsibly. The service offers support in a number of areas: technical, legal, marketing, business management, etc., through partnerships with local government, non-governmental organizations, specialist teaching institutions and law practices. The aim is to help 24 enterprises in the next four years. There have already been 200 candidates.**

**Information about the candidates will be included in a Sustainable Business Databank, which may be accessed via the Internet. Any potential candidates may contact the service by e-mail (negocios@amazonia.org.br) or via the Web site (www.amazonia.org.br/negocios).**

One area of growth is the production of cosmetic products, using raw materials from all over the Amazon region. Beraca, a São Paulo-based company which acts as an intermediary between producers and industrial manufacturers, has created a research programme to identify potential ingredients. Copaiba oil is used to make antidandruff shampoo and acne products. Andiroba oil is used in anticellulite products.

The sustainable development projects have an unquestionable appeal. A specialist shop in São Paulo, which sells ecologically correct stationery, furniture and personal hygiene products, has seen an increase in its monthly income from $R 40 000 in June 2002 to $R 100 000 today. The shop was the first in Brazil to receive the Forest Stewardship Council's "green seal". (*Source:* Revista Istoé, in *Amazon News*, 25 June 2003.)

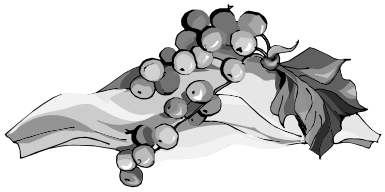
**Ecology makes a difference to Brazil's cosmetic industry**

The exotic names of fruits, seeds, barks and plants from the Amazon region have an ecological appeal which distinguishes Brazilian products in the international cosmetics market. In the last five years, the beauty products industry has grown by 102.7 percent. In 2002, export sales exceeded imports by US$35 million. It is estimated that more than US$190 million of products will be exported in 2003, representing a growth of 20 percent in relation to 2002.

Products which are "made in Brazil" are becoming increasingly common in Europe, the United States, Africa and the Near East. Until 2000, 80 percent of Brazilian exports went to other countries in Latin America. This year, that figure has dropped to 55 percent.

The use of biodiversity has given the national industry a distinctive personality. According to Farmaervas' commercial director, Walmir Paulino, natural cosmetics, particularly those with active ingredients from Amazonian plants, have a great marketing appeal abroad. The company has recently launched an Amazonian line using

essences of copaiba, pequi and andiroba. (*Source:* O Estado de S. Paulo, in *Amazon News*, 25 September 2003.)



## CAMEROON

**Forestry products to boost economy**

The contribution of the forestry sector to Cameroon's economy is significant. The latest report on the competitiveness of the Cameroonian economy describes the sector's role in very simple terms; "its contribution is important by virtue of its direct and indirect fallouts." The report is the result of a study on the diagnosis of the competitive nature of Cameroon's economy realized by the Technical Secretariat of the Committee on Competitiveness in partnership with the CRETES cabinet and James Bannet, an international consultant. It has been carried out within the framework of the fight against poverty, a strategy which challenges the Cameroonian economy and particularly the private sector, already identified as the major axis on which riches and employment could be created.

On the basis of its enormous contribution to the economy, the report gives serious consideration to the forestry sector which possesses rich potentials for making the economy more competitive within and outside the country.

The sector is also hailed for playing the following role in the economy: contributing to the amelioration of the road infrastructure especially in enclave areas; reinforcing banking and insurance businesses; supplying wood to the numerous carpentry and furniture workshops nationwide known to have provided jobs to more than 20 000 people; providing non-timber forest products, such as medicinal plants, vegetables, wild fruits and spices that have undergone spectacular development; and supplying fuelwood as an important energy source for a greater majority of the population. (*Source: Cameroon Tribune* [Yaoundé], 30 December 2003.)

**Fighting poverty through community forestry**

"Empowerment and livelihood improvement of the Bagyeli community through the sustainable use of the resources at the Ngovayang Forest in Cameroon": this is the purpose of a project conceived for the Bagyeli or Bakola people living around the Ngovayang Massif Forest in Lolodorf, Ocean Division.

The feasibility studies for the project were carried out by the Cameroon Biodiversity Conservation Society (CBCS), working in collaboration with the Ministry of Environment and Forestry (MINEF) and the Ministry of Social Affairs (MINAS). The project is being implemented with the financial support of the Dutch Development Agency (DGIS) and Comic Relief.

CBCS collaborates with two main site community-based organizations made up of the Bagyeli people and their Bantu allies. The government brings in technical support through MINEF and MINAS.

The Bagyeli people who live around the Ngovayang Massif Forest are part of the second largest group of pygmies in central Africa and the world's population that still live as hunters and gatherers. Their economy is based on hunting and the collection of forest products. The Ngoveyang forest covers an area of 62 700 ha, situated in the Centre and South Provinces.

The project aims at raising awareness and contributing to the empowerment of local communities around the Ngovayang forest to manage their natural resources and improve their livelihoods. The project activities include: training in natural resource management, promotion of indigenous natural resource management systems, and access rights to natural resources. (*Source: Cameroon Tribune* [Yaoundé], 26 December 2003.)

**Foundation helps communities protect Cameroon Mountains biodiversity**

The United Nations Development Programme (UNDP) is supporting activities by the Cameroon Mountains Conservation Foundation to protect the area's unique biodiversity by helping local communities manage forest resources and improve their livelihoods. UNDP is providing US$300 000 for the initiative.

The Cameroon Mountains, lying in the western part of the country, are the highest range in West Africa. The region's forests have been designated by Conservation International as one of the world's 25 biodiversity "hot spots" that need special attention to safeguard endangered species.

Many villages in the mountains are isolated, and their people are among the one third of Cameroonians who survive on less than one dollar a day. They depend on the mountains for resources such as fuelwood, honey, medicinal plants and game for food, and have strong cultural bonds to the forests. The mountains are also a vital source of water for many inhabitants.

Among the animals living in this unique environment are primates, including chimpanzees and gorillas, mountain elephants and a number of rare bird species. Over the years, however, forests have been cleared for farming and grazing, leading to the drying up of streams and the disappearance of wildlife.

The Cameroon Mountains Conservation Foundation is applying to the Global Environment Facility for US$6 million in funding and UNDP is working to mobilize an equal amount from donors and partners. To aid this effort, UNDP hosted a round table in June 2003 for representatives of donor and government agencies in the capital,

Yaoundé, and is following up to marshal support for the foundation.

Tanyi Mbianyor Clarkson, Minister of the Environment, urged support for the foundation's mission, noting that its work is carried out within the framework of the government's Forest Environment Sectoral Programme, supported by the World Bank. Donors to date include the German Technical Cooperation (GTZ) which has allocated US$2.1 million, the United Kingdom Department for International Development US$740 000 and the Forest Environment Sectoral Programme US$620 000.

The foundation is cooperating with communities to improve forest management to conserve resources, protect endangered species and improve livelihoods by promoting ecotourism and marketing of local products. The foundation also works with villagers to monitor the ecology and social and economic conditions in the area.

These activities contribute to Cameroon's efforts to reach two of the targets of the Millennium Development Goals for 2015: halving severe poverty and ensuring environmental sustainability. (*Source: Newsfront*, 13 August 2003 [newsfront@undp.org].)

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**Les produits forestiers non ligneux – quel rôle dans la gestion participative du domaine forestier non permanent?**

La gestion participative est une des options fortes de la nouvelle politique forestière du Cameroun mise en œuvre depuis la seconde moitié de la décennie 1990. Cette nouvelle démarche est une réponse à l'échec des approches de gestion centralisée, «exclusive» et répressive par rapport à l'entreprise de conservation et de développement durable.

À travers le triangle national, il existe d'importants espaces offrant des possibilités de cogestion. Il s'agit prioritairement des espaces-ressources des populations dans le domaine de forêts non permanentes dont l'exploitation relève du régime collectif villageois ou tout simplement de ceux dont l'accès est libre. Ces espaces regorgent pour la plupart des produits forestiers non ligneux (PFNL: rotin, njansang, bitter cola, eru, mango, etc.) dont les potentialités notamment en matière de gestion collective demeurent ignorées. Pourtant, par leurs caractéristiques, les PFNL peuvent jouer un grand rôle dans le processus de mise en place et de fonctionnement d'un système de gestion multipartite ou participative des ressources forestières.

En premier lieu, les PFNL peuvent servir de révélateur d'un besoin de cogestion à travers la surexploitation et les conflits auxquels donne souvent lieu leur prélèvement incontrôlé dans certains massifs forestiers d'accès libre. Au-delà de ce rôle de déclic (c'est-à-dire la mise en exergue du besoin de gestion concertée), les PFNL peuvent être utilisés comme élément d'analyse des situations de précarité autour de l'exploitation des ressources forestières.

En deuxième lieu, lorsque le principe d'une gestion collaborative des ressources forestières est retenu, les PFNL peuvent contribuer de façon appréciable à plusieurs étapes du processus de sa mise en place dans la mesure où leur exploitation est relativement simple, facile et suscite l'engouement de fortes proportions des communautés villageoises. Ainsi par exemple, on peut se servir des PFNL comme outil de mobilisation d'un grand nombre de personnes pour cause de gestion participative. On peut aussi les utiliser comme un des indices d'identification des différentes parties prenantes de l'exploitation d'un massif forestier, comme support de négociation des plans et accords de gestion ou encore comme matériel didactique dans le cadre de l'apprentissage collectif de la cogestion par l'action. On peut également relever le fait que les situations de prélèvement excessif et de friction autour des PFNL peuvent constituer de puissants éléments de persuasion ou de conviction dans la communication sociale (sensibilisation, dialogue) dont fait généralement appel le cheminement vers la cogestion.

Sur le plan organisationnel, l'exploitation des PFNL peut être à la base de la naissance d'une entité de gestion participative (association, coopérative, groupe d'intérêt économique) dans la mesure où certaines opérations d'exploitation commerciale des PFNL constituent des facteurs de rapprochement des villageois. On peut par exemple penser aux «expéditions» de ramassage de *Irvingia* dans certaines localités du sud et du sud-est, aux parties de chasse dans les mêmes régions et aux opérations de cueillette, d'évacuation et de vente du rotin dans les campagnes du Nyong et Soo. A ces occasions, des groupes informels plus ou moins larges et stables se constituent. Cette synergie peut être capitalisée et canalisée vers une éventuelle initiative de cogestion.

Les PFNL étant peu «sensibles» (ils polarisent moins d'enjeux politico-économiques et fonciers que le bois) et d'accès relativement facile peuvent être, sans grande difficulté, pris comme ressources support ou ressources témoin dans le processus d'initiation et de définition du cadre relationnel (rôles, droits, responsabilités) entre différents acteurs impliqués dans l'exploitation des produits d'une forêt donnée.

Enfin, dans le cadre particulier des forêts communautaires (au sens du décret 95/531/PM: «une forêt du domaine

forestier non-permanent faisant l'objet d'une convention de gestion entre une communauté villageoise et l'administration chargée des forêts»), l'exploitation commerciale des PFNL peut être d'une grande importance pour les communautés locales. Par rapport au bois d'œuvre, l'exploitation des PFNL présente divers avantages: ces ressources sont relativement plus abondantes et diversifiées et ont un temps de maturation généralement court. Leur extraction est en général simple et nécessite moins de moyens (financiers ou techniques). Leur évacuation peut se faire à travers des sentiers qui sont en général moins coûteux et perturbateurs que les routes dont fait appel le prélèvement de la matière ligneuse. Par ailleurs, les PFNL se prêtent mieux à l'exploitation en régie et sont comme on l'a déjà relevé, moins sensibles que le bois. Par ailleurs, sans égaler à court terme les bénéfices financiers de l'exploitation des arbres, la commercialisation des PFNL par les villageois peut générer des sommes non négligeables. Certaines études réalisées en Amérique latine ont d'ailleurs montré qu'à la longue, l'exploitation des PFNL peut être économiquement plus profitable que celle des arbres.

Au-delà de leur montant, les sommes susceptibles d'être générées par l'exploitation commerciale des PFNL dans les espaces régis par le régime collectif villageois peuvent être d'un grand appui pour les communautés dans les efforts d'obtention et de gestion des forêts communautaires: cet argent peut aider ces derniers à rechercher des partenaires techniques et financiers, à financer certaines étapes ou formalités dans le processus (exemple: organisation des réunions, création de l'entité légale de gestion, élaboration de plan simple de gestion). Les PFNL peuvent générer de l'argent plus rapidement que le bois et cet argent peut financer le fonctionnement et la consolidation de l'entité de gestion aussi bien au cours du processus d'acquisition de la forêt communautaire que de son exploitation en attendant que les disponibilités financières s'élargissent davantage avec l'exploitation des arbres.

Comme on le constate, les PFNL peuvent jouer un rôle significatif dans la gestion participative des ressources forestières en général et en matière d'obtention et de gestion des forêts communautaires en particulier. Il revient donc aux différents acteurs de la gestion forestière d'exploiter les possibilités qu'ils offrent dans leurs efforts d'opérationalisation du concept de participation. (*Contribution de:* Louis Defo, CML, Université de Leiden [bourse WOTRO], Pays-Bas et Université de Yaoundé, BP 8297, Yaoundé, Cameroun [mél.: defotls@yahoo.fr].)

**Local communities take the lead in implementing their conservation plans**

Mount Kupe straddles the Southwest and Littoral provinces of Cameroon. Its altitude ranges from approximately 600 to a peak at 2 064 m. The forest is largely submontane evergreen forest (800 to 2 000 m), with some montane forest species above 1 800 m and below 1 200 m. At present, the mountain's forest covers an area of approximately 42 km$^2$. The forest is surrounded by 16 villages/towns with an estimated population of 140 000 inhabitants, predominantly of the Bakossi tribe.

The forest has a wide range of endemic, unique and endangered flora and fauna species, such as the Mount Kupe bush shrike (*Malaconotus kupeensis*) exclusively on Mount Kupe and the Bakossi forests. In addition, there are seven bird species for which Mount Kupe is a very important population centre, a unique chameleon species, eight primate species and about 20 endemic plant species, including *Coffea montekupeensis* known in Bakossi as "deh a mbine", a wild coffee plant (discovered by the Earthwatch team from the Kew Gardens, United Kingdom) believed to be more valuable than the robusta and arabica coffees common in Cameroon.

Apart from its scientific worth, Mount Kupe forest represents a rich and grand cultural force to the Bakossi people. They consider it as one of the strongest points of their culture, constituting one of the major reasons for the intact state of the forest, especially on the western side.

The Bakossi people believe that the Mount Kupe forest is the greatest secret meeting place in all Bakossiland. However, as can be expected, the population surrounding Mount Kupe forest uses it for their livelihood and recreation via hunting, farming, tourism and petty-logging. The native inhabitants saw human pressure on the forest, especially from the settler population (non-Bakossians), as a step towards obliterating the valuable biodiversity that nature has provided them and, above all, their culture. Consequently, the local communities through their chiefs and in concert with other stakeholders decided to put in place a farm-forest boundary, beyond which further human activities are forbidden. The peculiar aspect of the more than 52 km long boundary in the Kupe forest is that the local people themselves took the decision to put it in place and afterwards to demarcate the forest, technically supported by the Government of Cameroon and facilitated by the WWF-Coastal Forests Program.

An assembly of the "Kupe All Chiefs Meeting" (community leaders' forum), consisting of 19 villages, was convened by the local chiefs to determine future interventions in the Kupe forest, as sanctioned by the Cameroon Forestry Law of 20 January 1994.

Facilitated by WWF-Coastal Forests Program, with the technical assistance of the Ministry of Environment and Forestry (MINEF), the 19 chiefs bordering the Kupe, collectively with other stakeholders, proposed Mount Kupe, as an Integral Ecological Reserve in an enlarged Kupe All Chiefs Meeting, after they had been well schooled on the provisions of the Cameroon Forestry Law.

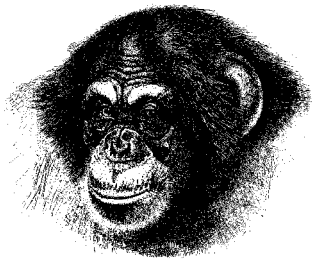
The Cameroon Forestry Law of 1994 highlights an Integral Ecological Reserve, as one of the highest categories of Protected Area Legal Status. If the Government of Cameroon approves this status, then Kupe will be the first Integral Ecological Reserve in Cameroon (as at the time of writing this article, September 2003). As stated by the Cameroon

Forestry Law, an Integral Ecological Reserve is a Permanent Forest, an area whose resources of whatever kind are completely protected in order to ensure the full preservation of its climatic conditions. It implies that all human activities are strictly prohibited in such areas.

However, the administration in charge of forestry may authorize scientific research projects to be carried out in areas where such projects are not likely to upset the balance of the ecosystem.

So far, although the status is still to be approved by the government, many people are respecting the boundary as elucidated by the general belief of the local inhabitants, that their ancestors have the prowess to attack anyone who trespasses on the boundary. Also, the joint monitoring staff of the Center of Reproduction of Endangered Species-Cameroon, a programme of the Zoological Society of San Diego-USA, and WWF-Coastal Forests Program, has reported the presence of an encouraging population of drills (*Mandrillus leucophaeus*) and chimpanzees (*Pan troglodytes*) in the area.

The gazettement process of Kupe is in progress and has been proving very expensive. More funds are required to follow it up to its end in a scrupulous manner and also to assist in the improvement of the livelihoods of the local communities around Kupe by stirring up other alternative conservation-related enterprises, as one of the strategies towards reducing pressure on the would-be Kupe Integral Ecological Reserve Forest. (*Contributed by:* Ngwene Theophilus Nseme, WWF-Coastal Forest Program, Nyasoso Office, PO Box 112, Tombei, Kupe-Muanenguba Division, South West Province, Cameroon [e-mail: ngwenetheo@eudora.com].)



**Seeking assistance on managing forest biodiversity**

In 1994, a group of extension workers in forestry, agriculture and community development in Bova, Buea Limbe, Fako Division in South West Province formed Wewuley Consultancy to fight deforestation, promote participatory forest management/sustainable agricultural practices to rescue forest/agricultural land, the environment and people from the threat of drought, desert encroachment and soil erosion. Forests and trees on farms are the lifeline of rural people. The group helps grassroots farmers, common initiative groups and community forest projects to plant and manage trees. It also works to ensure that the trees that have been felled are replaced by establishing tree nursery training and helping the farmers and groups to plant trees on their farm lands. It also organizes training in beekeeping.

The consultancy is helping to establish community forests, including establishing commercial forestry enterprises in their management plans covering timber, fuelwood, fruits, charcoal, non timber forest products (NTFPs), medicinal plants and bees, all of which can provide some income for the rural people for poverty alleviation.

Wewuley's goal is to maintain a good statistical database to guide future use and protection of the "Green Gold", the African rain forest ecosystem. The consultancy has 28 members and resource persons/volunteers, ten of whom are women. Members pay a monthly contribution towards funding the group's activities, but these funds are not enough to cover the running costs and projects. The group is, therefore, seeking assistance from non-governmental organizations, donor agencies, interested agroforesters and scientists.

**For more information, please contact: Ndumbe Ekeme Stephen, Wewuley Consultancy, PO Box 442 Buea, Fako Division, Cameroon. E-mail: ndumeke@yahoo.com**

## CANADA

**Salvaged ferns – the newest North Island export**

Nurseries in the Lower Mainland have already ordered thousands of sustainably harvested ferns from North Island residents as a result of harvesting trials held in December 2002 and January 2003.

Native ferns such as deer fern (*Blechnum spicant*) and sword fern (*Polystichum munitum*) are highly desired products in the nursery industry for use in landscaping and restoration. Concerns about the sustainability of whole plant extraction, however, have resulted in a reduced demand for these wild-harvested ferns in the past four to five years, particularly with the advent of successful nursery propagation. If managed correctly though, wild fern harvesting, as with other non-timber forest products (NTFPs), could be a sustainable and viable industry for the North Island community.

To ensure the ecological sustainability and economic viability of whole fern plant extraction, harvesting trials were initiated on the North Island in December 2002. With the assistance of Western Forest Products and with the information gathered from the North Island NTFP Demonstration Project's 2001 Botanical Inventory, sites with good fern coverage were selected. The research team then chose two species of fern, deer fern and sword fern, and conducted variable levels of commercial harvest (0, 50 and 100 percent) within areas slated for timber harvest.

Plots will be revisited after the timber is harvested. Survivability of the ferns will be compared between the plots. If no significant difference is found between the harvest levels and the survivability of the ferns, then it can be assumed that removing ferns prior to timber harvest is a sustainable method of whole fern extraction. If there is a significant difference, other methods of sustainable harvest should be explored.

Fern harvest prior to road building, however, is clearly a salvage activity. In

coordination with Western Forest Products, proposed and flagged logging roads were identified and selected for additional harvesting trials, in order to determine the economic viability of salvaging ferns for North Island harvesters.

The data from the study will be analysed and a report made available.

This project is led by Royal Roads University and funded by the Forestry Innovation Investment Research Program. (*Contributed by:* Diane Carley, Communications Coordinator, NTFP Demonstration Project, Sointula, BC, Canada [e-mail: dhcarley@island.net].)

**For more information, please contact: Wendy Cocksedge, NTFP Coordinator, Royal Roads University, 2005 Sooke Road, Victoria, BC, Canada V9B 5Y2. E-mail: wendy.cocksedge@royalroads.ca; www.island.net/~ntfp/**

**Forests – much more than a bunch of trees**

Manitobans from remote northern communities are literally forging a new path through the forest to enhanced economic security. They are harvesting often overlooked non-timber forest product materials such as: mushrooms, berries, floral greens, medicinal herbs, craft supplies, landscaping products, and more. Non-Timber Forest Product (NTFP) Training Program graduates are processing these materials and selling them to vendors in Canada and around the world, including the United States and Japan.

The NTFP Training Program is a remarkable example of community economic development at its best. Looking at ordinary things in extraordinary ways, Keewatin Community College, Western Economic Diversification Canada (WD), five northern Community Futures Development Corporations (CFDCs) – Cedar Lake, Greenstone, North Central, North West and Kitayan – and the Province of Manitoba are working together to ensure the success of the Northern Forest Diversification Centre. The centre, established in February 2001, is a subsidiary of Keewatin Community College in The Pas and was set up to develop the non-timber forest products and ecotourism industries in the north. One of the ways it does this is through the NTFP Training Program.

The NTFP Training Program, delivered locally in the communities, teaches students about the industry, including an understanding of their unique community resource base, the market potential, safe and ethical harvesting, and NTFP-based businesses. Students come away with the information and skills they need to assess opportunities and to develop an industry valued by some at hundreds of millions of dollars annually in Canada. "NTFP Training Program graduates know that the forest is more than a bunch of trees," commented Dave Buck, NTFP project coordinator and instructor.

Annette Brightnose graduated from the July 2001 training session held in Cormorant and is a member of the Manitoba Wild Harvesters Association. Among the many products she and her family are working on is collecting dry diamond willow for walking sticks. The willow sticks are cleaned, peeled, sanded and varnished repeatedly until they shine just right. After a leather hand strap is attached to the top and a rubber tip is placed on the bottom, a walking stick emerges from what was once considered suitable for the fireplace.

Interest in the NTFP Training Program is growing. So far, it has been delivered in the northern Manitoba communities of Moose Lake, Cranberry Portage, Cormorant, Sherridon and National Mills. Plans are under way to offer the course in Lynn Lake, South Indian Lake and Leaf Rapids.

WD is proud to be part of the Northern Forest Diversification Centre and the Non-Timber Forest Products Training Program – a community economic development project with tangible impact on the lives and economic well being of people and communities in northern Manitoba. (*Contributed by:* Dave Buck, Canada.)

**For more information on the NTFP Training Program or products available through the Manitoba Wild Harvesters Association, please contact: Dave Buck, Northern Forest Diversification Centre, PO Box 509, The Pas, Manitoba, Canada R9A 1K6. Fax: +1 204 6278686; e-mail: dbuck@keewatincc.mb.ca; www.nfdc.ca/contact.htm**

**Coalition agrees to ban industrial activities in Canadian forest**

An agreement announced on 1 December 2003 would exempt more than half of Canada's vast northern forest, about 1 million square miles [about 2.56 million km$^2$] in all, from industrial activities, including logging and oil and gas exploration.

The boreal forest, as it is known, is just below the Arctic Circle and stretches some 3 000 miles [4 800 km] from the Yukon to the Atlantic Ocean. It is the largest intact forest ecosystem in the world and makes up roughly half of Canada's territory. The agreement reached by a coalition of native tribes, environmentalists and businesses seeks to protect this evergreen expanse that has large bear, wolf and caribou populations, along with other species and hundreds of native communities. Approval by national and local governments is now necessary, as 90 percent of the forest is under public ownership. (For the full story, please see: www.enn.com/news/2003-12-02/s_10903.asp) (*Source: Environmental News Network*, 2 December 2003.)

# COUNTRY COMPASS

## CHINA

**China's forests, global lessons from market reforms**

Sweeping reforms since the late 1970s have turned China upside down. *China's forests, global lessons from market reforms*, edited by Bill Hyde, Brian Belcher and Jintao Xu and copublished by Resources for the Future and CIFOR, shows what the reforms have meant for forests.

In the early 1980s, the collectives that own about 60 percent of China's forests handed most of them over to individual families to manage. Fifty-seven million households received 30 million hectares of degraded land to plant trees on. Millions more households were allowed to manage existing forests and share the profits. The government partially liberalized forest product markets, particularly for bamboo, fruits and pine resin.

Many families that received forests initially overexploited or deforested them. But after a few years both forest area and timber stocks started to grow as farmers planted more trees. Things improved more quickly in regions which handed over forests faster, went further towards liberalizing markets, charged lower taxes and had more consistent policies.

The reforms made some farmers better off, particularly those who were better educated and well connected and who grew bamboo and fruit-trees. Planting windbreaks increased many farmers' crop yields. However, there are still too many taxes and regulations for most farmers to prosper from selling timber. More than 80 percent of the country's poorest counties are in forested mountainous regions and in many of them life is improving slowly.

The total area in forests grew by five million hectares between 1980 and 1993. Yet, while the plantation area increased by 21 million hectares, the area in natural forests declined by 16 million hectares. The net result was good for reducing soil erosion, but bad for biodiversity. The government has since banned logging in several major regions and set aside millions of hectares as nature reserves, which may have improved the biodiversity aspect.

To meet the growing demand for paper, small factories using agricultural residues sprang up throughout the country. However, those factories soon became the largest source of rural water pollution, so the authorities shut down 2 000 of them. The government is now trying to encourage foreign companies to build large modern pulp and paper mills that use wood instead of residues, but it is unclear where the wood will come from.

They may get it from imports. China is rapidly becoming one of the largest importers of all sorts of forest products. So what happens in China may dramatically affect forests worldwide; and we all need to pay attention.
(A limited number of copies of this book are available free of charge for people in developing countries. To request one please write to Nia Sabarniati [n.sabarniati@cgiar.org]; others can purchase the book from RFF press [www.rffpress.org]; to send comments or queries to the authors, please write Brian Belcher [b.belcher@cgiar.org].)
(*Source:* David Kaimowitz, CIFOR [d.kaimowitz@cgiar.org], Polex Listserve.)

## CZECH REPUBLIC

**Collection and importance of NWFPs**

Non-wood forest products (NWFPs) – forest berries, mushrooms, medicinal plants and partially plants for decorative purposes – are picked intensively in the Czech Republic by forest visitors but are mostly not marketed. In particular, edible mushrooms, forest berries and medicinal plants have been well-known products of the Czech forests from time immemorial. According to Article 19 of Forest Act No. 289 of 1995, individuals are entitled to enter the forest at their own risk and to collect, for their own needs, any forest berries and dry wastewood lying on the ground. Although the collection of NWFPs is a very popular public activity, there was no objective information about the importance of NWFPs before the investigation into the socio-economic importance started in 1994.

Questionnaire surveys of representative samples of the Czech population, which took place from 1994 to 2001, were aimed at investigating the level of NWFP collection by the population. The following main kinds of NWFPs were included in the set of NWFPs surveyed (in order of importance): mushrooms without species specification, bilberry (*Vaccinium myrtillus* L.), raspberry (*Rubus idaeus* L.), blackberry (*Rubus fruticossus* L.), elderberry (*Sambucus nigra* L.) and cranberry (*Vaccinium vitis-idaea* L.).

The collection of NWFPs is second among the main reasons for visiting forests, with a share of almost 29 percent (short-term recreation had first place, with 42.5 percent). But NWFPs are also picked during short recreation activities, as well as during forest visits for other main purposes. Data obtained show that about two thirds of the inhabitants and four fifths of households collected NWFPs. Mushrooms were picked by 70 percent of households, bilberries by almost 50, raspberries by almost 30, blackberries by more than 20, elderberries by 15 and cranberries by 8 percent. On average, more than 11 kg of these commodities were picked per year by an average household in the Czech Republic in the period from 1994 to 2001. One half of that amount was mushrooms by fresh weight. The total average annual value of NWFPs collected reached CK 2 999 million.
(*Source:* RG5.11, *IUFRO News*.)

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# COUNTRY COMPASS

## GRENADA

Grenada is the world's second largest producer (after Indonesia) of the well-known spice, nutmeg (*Myristica fragrans*). The cost of nutmeg has declined sharply, triggering an economic crisis for the "Spice Island". Any fluctuation in the nutmeg price jeopardizes Grenada's economy. More than 30 percent of the population earns a livelihood by cultivating the spice. A nutmeg glut has resulted in the price falling from US$1.50 per pound [0.4536 kg] to US$1 per pound in 2003, resulting in a reduced income for the farmers. (*Source: MFP News*, XIII.4.)

## INDIA

**Traditional Knowledge Digital Library**

The National Institute of Science Communication (NISCOM) of the Council of Scientific & Industrial Research, New Delhi (India) is developing a Traditional Knowledge Digital Library (TKDL) in collaboration with the Department of Indian Systems of Medicine and Homeopathy, Government of India, Ministry of Health and Family Welfare, in order to protect India's traditional knowledge from biopiracy.

The TKDL proposes to digitize, in phases, information available in the public domain on Ayurveda, Unani, Siddha, Naturopathy and Folklore.

The TKDL will be available in different foreign languages (e.g. English, French, German, Spanish), as well as Indian languages, which will make it accessible to patent examiners globally. It will be made mandatory for patent examiners to refer to TKDL before granting patents on non-original inventions.

**For more information, please contact: Mr V.K. Gupta, Chairman, TKDL Task Force and Director NISCOM, NISCOM, Dr K.S. Krishnan Marg (near Pusa Gate), New Delhi 110 012, India. Fax: +91 11 5787062; e-mail: vkg@niscom.res.in; www.niscom.res.in**

**Community Based Economic Development Project (CBED): NTFP cultivation benefiting marginalized mountain farmers**

The hills of Uttaranchal are rich with NTFP resources. Communities in this region are dependent on these forests and resources for their day-to-day needs as the topography of the region is not conducive to the traditional cropping practised in the plains. Traditionally, NTFPs that are collected from the wild support and supplement farm-based incomes.

At the same time, hill farming is suffering owing to the damage to crops caused by wildlife. NTFP cultivation, on the other hand, is less prone to wildlife interference. In fact, cultivation helps to reduce the pressure on dwindling forest resources and farmers can adapt NTFP cultivation as a sustainable source of income.

Additionally, permilia (lichen), moss grass, soap nut, *Cinnamomum tamala* and *Valeriana jatamansi* are collected on a large scale and sold every year. As a result of this considerable collection, the quantity of NTFPs available has diminished.

*Asparagus racemosus* Willd, a thorny climber has been identified as a potential commodity for cultivation. The roots of this plant are one of the important ingredients of Ayurvedic preparations in India. *A. racemosus* along with its wild cousins (*A. adscedence*) is collected from the wild in different parts of the country (90 percent) without considering its regeneration. There is a strong need to focus on the cultivation and proper harvesting for perpetual availability.

For these reasons, one of the components of the Community Based Economic Development Project (CBED) is the focus on NTFP cultivation on marginal lands, idle lands, and farm spaces. In addition to replenishing these wild resources, cultivation activities provide high-value crops for income generation.

**The Community Based Economic Development Project (CBED) is a four-year bilateral project funded by the Canadian International Development Agency (CIDA) and Centre canadien d'étude et de coopération internationale (CECI). The project is implemented in partnership with the Himalayan Study Circle and the Kumaon Agriculture and Greenery Advancement Society in the districts of Champawat and Pithoragarh in Uttaranchal, India.**

**The CBED project is designed to serve 15 000 families in 230 villages. Its goal is to reduce rural poverty by supporting the social and economic reform processes of the Uttaranchal government. This will be achieved by implementing an integrated set of activities aimed at improving the livelihoods of the local communities through participatory processes in community-based sustainable economic development.**

Women and children are predominantly involved in NTFP collection during the lean agricultural periods. NTFP collection is less demanding on women's workloads and encourages time-saving activities. The cultivation process is less labour demanding than other cultivations and involves one-time sowing, no maintenance and natural irrigation.

The CBED project has provided training and support to producers and community leaders in establishing nurseries, maintenance and management of crops, concepts in marketing and marketing activities, and technological aspects. All training is followed by field exposure to

demonstration plots, which CBED has developed in Champawat and Pithoragarh districts. Farmers in the project are organized into Producer Self Help Groups (PSHGs) so that production and collective marketing can be managed.

In addition, the outreach of PSHGs is promoted in the project area in order to increase the cultivation of selected crops and to organize other collective production activities. To date, the CBED project has involved 800 producers and the involvement of more producers next year will enable economies of scale of production.

The CBED project has also established nurseries which provide low-cost planting materials at the local level so that more producers can undertake plantation. Nurseries are raised and managed collectively to benefit all group members in PSHGs. (*Contributed by:* Erica Stillo, CBED India.)

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## INDONESIA

**The Dayak people in the first comanaged protected area**

The Kayan Mentarang National Park, situated in the interior of East Kalimantan, Indonesian Borneo, lies at the border with Sarawak to the west and Sabah to the north. With its gazetted 1.4 million hectares, it is the largest protected area of rain forest in Borneo and one of the largest in Southeast Asia.

The history of the natural landscape of the park is inexorably intertwined with the history of its people. About 16 000 Dayak people live inside or in close proximity to this national park. The communities living in and around the park are still largely regulated by customary law or "adat" in the conduct of their daily affairs and the management of natural resources in their customary territory. Traditional forest areas with protection status or strict management regime exist. "Tana ulen", for example, is land whose access is restricted, limited. It is an expanse of primary forest rich in natural resources such as rattan (*Calamus* spp.), sang leaves (*Licuala* sp.), hardwood for construction (e.g. *Dipterocarpus* spp., *Shorea* spp., *Quercus* sp.), fish and game, all of which have high use value for the local community.

The Nature Reserve established in 1980 had a strict protection status, meaning that no human activities are allowed inside the protected area. The World Wide Fund for Nature (WWF) together with the Indonesian Institute of Research (LIPI) and local people ran a long-term social science research programme (Culture and Conservation, 1991–1997) and conducted experimental community mapping to show that the communities were dependent on forest resources and had rightful claims to the land. The results provided the necessary evidence to recommend a change of status from Nature Reserve to National Park in 1994 (where traditional activities are allowed).

The issue of social entitlements, and particularly the lack of tenure security, was identified by the WWF team as a key issue and priority area for intervention in the period 1996–2000. Although the Dayak people had been living in the area and had made use of the forest resources for centuries, the forest they inhabited and managed was "state forest" with open access, whereby the state could decide to allocate exploitation rights or decide to establish a conservation area without the prior consent of the local communities. Local communities had very little power in trying to defend the forest or secure the source of their economic livelihood against the interests of logging companies, mining exploration or outside collectors of forest products.

Under these circumstances, the WWF Kayan Mentarang project developed a strategy and programme of field activities that would lead to the legal recognition of "adat" claims and "adat" rights so that indigenous communities could continue to use and manage forest resources in the conservation area. Activities included: community mapping; qualitative assessments of the use and availability of forest resources with economic value; workshops for the recognition of "tana ulen" or forest under traditional customary management; participatory planning for zonation recommendations and the redrawing of the external boundaries of the park; drafting of "adat" or customary regulations for the management of the national park; strengthening of local organizations and institutional development.

Following several meetings and discussions among the ten "adat" leaders from the customary lands around the park area, the Alliance of the Indigenous People of Kayan Mentarang National Park (FoMMA) was formed and formally established on 7 October 2000. The main objectives were to create a forum for conveying the aspirations of the indigenous communities and debating issues concerning the management of the national park and natural resources in the customary lands of the park. FoMMA is concerned with guaranteeing the protection of the forest and the sustainable use of natural resources as well as the protection of the rights of indigenous people, and is also concerned with increasing their economic prosperity. FoMMA now legally represents the indigenous people on the Policy Board of the park, a new institution set up to preside over the park's management. The Policy Board includes representatives of the central government (agency for Forest

Protection and Nature Conservation), the provincial and district governments, and FoMMA. The operating principles of the board emphasize the importance of coordination, competence, shared responsibilities, and equal partnership among all stakeholders. The board was formally established in April 2002 with a Decree of the Ministry of Forestry, which also spells out that the park is to be managed through collaborative management (a first in Indonesia).

After decades of marginalization and dispossession, recent developments in the Kayan Mentarang National Park offer hope to the indigenous communities of Kalimantan. It is becoming increasingly evident that conservation objectives can rarely be obtained or sustained by imposing policies and projects that produce negative impacts on indigenous peoples and local communities. Alternative and progressive approaches that genuinely take into consideration local people's needs and rights and secure their full involvement in biodiversity management and decision-making can provide a more solid basis for ecological protection and the improvement of people's livelihoods. There is hope that the comanagement arrangement being developed in Kayan Mentarang will fulfil these objectives. (*Source:* Community Forestry E-News 2003.14 [info@recoftc.org].)

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### Forestry ministry to map forests

The forestry ministry and the National Coordinating Agency for Surveying and Mapping signed a memorandum of understanding for a joint project to map out the country's forests.

The head of the ministry's forestry planning body, Boen M. Purnama, said the move was needed to provide accurate data and information on forests in the country. The cooperation, which will last five years, will start with pilot projects in South Kalimantan and West Kalimantan. Boen earlier said the ministry did not have accurate data on 60 million ha of forest in the country, including the rate of deforestation.

Indonesia has lost more than 75 percent of its forest over the past few decades. Over the past five years, some 43 million hectares of Indonesia's forest, the equivalent of half of Kalimantan Island, has been destroyed. (*Source: Jakarta Post*, 12 September 2003 cited in Community Forestry E-News 2003.15.)

## KENYA

### Biodiversity greatly affected by loss of forest cover

The allocation and destruction of forest lands has had a serious impact on useful plants and animals, says Michael Gacanja of the Kenya Forest Working Group. The pressure on useful plants will increase owing to reduced habitat. Continued overcollection of medicinal plants will eventually end in the loss of those plants and affect the health of people who are not able to purchase modern medicines.

Forest loss in water catchment areas contributes to reduced water flow in rivers. In Mount Kenya Forest, low water levels for downstream users following water abstraction by upstream users last year also raised tension between the two users.

The destruction of forests has also had a serious impact on biodiversity. A large percentage of the country's biodiversity occurs in forests. Deforestation is known to have impacts on viable species populations within the forests. (*Source: The East African Standard* [Nairobi], 10 March 2003.)

### Experts want carvers banned from forests

In Malindi, about 1 000 wood carvers yesterday urged the government to lift the ban on tree felling in the remaining forests. Malindi Handicraft Co-operative Society chairman, Joseph Kimulu, said that the ban on logging may render wood carvers jobless.

Speaking at the Malindi Handicraft Centre, Kimulu said the local wood carvers make beautiful curios depicting Kenya's wildlife and cultural heritage that attract tourists from all corners of the world. Wood carving, he said, was a major job creator and that unless the government lifts the ban on logging, the multimillion-shilling wood carving industry would collapse.

Environmentalists have called for the ban on logging, saying the cutting of trees from the remaining forests could wipe out forests in the district. Malindi Green Town movement chairman, Godfrey Karume, lamented that the unrestrained cutting of trees by wood carvers had threatened the world famous Arabuko Sokoke Forest with extinction. Karume strongly opposed the cutting down of indigenous forests which, he added, are a major tourist attraction and essential for scientific study. (*Source: The East African Standard* [Nairobi], 31 October 2003.)

### Kenya Wildlife Service permit to cut rare tree type now revoked

The Kenya Wildlife Service has been directed to revoke a 20-year-old permit it granted to a trader for the cutting of an endangered medicinal tree. It should also stop any further exploitation of the *Prunas africana* tree used in

manufacturing medicine, environment minister Newton Kulundu said yesterday.

The minister accused the Kenya Wildlife Service of abusing its authority as the custodian of the Convention on Trade in Endangered Species (CITES). He said that although the government had listed the plant under its endangered species, Kenya had been providing 60 percent of the world's supply, estimated at K Sh 28.1 billion per year.

The indigenous tree, found in Baringo, Kakamega and Samburu districts, is used in manufacturing drugs for prostate cancer. (*Source: The Nation* [Nairobi], 14 November 2003.)

**Opposition to new forest regulation**

The government has been accused of interfering with the local communities' right to enjoy forest resources. The leader of the official opposition, Uhuru Kenyatta, said yesterday that a new regulation that bars people from entering forests was denying minority communities access to food, grazing lands, water, fuelwood and medicinal plants.

Area MP Musa Sirma said the decree was contrary to the Forest Act, which allows local people to source food and other necessities from forests. (*Source: The East African Standard* [Nairobi], 7 December 2003.)

## LIBERIA

**Forest protection laws**

Three landmark laws have been signed representing an important step forward in securing protection for Liberia's globally important biodiversity. The three laws – the Protected Forest Area Network Law, the Sapo National Park Act and the Nimba Nature Reserve Act – aim at protecting Liberia's forests from deforestation, fragmentation and degradation.

Preparation of the laws was led by Fauna & Flora International (FFI) with technical input from numerous Liberian and international partners and with financial support principally from the European Commission, the Critical Ecosystem Partnership Fund (CEPF) and the Panton Trust. All three laws were passed by the Liberian legislature earlier this year and will come into force shortly.

Liberia contains two of the three remaining large blocks of Upper Guinean rain forest: the Lofa-Gola-Mano block in the northwest contiguous with Sierra Leone, and the southeastern Liberian block that extends into Taï National Park of Côte d'Ivoire. The Upper Guinean Forest, CEPF's strategic focal area in the Guinean Forests of West Africa hotspot, is a coastal rain forest belt covering six countries from western Togo to eastern Sierra Leone. Today roughly 40 percent of the original Upper Guinean forest cover survives in Liberia alone.

The first of the laws amends the New National Forestry Act of 2000. It defines a series of eight protected area types and the uses permitted and prohibitions for each, establishing a coherent legal framework for the conservation of forest resources.

The second Act expands Sapo National Park – Liberia's first and only fully protected area – to more than 180 000 ha, an increase of 38 percent. Biological surveys coupled with GIS and remote sensing analysis since 2001 have demonstrated that Sapo Park is among West Africa's least disturbed lowland rain forest areas, with populations of forest elephants, chimpanzees, pygmy hippopotamus and other species whose West African ranges have been severely reduced outside Liberia. Botanical collection experts who visited the park in late 2002 found six species new to science in just ten days.

The third Act creates the Nimba Nature Reserve out of the former Nimba East National Forest. Analysis indicates this mountainous reserve could be as extensive as 13 568 ha. The reserve is contiguous with the Nimba Nature Reserves of Guinea and Côte d'Ivoire, which together were declared a World Heritage Site by UNESCO in 1981.

Together, these laws represent significant progress towards the overall goal of creating a biologically representative network of protected areas covering at least 30 percent of the country's existing forest area or about 1.5 million hectares. The Government of Liberia is committed to establishing this network, including an expansion of Sapo National Park and the creation of Nimba Nature Reserve, as part of a Memorandum of Understanding signed in 2002 with Conservation International – one of five CEPF donor partners. (*Source:* October 2003 CEPF E-News [cepfnews@conservation.org].)

## MADAGASCAR

**GEF grant of US$13.5 million supports protection of Madagascar's biodiversity**

A US$13.5 million grant, approved today by the Council of the Global Environment Facility (GEF), is supporting Madagascar's ambitious plan to protect its globally significant biodiversity, which includes hundreds of species that are unique to the island.

"Protection of Madagascar's biodiversity and natural resources will contribute to improving the quality of life for the country's residents, many of whom depend directly on natural resources for their livelihoods," said Len Good, CEO and chairman of the GEF. "This project will also benefit the global environment, since Madagascar contains numerous unique species, including many medicinal plants that are of critical importance to the pharmaceutical industry."

The project is funded by a GEF grant of US$13.5 million and US$135.4 million in cofinancing from other sources, including US$18.5 million from the Government of

Madagascar. The World Bank and the United Nations Development Programme (UNDP), two of GEF's implementing agencies, are managing the project in partnership with key government agencies and non-governmental organizations (NGOs). The project supports the third and final five-year phase of Madagascar's innovative Environmental Action Plan, which was started in 1991 with the support of a broad coalition of international donors, agencies and NGOs.

Madagascar, the fourth largest island in the world, is one of the 17 recognized mega-diverse countries that represent 80 percent of the world's biological diversity. As a result of Madagascar's longstanding geographical isolation and highly varied microclimates, the archaic life forms making up Madagascar's terrestrial ecosystems have evolved into some of the most unique biodiversity in the world.

Without substantial and sustained intervention, there is a real risk that numerous species that are unique to Madagascar will become extinct. Deforestation caused by illegal logging and unsustainable agricultural practices, among other factors, is a major threat to the biodiversity. It also leads to a rapid loss of topsoil, which in turn diminishes the country's agricultural productivity and accelerates its downward spiral of extreme poverty. Nearly 80 percent of the country's poor inhabitants live in rural areas and depend on the land almost exclusively for their livelihoods.

GEF funds will be used to preserve the quality of Madagascar's globally significant biodiversity and natural resources.

Investments made under Madagascar's Environmental Action Plan from 1991 to the present are leading towards the establishment of a comprehensive environmental policy and regulatory framework, and have already led to the creation of environmental institutions. The Government of Madagascar's Ministry of Water and Forests, for example, has successfully carried out an action plan to improve governance. This plan included the transferral of 70 percent of permit fees to local stakeholders, thus providing an increased incentive for communities to support the enforcement of logging regulations. (*Source:* Global Environment Facility [Washington, DC] Press Release, 24/11/03.)

**Data collection and analysis related to NWFPs**

In most African countries, non-wood forest products (NWFPs) play a significant role in livelihoods by providing key subsistence products and income. In Madagascar, NWFPs such as medicinal plants, ornamental plants (e.g. orchids, aquatic plants), xerophytes, essential oils (e.g. *Syzygium* sp.) and living animals (e.g. birds, mammals, reptiles and insects) represent 40 percent of the export value of the entire forest products sector.

Despite its socio-economic importance, the availability of statistical data on the social, economic and ecological aspects of NWFPs is very limited. Therefore a study, *Data collection and analysis related to NWFP – a pilot study in Madagascar*, was carried out within the context of the European Commission-FAO Partnership Programme, Data Collection and Analysis for Sustainable Forest Management in ACP Countries – Linking National and International Efforts. The main objective of the study was to review available information on NWFPs in Madagascar and to propose an appropriate methodology to improve the quality and quantity of statistical data on NWFPs in the country. The preliminary results of the study were presented and discussed in a workshop held in Antananarivo in November 2001.

In Madagascar, NWFP statistics are collected and maintained by various institutions such as the Service de la Conservation de la Biodiversité with regard to NWFPs listed on the appendixes of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Service de la Valorisation économique des Ressources forestières for NWFPs not covered by CITES.

The study proposes a methodology to improve the availability of data on the production, consumption and marketing of NWFPs of major importance in Madagascar. This methodology covers ecobiological, socio-economic, technical and statistical aspects and is divided into four phases: i) preparation; ii) data collection; iii) data analysis; and iv) data storage and dissemination.

The proposed methodology was tested for the frog *Mantella aurantica* and the medicinal plants *Catharanthus roseus* and *Prunus africana*. The case studies analyse quantitative and qualitative information, propose a data collection form for animals and plants and present recommendations for the better use and improved statistical data collection of NWFPs.

The study concludes that many gaps, irregularities and challenges still exist with regard to the use of NWFPs, including their monitoring and evaluation. The study notes the urgency to implement a plan of action for the entire NWFP sector in order to promote the sustainable use of NWFPs and presents a programme of work for the development of an appropriate data collection system with regard to NWFPs. (An electronic version of this Working Paper, FOPP/03/1 – *La collecte et l'analyse des données statistiques sur les produits forestièrs non ligneux. Un étude pilote à Madagascar*, is available on FAO's NWFP home page [www.fao.org/ forestry/ foris/webview/fop/index.jsp?siteId=2301&langId=1&geoId=0&sitetreeId=13473].) [*Please see under Publications of Interest for more information on the Working Papers of FAO's NWFP Programme.*]

# COUNTRY COMPASS

## MALAWI

**From poaching to sustainable use of NWFPs: two successful cases from Malawi's national parks**

National parks in many countries face problems with the surrounding communities for a number of reasons. Poaching and the mistreatment of the caught poachers is one example of how animosity develops between a national park and the people living outside its boundary. One way of solving this conflict is to implement projects in which the community benefits from the park and appreciates its presence rather than resenting it. In many southern African countries governments have initiated different long-term projects aimed at the collaboration between their national parks and the communities that border them. The Government of Malawi has called their efforts Community Based Natural Resource Management (CBNRM), and its goal is to mobilize villagers to work together with the park instead of against it. Rather than poaching out the vital resources or stealing wire from the park fence, they should work together with the national park extension staff and learn how to benefit from it.

In two national parks in Malawi, grassroots development initiatives with community groups have shown that with very little input successful and sustainable projects can bring monetary benefits to the members and in turn create a positive relationship with the national park.

Something most parks have in common are tourists. In Liwonde National Park a group of approximately 50 women living outside the park's western boundary have learned they can benefit from the national park by taking advantage of its tourist market. For the past two and a half years these women have been making and selling different crafts, such as jewellery made from local seeds, banana leaf baskets, decorative mobiles and baskets made from bottle tops. In collaboration with the park staff, the women can collect the materials for the crafts and benefit from the park without overutilization of its resources. With all the resources needed to produce the crafts found locally, sustainability in the project is ensured. The women sell the crafts in their own stores as well as at the tourist lodge within the park. Remarkably, they initiated the project in 2001 with a loan of less than US$5 and in one year they have made well over US$2 000. This is in an area where most families are subsistence farmers and families have little annual income and where women are rarely employed and generally do not control any of the household money. Through this project the women have learned to benefit from the tourists visiting the park, and therefore appreciate the establishment of the national park and the conservation of its resources.

Similarly, at Lake Malawi National Park a natural resources committee has been able to demonstrate the success of an income-generating project, independent of selling or utilizing national park resources, such as fish or wood for carvings. Six months ago the group was taught how to make peanut butter and peanut brittle with locally grown groundnuts. Again, by utilizing the local resources the project is sustainable. The group was given a loan of US$3 to buy the initial supplies and now, six months later, they have made more than US$500 to share between five members. The natural resources committee now has the capital to initiate other projects such as a community garden, woodlot or beekeeping.

These two case studies show that grassroots development projects can not only be monetarily successful and sustainable, but effective in building a positive relationship between the national park and the surrounding communities. As populations continue to grow there becomes an even greater need to involve local communities in the conservation and management of natural resources. Through basic income-generating projects such as these, community groups can improve their quality of life with the money they make, the skills they learn and from the sense of empowerment they gain and, furthermore, help to protect the national park and its resources in the process. (*Contributed by:* Erin Meyer, US Peace Corps Volunteer/WWF-Finland, PO Box 66, Monkey Bay, Malawi [e-mail: erinmeyer2003@yahoo.com].)

**The promise of ecotourism in Lake Malawi National Park**

Lake Malawi, 600 km long and 60 km wide, is the southernmost basin of the African Great Rift Lakes system. The lake hosts some of the greatest diversity of freshwater fish in the world, especially cichlid fish. To protect examples of the lake's aquatic communities as well as their habitats, Lake Malawi National Park (LMNP) was established in 1981 and designated as a UNESCO World Heritage Site in 1984. LMNP encompasses the tip of the Nankumba peninsula in the southern end of Lake Malawi, consisting of 87 $km^2$ of terrestrial area including 13 islands, and a 7 $km^2$ aquatic zone.

The park was designed so that the five enclave fishing villages situated on beaches inside the park could continue their traditional way of life undisturbed, allowing fishing outside the protected aquatic zone and permitting fuelwood collection and collection of other NWFPs inside the park, e.g. primary products such as building poles and grass, and secondary products such as wild plant foods, medicines, fibres and dyes, bushmeat (mammals and birds), insects, curios for the tourist industry and domestic tools.

Today, LMNP encases the largest village in Malawi, Chembe, with an estimated population of 12 000. Like many other communities on the shores of Lake Malawi, Chembe is struggling with the effects of overfishing, unemployment and an HIV/AIDS pandemic that threatens to destroy the local social fabric. With its hot climate and low rainfall the region has the lowest agricultural productivity in the country. The still rapidly growing population of the village is in greater need of the dwindling fish and forest resources of the park, posing the threats of woodland degradation and loss of biodiversity. In this situation, new, innovative means are required to provide both sustainable economic opportunities as well as conservation of the environment.

An important source of income for Malawi, which is among the ten poorest countries in the world with annual per capita income of US$170 (2001), are the tourists attracted by Lake Malawi. In the case of LMNP, the development of ecotourism activities in the area has been suggested as a means of providing local people with an ecologically and economically sustainable source of income. The International Ecotourism Society characterizes ecotourism as "responsible travel to natural areas that conserves the environment and sustains the well-being of local people". From this point of view, the natural preconditions for ecotourism are ideal in Chembe. In the absence of large-scale tourism and with the emphasis on "environmentally friendly" activities, the negative environmental impacts of tourism can be considered relatively minor.

As a part of a conservation and development project by the World Wide Fund for Nature (WWF)-Finland (Conservation of Endangered Species of Fishes and Forests of Lake Malawi National Park: Environmental and Economic Strategies, started in 2001) we studied the socio-economic potential of ecotourism in Lake Malawi National Park. We investigated what kind of stakeholders need to be taken into account when promoting nature-based tourism in LMNP, and how the different stakeholders see the potential of tourism as a means of benefiting both the local community and the environment. Fieldwork of the study took place between August and December 2003.

Preliminary results show that although the number of foreign visitors in LMNP has decreased strongly during the last ten years, presumably owing to economic instability in the southern African subcontinent, tourism still provides important economical inputs for local livelihoods. The seven lodges operating in the village employ directly around 100 local people. Income also comes from local arts and crafts that are sold to tourists. Indirect benefits include a small clinic run together with a lodge by an Israeli non-governmental organization (NGO). The road leading to the village, the condition of which has been seen as a major hindrance for local development, is also being upgraded, which will facilitate access to the park and hopefully boost local economies. Most of the lodge owners see the future positively, with potential for growth and employment opportunities.

On the other hand, five out of seven of the lodges are owned by foreigners who have been granted 25-year leases on property by the Malawi Government. This means that the biggest gains (or possible losses as well) from the business go abroad, a fact that creates doubt about the benefits of tourism among local people. With no capital, locals have few possibilities to start their own businesses. Another thing to consider is the exceptionally high population density of the area; ecotourism usually works well in supporting smaller communities. It can be asked, how many of the hundreds of unemployed fishermen can the tourism sector realistically employ in the future?

It is vital that developing ecotourism in LMNP should be a participatory process including all the stakeholders: local people, the state, tour operators and NGOs working in the area. The role of the state can be seen as supporting the building of sufficient infrastructure for tourism and an effective park management system, but at the same time controlling and ensuring that development is sustainable. Dialogue between traditional authorities, park authorities and businesses should result in the distribution of income from ecotourism to the local community. In addition to facilitating the whole process directly, NGOs can contribute remarkably by promoting Malawi in general. The geographic location and cost base alone restrict marketing LMNP for the masses; therefore, the tourism most suitable for the area can be defined as ecotourism. (*Contributed by:* S. Rantala, WWF-Finland and T. Tyynelä, MTT Agrifood Research Finland.)

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## MALAYSIA

**Community approach to save forest**

The joint WWF-Malaysia and WWF-Denmark project "A Community-based Approach to Conservation and Development in Ulu Padas, Sabah", launched in January 2002, aims to lay a strong foundation for conservation and sustainable development in the Central Bornean Montane Forests. Ulu Padas, which includes about 85 000 ha of state and reserve land near the Sabah-Kalimantan border, is part of these forests. In this area are two villages

inhabited by about 800 people. The local communities depend on the surrounding forest resources for their daily needs, and the scenic areas and cultural heritage sites are the foci of local tourism initiatives.

The project aims to provide the impetus, expertise and funding support needed to improve the capacity of stakeholders, especially the local community, to address land-use and tenure conditions. It should enhance the management and development capabilities of the Ulu Padas community, assist the development of alternative economic uses of forest and promote transboundary cooperation. (*Source: Daily Express News*, 4 November 2003, in Community Forestry E-News 2003.17.)

**Parks get input of villagers**

Public participation plays an important role in finalizing the management plan for Sabah's largest park – the 139 191 ha Crocker Range. More than 100 people including district officers, village heads and village, security and development committee members attended a two-day workshop on "Sociological Issues in and around Crocker Range" to work out issues on land, villages, natural resources, water and the environment.

While the park is gazetted strictly for protection, villagers living within or near the park continue to rely on the resources for their livelihood activities. But the biggest issue facing all parties concerned is probably traditional resource use: native customary rights versus modern law. (*Source: Daily Express News*, 18 December 2003, in Community Forestry E-News 2003.18.)

## MALI

**Mali promotes West African shea industry**

The West Africa International Business Linkages Program (WAIBL) brought together 160 United States and West African participants in Bamako, Mali to discuss US-Africa business agreements in the shea butter industry. The West Africa-based conference followed a similar event held in Washington, DC in January 2003 that attracted nearly 70 United States companies. Both served to educate participants on the shea industry as well as to create an environment for United States buyers and West African sellers of shea to meet. WAIBL is a programme of the Corporate Council on Africa (CCA).

**The Corporate Council on Africa (CCA), established in 1992, is a non-partisan 501 (c) (3) membership organization of more than 150 American corporations dedicated to strengthening the commercial relationship between the United States and Africa. CCA members represent nearly 85 percent of total United States private sector investments in Africa. (CCA's Web site is at: www.africacncl.org)**

The conference featured industry experts who spoke on commodities as exports, quality control and standardization, possible means to improve the industry through regional collaboration, marketing, labelling and packaging tips for the United States market, and challenges and opportunities for shea in the United States. Included in the 160 conference participants were shea producers, distributors and exporters from Mali, Burkina Faso, Ghana, the Niger, Senegal, Guinea, Benin and Togo. Four United States companies also attended.

Following the conference, WAIBL arranged site visits to two Malian villages. Thirty of the conference participants attended, taking the opportunity to see shea butter produced in the traditional manner by the women in the villages.

As shea butter quickly gains wider recognition in the United States, the WAIBL conference served to bring more attention to the industry and the potential for collaboration between United States companies interested in developing shea butter market opportunities with West African shea producers and exporters. (*Source:* Corporate Council on Africa [Washington, DC] Press Release, 6 March 2003.)

## MEXICO

**The Sierra Madre Alliance**

The Tarahumara and Tepehuan people of Mexico's Sierra Madre have been under siege for generations. Their lands and forests have been seized. Tens of thousands have retreated to remote and desolate areas, choosing a life of silent suffering over integration in Mexican society. Many have been able to sustain a rich traditional life, but others find themselves caught between two worlds: the old world which is disappearing with the forests and the new world where they find discrimination, poverty and depression. Corruption, drug trafficking, and violence all contribute to the suffering of these indigenous peoples.

Uncontrolled logging has taken 99 percent of their forests, destroyed vital high-altitude watersheds and threatened the forest plants they depend on for food, medicine, and ceremonies, as well as a number of endemic and endangered species.

The Sierra Madre Alliance and our Mexican partners have been working to improve the environmental and social conditions in the Sierra for more than ten years, with indigenous community participation. We focus on conservation-priority areas in the Sierra, where both endangered species and endangered communities struggle for survival. (*Source: SMA Update*, 4 December 2003.)

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# COUNTRY COMPASS

## NAMIBIA

**Marula can bear fruit for Namibia**

FThe government has recognized the economic potential of the marula tree fruit and its by-products. As a result it has funded the establishment of community projects such as the Eudafano Women's Cooperative in the north.

Addressing a crowd of people from all over the country at the recent Omagongo Cultural Festival 2003, including King Shikongo Taapopi of Uukwaluudhi, President Sam Nujoma said marula trees, or "omugongo" as they are known by indigenous people, play a critical role in the lives of many Namibian communities especially in the north. He said the Eudafano Women's Cooperative is involved in the commercial production and marketing of several kinds of products derived from marula fruit. These products, Nujoma said, include various types of cosmetic products, refreshments, wine and cooking oil.

The president suggested that in addition to marula fruit, the economic potential and viability of other indigenous fruit and plants can be investigated with a view to exporting them on a commercial basis. He said it is important for traditional communities to utilize their knowledge of local natural resources as a way of maximizing benefits from Namibia's wealth of biodiversity for all the people. Omugongo fruit is traditionally used as a source of wine (omagongo), juice (oshinwa) and cooking oil (odjove). The by-products that remain after the extraction of cooking oil and manufacturing of cosmetics are used to make different types of soap. "I would like to emphasize the fact that our people can only derive benefits from our flora and fauna if we continue to promote the conservation of our environment and the utilization of our natural resources in a sustainable manner," he said.

The president called on communities to plant many indigenous trees so that they can provide the country with fruit, shade and timber as well as prevent further desertification which threatens many areas countrywide. (*Source: The Namibian* [Windhoek], 30 April 2003.)

## NIGERIA

**Jigawa boosts gum arabic production**

A joint initiative between the United States-based African Development Foundation and the Jigawa State government has raised N 280 million for the provision of five million seedlings of *Acacia* sp. to produce gum arabic to boost the production of the product and reduce the menace of desertification. The joint effort would see to the provision of 100 ha of land to develop a special programme on drought and desertification protection through the establishment of gum arabic centres.

Disclosing this to journalists, the director-general of the state research institute, Dr Hilton Gommes, said 200 farmers were used to nursing the five million seedlings. He said that the farmers had already been provided with free seedlings for gum arabic and will be given N 3 for each seedling nursed. Dr Hilton added that the farmers are also provided with free seedlings to grow on their farms.

He disclosed that officials of the African Development Foundation, led by Dr Nathaniel Fuse, have already visited the state to study the success of the initiative.

Dr Hilton Gommes described the institute's achievement as a revolutionary idea to improve agriculture and better the state's socio-economic well-being. (*Source: Daily Trust* [Abuja], 19 November 2003.)

**Jigawa to spend US$1 million on gum arabic development**

Jigawa State government and the African Development Foundation (ADF) are to spend US$1 million to develop gum arabic production in the state. During a visit to the state research institute at Kazaure, governor Saminu Turaki said that the ADF would provide US$700 000, while the Jigawa government would invest US$300 000 in the project.

The News Agency of Nigeria reports that the money from the ADF would be from a US$5 million grant offered to the state two years ago, of which only US$1 million were utilized for community empowerment projects.

Turaki, who led ADF president Nathaniel Fields to the institute, said the Jigawa government had spent more than US$300 000 on enhancing gum arabic production in the state. The secretary of the institute, Malam Ma'amun Aliyu, had earlier disclosed that some five million tree seedlings had been raised last year as part of efforts to boost the economic potential of communities in the state. He said that while most of the seedlings were planted by farmers across the state, the institute on its own had set up 100 ha of gum arabic plantation in three locations in the state.

Jigawa, which has about 900 ha of gum arabic plantations, has established a laboratory to process the product, and entered into an agreement with some United States companies to export the commodity. However, inadequate funds had affected the procurement of the commodity from the farmers, while staff of the Gum Arabic Processing Company have been left without salaries for ten months. Turaki, however, said he believed the injection of the capital from the ADF would facilitate the increased production capacity of the farmers and the status of the company, as well as provide for a greater expansion of the total production capacity of the state. (*Source: Daily Trust* [Abuja], 20 January 2004.)

# COUNTRY COMPASS

## PAKISTAN

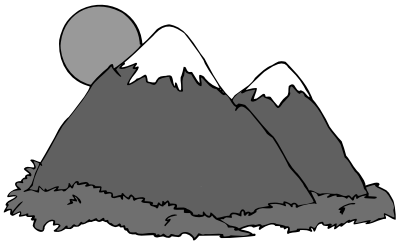
**Review of non-timber forest products (excluding medicinal plants) in Pakistan**

Pakistan's forest cover is 4.8 percent and comprises four floristic regions, which are rich in floral diversity. About 80 percent of rural people are dependent in one way or another on non timber forest products (NTFPs) for their domestic as well as commercial use.

Local people use their traditional knowledge for the collection, processing, packing, drying, marketing and consumption of various NTFPs. The most important NTFPs produced in Pakistan are: morels (*Morchella esculenta, M. conica, M. vulgarus*, etc.), honey (*Apis cerana, A. dorsa, A. forea, A. mellifera*, etc.), fruits and nuts (pine nut or chalghoza, walnuts, wild persimmon, mulberry, wild fig, jujube, pear, gur gura, etc.), vegetables (kachnal), condiments and spices (wild pomegranate), mazri palm, silk cocoons and many others. These are not only a source that fulfils the domestic needs of local people, but are also a source of income for their livelihood. About 34 percent of local people are dependent on NTFPs for income generation. During the study, about 131 species were cited in the literature but there are actually more than that. Exports of selected NTFPs, such as morels, fruits and nuts, mazri, silk cocoons, etc., amounted to PRs 1 507.60 million in 2000/01. In 1991/92, the total production was 89 568.3 tonnes. There is a 60 to 70 percent increase in the prices of various NTFPs from 1991/92 to 2001/02.

These products, after collection and processing, are sold to the entrepreneur and then reach the main market. There are wide fluctuations in both the supply and production of these products; 65 percent is lost on its way to the main market and then in exporting. There are problems, such as lack of awareness about collection and processing of various products among local collectors, in sufficient research and development, market trends and monopolies, wastage and unsustainability during the different steps of processing, and the government's attitude towards NTFPs.

The literature available was studied in order to compile data related to NTFPs (excluding medicinal plants) and it was assessed that Pakistan has a great potential for NTFPs but that there is need for research on each individual product using a bottom-up approach for proper planning, better levels of production, sustainable income through sustainable utilization, training and capacity building of related personnel and the community for the conservation of different forest resources. (*Source:* Abstract of a paper by Abdul Latif, Researcher, Ethnobotany Project, WWF-Pakistan, Peshawar, Pakistan [e-mail: latifepm78@yahoo.co.uk].)



## PERU

**Saving polylepis forests**

The Andean condor usually takes the credit as the flagship species for the mountain range that runs the length of South America. However, several less-known Andean species can make similarly impressive claims to fame. One of these is polylepis, a group of tree species in the rose family, which wins the prize for being the highest altitude woody plant in the world. In many ways polylepis is a retiring tree, growing slowly and quietly in sheltered valleys close to the high Andean grasslands called *paramo* or *puna.* In a vista that features large open expanses punctuated by towering snow-capped volcanoes, polylepis can easily be overlooked.

However, as a result of a reduction in polylepis throughout its range, it is now receiving significant attention in the Cusco Department of southern Peru. One of the reasons is that the forests in this region contain three of South America's endangered birds: royal cinclodes, ash-breasted tit-tyrants and white-browed tit-spinetails.

Polylepis forests, sometimes called "enchanted forests" because of their low canopy, twisted growth pattern and striking red peely bark, are relicts from pre-Colombian times. Polylepis protects fragile soils from erosion, replenishes watersheds and harbours plants used by local people.

Outside the ancient city of Cusco, polylepis is a mainstay for existence. The trees provide fuelwood, construction materials and medicinal plants to Quechua-speaking people who maintain much of their centuries-old lifestyle and tradition. Nevertheless, current consumption patterns, along with burning of surrounding grasslands to create pasture for cattle and sheep, are threatening the resource. While community members are well aware that their survival depends on maintaining these forests, they have had few options until recently.

That is where the American Bird Conservancy (ABC) and the Peruvian Association for the Conservation of Andean Ecosystems (ECOAN) come in. The two organizations have teamed up with support from the Critical Ecosystem Partnership Fund (CEPF) to work together with three local villages to protect the forests and develop alternatives for fuelwood and timber. Their Polylepis Project fits perfectly into CEPF's strategic approach in the tropical Andes to encourage community-based biodiversity conservation and natural resource management to offset threats and ensure durable change.

The key to successful conservation of these endangered birds and their habitats is solving the problem of unsustainable wood consumption. The Polylepis Project aims to develop a local non-governmental organization presence in the communities, provide data on and monitor biodiversity, include indigenous people in conservation, engage villagers and policy-makers in biodiversity conservation, raise community awareness of conservation, make rural

development more compatible with biodiversity conservation and build a constituency for conservation.

As part of the CEPF-supported part of the project, in the village of Abra Malanga, 86 community members, together with 13 young British volunteers and members of ECOAN, expanded polylepis forest by replanting 5 000 saplings. At an altitude of 4 200 m above sea level, it was no easy task. In nearby Cancha Cancha, where 3 000 polylepis saplings were planted, residents had to trek more than 11 km uphill with an elevation gain of 1 000 m to reach their planting site. In another of the communities, Huacahuasi, the closest polylepis forest is more than 12 km away from the village. ECOAN has determined that if the 170 families continue their annual pilgrimage to harvest trees for fuelwood and construction, the entire resource will be gone within 30 years. Other sources of fuel are needed. Through the Polylepis Project residents have planted 10 000 eucalyptus trees on degraded lands far from native forests and close to the community.

One of the major positive outcomes of the project is that the villagers are becoming aware of the need to manage their lands in order to ensure its productivity into the future. Previously, some simply cut whatever they could find, without heed as to where the polylepis were coming from or the long-term impacts.

ECOAN is also working to help these communities gain title to their traditional lands, an important move towards providing incentive for sustainable management. One of the steps in the process is the development of conservation action plans, including limiting harvesting, reforestation and fencing replanted forests to protect them from grazing animals.

Birdwatchers will travel far to see such endangered species as the royal cinclodes or the tit-spinetail. If these birds are provided with the necessary habitat and active measures are taken to ensure their survival, villagers may eventually be able to host visitors, taking them to see the fruits of their conservation labours and gaining some income at the same time.

In the meantime, a survey and monitoring programme for polylepis forest species is underway. It has already paid off with unexpected and happy news. Recently ECOAN discovered a 6.5 ha polylepis forest fragment with eight pairs of previously unrecorded royal cinclodes. (*Source:* Extracted from an article by Abigail Rome in September 2003 CEPF E-News [www.cepf.net/xp/cepf/in_focus/current_issue.xml].)

## PHILIPPINES

**NFTPs in the Philippines**

Camilla Mitchell, a University of Edinburgh M.Sc. student, recently explored the use of non-timber forest products (NTFPs) in the North Negros Forest Reserve in the Philippines (Negros Occidental). Her thesis revealed a variety of NFTP uses in the surveyed regions and extensive local knowledge on affected species, despite minimal economic reliance on them.

The research was conducted in collaboration with the United Kingdom-based Coral Cay Conservation, an esteemed tropical reef and rain forest conservation non-governmental organization (NGO), and the Negros Forests and Ecological Foundation Inc. (NFEFI). The project surveyed the use of NFTPs derived from the area as well as their subsistence and commercial value. Interest was sparked owing to concerns of prevalent deforestation, especially in a reserve that contains a large proportion of the remaining rain forest of Negros Island – part of a forest ecoregion identified by the World Wide Fund for Nature (WWF) as the eighth most vulnerable in the world. NFTP use was investigated in two local communities as well as species-based information and attitudes towards NFTP use.

Ethnobotanical methodologies were used in the villages of Campuestohan and Patag, mountain communities of similar forest types (lower montane). Campuestohan, the principal survey site, was selected owing to its strong links with an environmental NGO (Coral Cay Conservation). Patag, a larger region outside the NFEFI project area, was picked to increase the validity of any conclusions, having suffered less ecological destruction (i.e. by logging). Data were collected utilizing various methods including interviews, questionnaires, workshops and surveys both in the field and in more formal surroundings with the village residents.

The uses of species were classified into the following subcategories: environmental, food, material, medicinal and social. Communities, habitat types and gender knowledge discrepancies were also compared for the two regions. All the resulting information on NTFP plants was subsequently shared with the Biodiversity Information Centre of the National Museum of the Philippines.

One hundred and two distinct taxa were identified as NFTPs with 51 different uses (43 percent had more than one use, 27 percent existed in both areas), more than half of which were medicinal in purpose. Ornamental plants represented the largest group in the environmental subcategory, reflecting the regions' biodiversity and protective designation. Most species were distinct to either forest or village habitats; knowledge of forest species was considerable despite exploitation of these species being lower. Results also suggest that the information held by women was limited to village plants while men had knowledge on species of both habitats; this probably relates to the dominance of medicinal plants in the villages, and the exploration of areas beyond tenancy by men.

Significantly it was found that NGO-led education has increased awareness of the importance of forest conservation and the potential for herbal medicines. The greater medicinal use is affiliated with socio-economic needs rather than any commercial exploitation, extended by the

involvement of the Dutch Alternative Indigenous Scheme (AID) foundation.

The vulnerability of this rain forest owing to logging and agricultural clearance has further deterred the promotion of NFTPs as a commercial venture. Although less environmentally intrusive than logging, the thesis acknowledged that sustainable NFTP extraction could not exist without yield management initiatives. Instead, sustainable agricultural practices are being encouraged to protect the area and inhabitants of the North Negros Forest Reserve, with support only for NFTP enterprises that complement forest regeneration. The research is the first of its kind in Negros and has set a strong precedent for future work, which may aid the development of sustainable management initiatives concerning NFTPs. (Full reference: Mitchell, C. 2002. *A survey of non-timber forest product use in the North Negros Forest Reserve, Negros Occidental, Philippines*. M.Sc. thesis, University of Edinburgh. Available from Coral Cay Conservation [forest@coralcay.org].) (*Contributed by:* Saritha Visvalingam, Research Intern, Coral Cay Conservation Ltd, The Tower, 125 High Street, Colliers Wood, London SW19 2JG, UK [e-mail: sv@coralcay.org].)

**Market development for non-timber forest products: the case of Puerto Princesa Subterranean River National Park**

Market development for the non-timber forest products (NTFPs) of Palawan province, particularly in the Puerto Princesa Subterranean River National Park (PPSRNP), has been identified as one of the thrusts of the Palawan Council for Sustainable Development (PCSD). This is implemented through the Palawan Tropical Forestry Protection Programme (PTFPP), a special project supported by the European Union starting in 1995. PTFPP seeks to improve the living conditions and incomes of rural communities in priority catchment areas. One of these is the Cabayugan River Catchment which is part of PPSRNP.

PPSRNP, which is classified within the scope of the National Integrated Protected Areas System Law of 1992, covers a total area of 22 202 ha of terrestrial reservation that includes the three villages of Cabayugan, Marufinas and Tagabinet. It is richly endowed with diverse plants and animals, and protects old growth forests with more than 800 plant species. Most of the area is timberland although the buffer zone portions subjected to human habitation and encroachment have been farmed, with the inhabitants employing traditional agricultural practices. The primary feature of PPSRNP is the 8.2 km long underground river flowing through a spectacular karst formation with the dome-shaped Mount St Paul being the highest point. Because of its unique natural characteristic and outstanding universal value, it is among those included in the UNESCO list of World Heritage Sites. Until 2000, park visitors averaged about 30 000 annually.

There are several reasons why marketing of NTFPs is given importance. First is the recognition that NTFPs, which are currently utilized and marketed, have considerable potential in providing livelihoods for the buffer communities, given their abundance in the area and that timber production is prohibited. Second is that it is through improvement in marketing that such potential can actually be realized considering the difficulties that the communities are experiencing in the disposal of their products. Third is that the economic benefits created through efficient marketing provide the most tangible incentives for sustaining production activities as well as enrichment, renewal and protection of the natural resource/raw material base. And fourth is that NTFPs provide opportunities for the local people to participate in the development of their communities.

NTFPs in PPSRNP include rattan, *almaciga* resin, bamboo, honey, *nipa* shingles, *nito, tikog, pandan, buri*, vines, medicinal plants, orchids and ornamentals. Rattan, *almaciga* resin, honey and bamboo are gathered in commercial quantities and sold by the local people individually through entrepreneurs, largely in raw, unprocessed forms, hence they do not get the most favourable economic returns possible. Many kinds of handicraft items can be made from other NTFPs but currently the supply of finished products is limited and irregular while their quality is not competitive with those made elsewhere.

The appropriate marketing strategy therefore must be anchored on activities that will i) directly increase the sales and income of households; ii) direct marketing efforts through strong and reactivated cooperatives and local associations; and iii) support the enrichment and regeneration of the NTFP raw material base. The first criterion is aimed at increasing the marketable surplus and product value through the diversification of products and markets; value-adding activities via processing/product transformation, quality improvement and product labelling; and having shorter market channels through direct marketing. The second entails providing the necessary support services (financial, infrastructure, marketing linkages and price information) to strengthen and reactivate existing local organizations, thus enabling them to market their products efficiently and collectively. These are needed to lower their transaction and marketing costs as well as minimize product losses and to ensure delivery of their products at the right time, place, and form according to the requirements of buyers and markets. Eventually, the high economic surplus to be gained by the cooperatives will be distributed to the members according to basic cooperative principles. The third criterion is intended not only to achieve environmental goals but also to ensure the long-term competitiveness of PPSRNP NTFPs via the inherent advantage of having a continuous supply of quality raw materials. (*Contributed by:* Isabelita M. Pabuayon, Ph.D., Professor, Department of Agricultural Economics, College of Economics and Management, University of the Philippines Los Baños, College, Laguna, 4031 Philippines [e-mail: Isabelitapabuayon@hotmail.com].) [*Dr Pabuayon served as NTFP Marketing Consultant for PTFPP for the period April–October 2001.*]

# COUNTRY COMPASS

## RUSSIAN FEDERATION

**NTFP small business development project in the Russian far east**

Over the past three years the IUCN-CIS Forest Conservation Programme has been involved with a community economic development project focused on the Kamchatka Peninsula and Sakhalin Island. (This project is one component of the larger project "Building Partnerships for Forest Conservation and Management in Russia" funded by the Canadian International Development Agency [CIDA] and managed by IUCN-World Conservation Union.)

The activities in the Russian far east are aimed at assisting remote communities of the region to develop their non-timber forest product resources sustainably. With 29 active volcanoes and the largest surviving populations of wild salmon and brown bear, Kamchatka has a richly deserved reputation as a wild and relatively untouched land. Apart from the difficulties presented by living in a remote area with a harsh environment, many of Kamchatka's residents are facing new challenges brought on by the collapse of the Soviet regime. Since the early 1990s, communities on Kamchatka (and elsewhere in the country) have experienced economic decline made worse by the withdrawal of federal support to outlying regions and traditional resource use such as reindeer herding.

In our project, NTFPs are viewed as one part of a local sustainable livelihood strategy (including tourism, cultural activities, hunting, herding). We provide business and legal issues training, consultation on small business and community-based enterprise development, and support for sustainability and monitoring programmes. It is the hope of project participants that the successful development of these opportunities will decrease the pressure to move forward with potentially damaging resource exploitation activities, such as gold mining and oil extraction within or close to the World Heritage Sites.

The project is focusing on groups of people who have not normally had the chance to participate in small business or natural resource management – indigenous people and women. It is the intention of all involved that, over time, local community groups will take over production and marketing activities. Four family and cooperative NTFP-based businesses have already been started by native communities on Kamchatka with the assistance of the project. Started from scratch, these businesses are now marketing their products – so far these are herbal teas, dried wild berries and birch bark souvenirs within the Russian Federation and abroad. The Kamchatka Herbal Tea Community Association successfully fundraised for the new drying equipment.

About 400 people are involved as experts, trainees and participants of other project activities. We hope that the project will make a contribution to the development and implementation of the global approaches to sustainable community development and poverty alleviation. (*Contributed by:* Nikolay Shmatkov, NTFP Component Coordinator, IUCN-CIS and Tim Brigham, NTFP Business Development Consultant, Canada.)

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## SOUTH AFRICA

**Reaping new medicines from old cures**

Samson Mvubu's corner of the bustling Faraday Market is crammed with bundles of bark, roots, bulbs and animal parts used to treat all manner of maladies. Mvubu is an "inyanga", a traditional herbalist. He spent years learning to treat illnesses using plants found in the fields and forests surrounding his village. Visitors to this market come to Mvubu for cures from the countryside. Among them are a small but growing number of scientists, who show up armed with notebooks and ask lots of questions. "The traders here are not happy about them," he says of the scientists. "They just run away with our plants under their arm and they don't come back."

Five years ago, few scientists bothered to visit Mvubu and his fellow healers. Now, however, it seems the world is waking up to the vast untapped potential of biological and indigenous resources. Bioprospecting – searching nature for plants and animals with commercially useful properties – is a booming field. Traditional healers like Mvubu, who tend to come from poor, marginalized communities, are increasingly perceived as the ones who might lead scientists to important discoveries. "Everyone wants access to biodiversity," says Dr Marthinus Horak, manager of bioprospecting at the Council for Scientific and Industrial Research (CSIR), which is sponsored by the South African Government.

With 24 000 plant species, the biodiversity of this country is almost unparalleled. And with almost 300 000 traditional healers nationwide, local

knowledge of plants and their uses is equally abundant. Increasingly, CSIR scientists tap into the knowledge of traditional healers, who have helped to identify hundreds of the plants that researchers are studying now. However, in South Africa – where at least 70 percent of people rely on traditional remedies – no major drug has yet been developed. Dr Namrita Lall, a botanist at the University of Pretoria, is one of many hoping to change that. Working with a traditional healer, she has found what could be a promising alternative treatment for tuberculosis.

The potential rewards of this type of cooperation are considerable for both scientists and traditional healers, Horak says. But collaboration also raises troubling issues. Operating in a legal vacuum, researchers and corporations historically have laid claim to indigenous resources without compensating communities or obtaining their consent.

Even now, rich countries have resisted demands from the developing world that traditional knowledge be recognized under international patent laws. And while the 1992 Convention on Biological Diversity recognizes the need for stronger regulatory mechanisms, many developing countries rich in biodiversity have yet to pass their own laws protecting biological and indigenous resources.

Meanwhile, Mvubu at the Faraday Market says he has stopped speaking to scientists because he mistrusts their motives.

In a major breakthrough earlier this year, however, CSIR announced an agreement with the San of the Kalahari Desert to share in the profits of a potential blockbuster weight-loss drug. However, just how much the San will benefit financially remains to be seen. The pharmacological giant Pfizer recently pulled out of the deal, and any drug that may yet be developed from "hoodia" is still years away. (*Source:* Extracted from www.wired.com/news/medtech/0,1286,61090,00.html?tw=wn_techhead_1, cited in GRAIN Los Baños [grain@baylink.mozcom.com], 11 November 2003.)

## TURKEY

**Non-wood forest products in the Black Sea region**

Non-wood forest products (NWFPs), which provide different possibilities such as food security, health and employment, are neglected in Turkey, especially in the Black Sea region. NWFPs have an important role in the economy of the country as well as rural areas. In this region, very few NWFPs are used in trade. The social, economic and environmental functions of NWFPs are not taken into consideration in Turkey and therefore national forestry policy does not consider these products important enough.

The need for natural resources increases daily owing to a growing population and industrial development. Because of this situation, people are now undertaking research into non-wood forest products to ascertain their utilization possibilities. The Black Sea region is rich in natural resources, especially plant species diversity. For example, *Rosa canina, Digitalis ferruginea* subsp. *schischkinii, Orchis tridentata, Thymus pubescens*, which are grown in this region, are NWFPs. Unfortunately, however, in Turkey there has not yet been an extensive inventory to realize that potential.

This study will now take place in Hamsiköy (located in Trabzon city in the northern Black Sea region) and will be carried out as part of my Ph.D. thesis. In future phases, we want to spread the study to the entire region and then the whole country.

In this study, our aims are:

- to determine which NWFPs have an economic value;
- to inventory them;
- to research actual and potential market possibilities;
- to stop exploiting nature heedlessly and to produce a plan;
- to determine alternative plants for agriculture; and
- in this context, to use forest areas in which trees do not grow.

(*Contributed by:* Prof. Dr Zafer Cemal Özkan and Res. Ass. Sefa Akbulut, Karadeniz Technical University, Department of Forest Botany, 61080 Trabzon, Turkey [e-mail: sakbulut@risc01.ktu.edu.tr].)

## UGANDA

**Uganda's biodiversity under threat**

UGANDA's biological wealth is under serious threat with an increased rate of destruction from 10 to 15 percent per decade, leading to a decline in food security. This rate of loss of biodiversity was referred to as "high" by the report released by the Makerere University Institute of Environment and Natural Resources. The report, *The state of Uganda's biological diversity 2002*, claims that forests, soils and wildlife located outside protected areas are in danger.

The degradation of biological resources undermines the tourism potential, the availability of medicinal plants and the well-being of the human population. (*Source: New Vision* [Kampala], 15 April 2003.)

**United States gum arabic buyer eyes Karamoja district**

A United States company is in Karamoja district to collect samples of gum arabic, a tree sap used in the manufacture of soft drinks. President Yoweri Museveni wants to have the region listed among the top foreign suppliers to the American market.

Jimmy Lomakol, the coordinator of Moroto's private sector promotion, said the Atlantic Gum Corporation has taken samples from the acacia trees in different

parts of Karamoja for analysis. He said that the firm, which is funded by the American Soft Drinks Association, had identified 20 sites from which the samples had been collected and that the process of sampling could take about two years before Uganda was allowed to export the much cherished tree sap to the American and European markets.

He said that penetrating the American market required that any raw material used in the manufacture of any product should be traced to its origin. "They (the Atlantic Gum Corporation) are also particular about the output and behaviour of the trees from where the samples are picked," Lomakol said. This was being hampered by the community who felled some of the identified trees for the construction of huts. He said that in some instances, the herders also picked and ate the sap before it was gathered for analysis. "We have therefore embarked on the sensitization of the community and are using some of the local leaders in the identification and preservation of the trees sampled for analysis," Lomakol said.

Museveni introduced the idea of gathering gum arabic sap for the United States market during the launching of the disarmament exercise in December 2001. Museveni informed the community in Karamoja that the region could become one of the largest exporters of the sap in the world. (*Source: New Vision* [Kampala], 15 May 2003.)

**Multinational may buy gum arabic**

A variety of laboratory tests on the suitability of Uganda's gum arabic for export and use in several industries have turned out to be positive. This was a major hurdle before Uganda could export to the United States and particularly to major buyers such as the soft drinks giant, Coca-Cola.

Local gum arabic is mainly grown in Karamoja and a few other parts of northern Uganda. President Yoweri Museveni has been closely associated with the efforts of getting an international market for the rare commodity.

Rosa Whitaker, president of the Whitaker Group (a Washington, DC-based consultancy firm), said recently that Uganda is to start shipping gum arabic to the United States market early next year, after functionality tests on its quality, durability and market potential were positive. She said that Coca-Cola, which has been paying for some of the tests, will be one of the main buyers. "There is a lot of potential in this product, which can be exploited by many people in the northern part of the country to pull themselves out of poverty," she said. She added that growing the crop does not need much initial capital.

Whitaker, however, strongly objected to the agricultural subsidies, which are being implemented by firms from the West, saying that they are strangling the commodity prices for products from developing countries.

However, there are advantages for Uganda in developing commercial production of gum arabic because it is a major ingredient in several foods including sodas, beers, salad dressings and ice-cream. It is also used in the pharmaceutical industry.

The Sudan is the world's leading producer. Another potential leading supplier is northern Nigeria, where two years ago USAID helped fund a new testing laboratory in Jigawa state. Importer Services Corporation, the largest gum processing firm in the United States, last October announced that it would buy the entire 2002 gum arabic crop from Jigawa state, valued at US$400 000. (*Source: New Vision* [Kampala], 30 December 2003.)

**Norway and the European Union give forestry U Sh 25 billion**

The Norwegian International Agency for Development (NORAD) and the European Union signed a joint memorandum to support the National Forestry Authority on Monday. The joint support is worth U Sh 25 billion for the next five years.

The National Forestry Authority was formed early this year to oversee the 1.4 million hectares of forests in 506 central reserves in the country. (*Source: The Monitor* [Kampala], 12 November 2003.)

## UNITED REPUBLIC OF TANZANIA

**Spice industry potential**

The spice industry should be recognized as a distinct sector with a high fast-track export potential requiring only low levels of investment, says the Board of External Trade (BET).

A spices export development strategy prepared by BET in November 2002 came up with four strategic objectives to rescue the spice sector in the country. Among them are the creation of an adequate institutional structure for sector leadership, increasing the capacity of the sector to meet technical requirements of the market and accelerated expansion of the industry.

Achieving recognition for the sector being the major strategic objective, BET discovered that this strategy is paramount because the perceived underlying problem would appear to be the awareness and recognition of the spice industry as a significant sector with a tremendous export potential.

To improve the spice sector, BET intends to create and establish an appropriate institutional framework for the sector to enable it to realize its full potential. It will take full advantage of the private and public sector smart partnership. According to BET, this strategy can only work if there is the establishment of the Tanzania Spice Producers and Exporters Association (TSPEA) and designation of the research and development responsibility to existing research institutions particularly to support smallholder producers.

Regarding increasing the capacity to meet the technical requirement of the market, BET suggested that Tanzania improve its reputation as a quality supplier in world markets since it has a good opportunity of capturing markets within Africa and overseas, e.g. in the East African Community (EAC), Southern Africa Development Community (SADC) and Common Market for Eastern and Southern Africa (COMESA).

Furthermore, in the expanding European Union, Tanzania has tariff-free

market entry under the Everything But Arms arrangement and the huge United States market preferential treatment under the African Growth and Opportunity Act which the United Republic has Tanzania has now fully ratified.

To acquire success in the strategic objectives, BET is expected to involve the Ministry of Agriculture and Food Security and the Tanzania Investment Centre in order to mobilize and encourage both foreign and local investment.

The spice industry presents a major opportunity for Tanzania to exploit and reap economic benefits in the relatively short term with only a nominal input of resources and attention. Among the opportunities within the sector development are the thousands of small farmers that are already knowledgeable about spices. Thus training would not start from scratch. Others are the exchange rate and trade regimes that are liberalized. There is a growing market for derived products such as extracts and oleoresins.

The world market for spices and herbs is valued at more than US$2.3 billion. From 1995 to 1999, imports averaged 500 000 tonnes, growing at an average of 8.5 percent per annum.

However, the sector also has problems, e.g. Tanzanian spices are not branded; the majority of the products have no traceability system; and the poor image of Tanzania as a source of supply needs urgent reversal.

The spices currently being produced by Tanzania include: cardamom, ginger, turmeric, cinnamon, garlic, black pepper, cloves, chilli, onions, vanilla, cumin, coriander, paprika, mustard, spring onions and nutmeg. Spice production in Tanzania is mainly carried out in areas with tropical and subtropical climate. Normally no chemical fertilizers are used.

Available data of the spice industry sector indicate that overall the sector has been growing by more than 10 percent per annum in value terms since 1997. The actual export value grew from US$1.148 million in 1997 to US$11 million in 2001. (*Source: Business Times* [Dar-es-Salaam], Tanzania, 11 April 2003.)

## UNITED STATES OF AMERICA

**Non-timber forest product management and biodiversity in the United States**

In June 2002, the Institute for Culture and Ecology (IFCAE) received an 18-month grant from the National Commission on Science for Sustainable Forestry (NCSSF) to assess the relationships between forest management practices, NTFPs and biodiversity in the United States. This research had two objectives: i) synthesize data regarding the impact of non-timber forest product management on forest ecosystem sustainability and biodiversity; and ii) directly support the ability of forest managers to assess NTFP sustainability.

The project consisted of five interrelated components. The first involved the expansion of IFCAE's Web-based species database used for identifying commercially harvested NTFPs in the United States. The second component expanded IFCAE's Web-based NTFP bibliographic database that catalogues references specific to NTFP conservation, policy, management, culture and ecology (see www.ifcae.org/ntfp for both databases). The third component consisted of updating state and federal NTFP management surveys to document managers' views on how management activities affect local biodiversity and to learn more about inventory and monitoring efforts. The fourth component involved conducting ethnographic interviews in eight ecoregions of the United States to synthesize harvester knowledge about management and biodiversity. The final component consisted of four regional workshops designed to bring together land managers, policy-makers, scientists, buyers and harvesters to discuss multistakeholder approaches to biological monitoring. Results from this research are synthesized in the document *The relationship between non-timber forest product management and biodiversity in the United States*.

Workshop results are analysed in the document *Non-timber forest product inventory and monitoring in the United States: rationale and recommendations for a participatory approach*. See also the companion report, *Workshop guide and proceedings: harvester involvement in inventory and monitoring of non-timber forest products*.

All of these documents are available online (www.ifcae.org/projects/ncssf1/). (*Contributed by:* Kathryn A. Lynch, ICFAE, USA.)

**For more information, please contact: Kathryn A. Lynch, Eric T. Jones or Rebecca McLain, Institute for Culture and Ecology, PO Box 6688, Portland, OR, USA 97228.**
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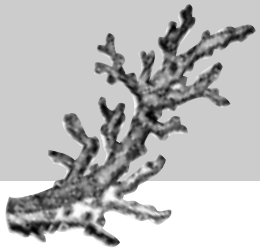
## ZAMBIA

**Maureen Mwanawasa Community Initiative embarks on mushroom drying projects**

The Maureen Mwanawasa Community Initiative (MMCI) has embarked on two pilot projects to dry mushrooms in Kasempa and Ndola rural. First lady Maureen Mwanawasa, after touring the Technology Development and Advisory Unit (TDAU) of the University of Zambia yesterday, said that the two areas during the rainy season had a lot of mushrooms, which could be dried and preserved. This would help people to sell and achieve food security.

Maureen [Mwanawasa] said her organization had been trying to change the attitude of women's clubs for them to do activities that gave them profit and enabled them pay for health services, send their children to school and attain food security. She said her visit to TDAU followed an enquiry for a mushroom solar drier, manufactured by the unit. (*Source: The Post* [Lusaka], 22 October 2003.) ●

# ECONOOK



## 2003 IUCN RED LIST

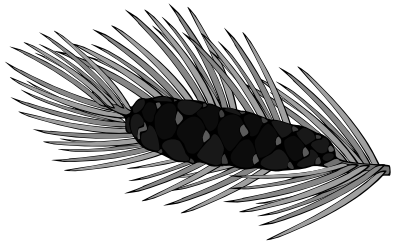
IUCN–World Conservation Union has recently released its updated Red List, regarded as the world's most reliable inventory of the conservation status of flora and fauna. With more than 2 000 entries added and 380 taxa reassessed since the release of the previous year's list, the Red List currently records more than 12 000 species threatened with extinction; 762 plants and animal species are already logged as "extinct".

The list finds that invasive species are an overriding threat to global biodiversity, threatening to undermine populations of native plants and animals on islands and continents.

All known conifer species have been reassessed, and the 2003 list sees new entries of more than 1 000 Ecuadorian plants, 125 Hawaiian plants, more than 300 cycads and 35 Galapagos Island snails.

IUCN will undertake a major analysis of the Red List in 2004, the results of which will be presented to the third IUCN World Conservation Congress in Bangkok in November 2004.

**For more information, please visit: www.redlist.org/**



## THE STATE OF THE WORLD'S ECOSYSTEMS

The World Wildlife Fund International released its report on the state of the world's ecosystems – as measured by the Living Planet Index – and the human pressures on them through the consumption of renewable natural resources. The report is available at: www.panda.org/livingplanet/lpr02/

## FUNGAL PARTNERS

Palaeontologists theorize that the evolutionary leap of plants from ocean to land was accomplished by plants forming a symbiotic relationship with fungi. Today, 90 percent of all plants are associated with fungi in the soil, and 80 percent could not survive without their fungal partners. The complete article, *Corner on ecology: partners ... for 500 million years!*, by Gigi La Budde, is available at: www.forestrycenter.org/news/news.cfm?news_id=284

## RAINFOREST ALLIANCE LAUNCHES EXPANDED ECO-INDEX

The Eco-Index is an Internet resource managed by the Rainforest Alliance that contains detailed information about conservation projects in Latin America. It has information about more than 550 projects of 400 non-governmental organizations and government ministries throughout the neotropics. The site is in English and Spanish, while profiles of Brazil-based projects are also available in Portuguese. The database is searchable by keyword, country, organization, funders and/or by 70 different categories.

Project directors submit information on the Eco-Index via a template questionnaire, available on-site (or upon request by sending an e-mail to: eco-index@ra.org). To ensure the quality of information, Eco-Index staff members, based in New York and Costa Rica, carefully edit, fact check and translate each questionnaire.

The Eco-Index's "What's New?" page is an online environmental magazine, updated each month. (*Source:* CEPF E-News, November 2004 [cepf@conservation.org].)

## AFRICA – THE MOST PROMISING ECOTOURISM PRODUCT IN THE WORLD

A passion for Africa, tourism based on a code of ethics, a belief in the power of tourism as an instrument of prosperity, can all be major factors in responding to the challenges of poverty and inequity, but, most of all, prospects of peace.

These points encapsulated the mood of the Conference on Tourism, Peace and Sustainable Development, held in Luanda, Angola at the end of May in conjunction with the World Tourism Organization (WTO) Commission for Africa. The conference was chaired by Mr Jorges Alicerces Valentin, Minister of Hotels and Tourism of Angola, and attended by some 40 countries including more than 20 ministers of tourism. The issues discussed included macroeconomics, peace dividends, investment, partnerships, economic impact analysis, aviation liberalization and interface with New Partnership for Africa's Development (NEPAD). In addition, related case studies were reviewed from across the continent.

There was also widespread support for the view that Africa has the opportunity to use its unique tourism assets – its cultures, traditions, natural beauty and wildlife – as a major factor in poverty reduction and in unlocking peace dividends where conflict is resolved. The meeting shared the view articulated and demonstrated by Mr Dawid DeVilliers, WTO Deputy Secretary-General, that "passion for Africa and a belief in the power of tourism as a change agent can be a major factor in responding to the challenges of poverty and inequity." It also underscored the value of WTO's Global Code of Ethics as invaluable

guidance for the kind of tourism that Africa must seek to pursue. “Africa is the most promising ecotourism product in the world, we must develop it with passion, profitably, through partnerships at all levels and above all with a strategic vision and the commitment from the governments of Africa,” said the Tourism Minister of Mauritius, Mr Nandcoomar Bodha.

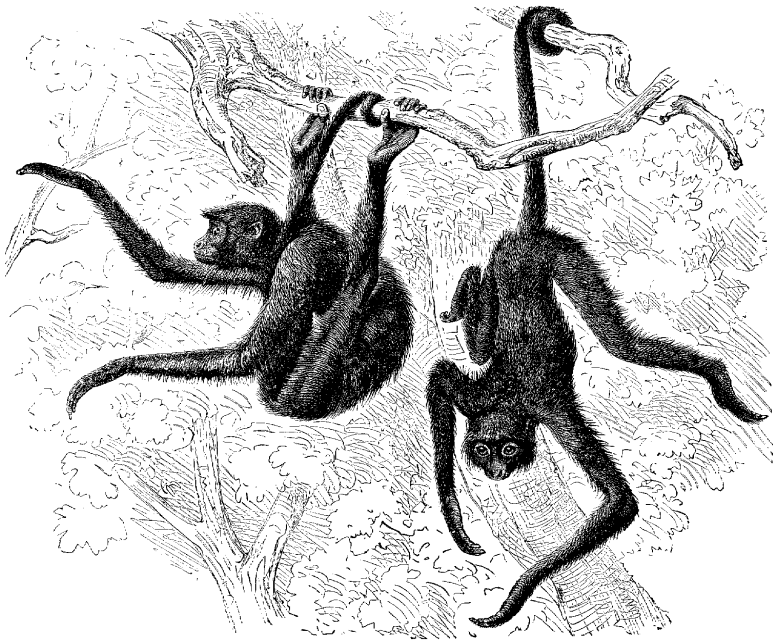
Peace is fundamental to tourism development. With peace, tourism can be a central factor in economic growth, sustainable development and social progress. Without it the potential vanishes. Delegates stressed that partnership in tourism must be stronger than terrorism.

The geopolitical shift towards development generally and Africa specifically was also noted with optimism. The UN Millennium Development Goals, seeking to halve extreme poverty by 2015, the Summits of Doha on Trade Inclusion, of Monterrey on Debt Relief and of Johannesburg on Sustainable Development all led in the right direction for positive change. Regionally, the concept of an African Union and of NEPAD provided new exciting visionary mechanisms for African integration and renaissance – the latter now actively developing an African Tourism framework and reaching out to other institutions for support and interface. (*Source:* Vanguard [Lagos], 13 June 2003.)

**WORLD TOURISM ORGANIZATION TO BECOME SPECIALIZED UN AGENCY**

**Among the actions taken at the 15th General Assembly of the World Tourism Organization (WTO), held from 20 to 23 October in Beijing, China, was the decision to transform the organization into a specialized agency of the United Nations. The UN General Assembly in turn approved this decision on 7 November 2003. Delegates also supported the Organization’s “Sustainable Tourism – Eliminating Poverty” (ST-EP) initiative, a joint project with the United Nations Conference on Trade and Development (UNCTAD) to encourage sustainable tourism that aims at alleviating poverty.**

**For more information, please visit: www.world-tourism.org/**



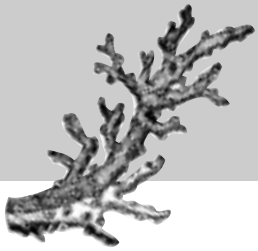
## AMAZONIA: DEVELOPMENT WITHOUT DESTRUCTION

Every year 1 600 000 ha of forest are destroyed. In an attempt to revert this situation, the government is launching the Sustainable Amazonia Programme.

Five million square kilometres containing a fifth of the planet’s freshwater and ten million animal and plant species: the vast Amazonian rain forest acts as the planet’s guardian, maintaining the fragile balance in its climate. But Amazonia’s problems are as vast as its riches. There are 380 000 small rural properties in the region. Rural producers clear the forest to prepare the soil for planting, destroying the trees which could serve as an important source of income. Each year, the area devastated is equal to 1 600 000 football fields.

Gilney Viana, Secretary for Sustainable Development, said that the greatest challenge now facing Amazonia is to modernize it without damaging the environment. He said that Amazonia cannot limit its economy to the exportation of raw materials. “One of the alternatives is to diversify production by incorporating technological innovations and aggregating value to insert Amazonia’s products into the national and international markets”, he said. He emphasized that sustainable development must be associated with the generation of jobs, better distribution of income and a reduction in environment impact.

The Amazonian rain forest occupies five million square kilometres, 61 percent of the territory of Brazil, and covers the states of Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Pará, Rondônia, Roraima and Tocantins. The region’s economy is based on mineral extraction, ranching, logging and export agriculture (mainly soya and cotton). In 2000, the Gross Regional Product was $R 73 billion, 6.5 percent of Brazil’s GNP. In recent years, environmentalists have criticized government policies



which have favoured the advance of the agricultural frontier in the region and offered incentives for damaging the environment. They have also strongly criticized logging, mineral extraction and the construction of roads and hydroelectric plants in the region which have had a serious environmental impact.

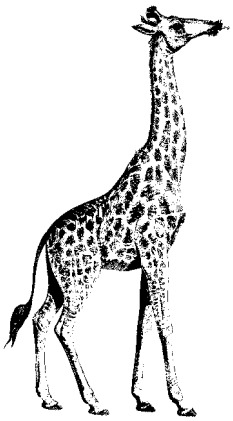
The document, published by the Ministry of the Environment, considers some of the alternatives for the development of the region. Predatory timber extraction, for example, could be replaced by the adoption of certificated forest management. In the agricultural sector, incentives could be offered to producers who increase the productivity of areas which have already been devastated. Ecotourism has been flagged as a means of generating income without damaging the environment. Other alternatives include investment in biotechnology and charging for environmental services. (*Source:* Radiobras, in *Amazon News*, 13 November 2003.)

## CROSS-BORDER PARKS ON THE WAY

Namibia's Ministry of Environment and Tourism is finalizing a treaty for the establishment of a transfrontier park comprising the Ai-Ais Park in Namibia and the Richtersveld Park in South Africa.

Motivating his ministry's budget for 2003–2004 in the National Assembly on Thursday, Minister Phillemon Malima said the initiative was recently discussed and supported by the Presidents of Namibia and South Africa, Sam Nujoma and Thabo Mbeki, and their governments. He said the project would improve the conservation management of an area with the richest biodiversity in Namibia and provide a new focus for tourism development in the south of the country.

Malima indicated that negotiations with Angola were also under way for a transfrontier park consisting of the Skeleton Coast Park in Namibia and Iona National Park in Angola. (*Source: The Namibian* [Windhoek], 14 April 2003.)



## PARTNERSHIP FOR ENVIRONMENTAL MANAGEMENT

Brazil and France have approved a proposal to create a working group to help the French Government to implant a conservation area in French Guiana close to the border with Brazil. The 3 million hectare area covers practically the whole extension of the Tucumumaque Mountains National Park, which – with an area of 3.8 million hectares – is the largest conservation area in the world in a tropical forest region.

France is relying on Brazilian expertise and the communities living in the park to create the conservation area. The two countries are planning further cooperation to develop ecotourism in the region. They hope to involve Suriname in the project and transform the region into a large ecotourism corridor.

The Ministry of the Environment is creating a Tucumumaque Working Group to develop integrated action in the area surrounding the national park. One of the group's immediate priorities is to elaborate a management plan and to implant a basic infrastructure to protect the park. The region is known as the Guiana Shield and is classified as being of "extreme biological importance". The World Wide Fund for Nature (WWF)-Brazil announced last year that it will make US$1 million available for the creation of the new park. The World Bank and the Global Environment Fund will also finance the project. (*Source:* IBAMA, in *Amazon News*, 10 April 2003.) ●

***You see things; and you say, "Why?" But I dream things that never were; and I say, "Why not?"***

**George Bernard Shaw**

# INTERNATIONAL ACTION

## FAO

### FAO'S FORESTRY BRANCH LIBRARY

**The Forestry Branch Library (FOBL), a branch of the FAO David Lubin Memorial Library, provides FAO personnel and external users with timely and accurate information about forestry and related areas. It houses more than 3 500 books and over 600 current periodical titles, yearbooks and other serial titles on forestry and related areas. It also has a large collection of "grey literature" – including documentation on FAO forestry projects and papers and reports from various FAO meetings – much of which is not readily available anywhere else. Additional forest-related publications, including the special collections on forestry meetings, which include World Forestry Congresses since 1985, are accessible on request.**

**The library provides multilingual service (English, French, Spanish, Italian) including reference and information assistance, bibliographic searches, photocopies and, through the David Lubin Memorial Library, interlibrary loan services are provided.**

**For more information, please contact:**
**Ms Vanda Ferreira dos Santos,**
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**vanda.ferreiradossantos@fao.org**

## FOREST PRODUCTS AND ECONOMICS DIVISION

**Travel of NWFP officers**

Mr Paul Vantomme travelled to Canada as one of FAO's representatives at the World Forestry Congress [see *Special Features for more information*]. During the Congress, Mr Vantomme had the role of FAO Technical Secretary for three sessions: i) A2C Efficient use and processing of resources; ii) A5A Best management practices, certification; and iii) B4B Management for non-timber forest products. He made the following presentations: i) Towards improved classification of NWFP through the existing international product classification schemes; ii) Opportunities and challenges for non-wood forest product certification (written together with Sven Walter); and iii) Trade opportunities for non wood forest products in niche markets.

Mr Sven Walter travelled to Viet Nam and Papua New Guinea in November 2003 to discuss issues regarding agarwood. In Viet Nam, he attended the First International Agarwood Conference and in Papua New Guinea he met with national personnel regarding the FAO-financed Technical Cooperation Programme (TCP) project "Eaglewood Management Project", TCP/PNG/2901(A), which became operational in October 2003. [*Please see FAO in the Field for more information on this TCP project.*]

The First International Agarwood Conference "Wood of the Gods" was held from 10 to15 November in Ho Chi Minh City and An Giang Province. It was co-organized by the Tropical Rainforest Project (TRP) Foundation, the National University of Ho Chi Minh City, the An Giang University and the University of Minnesota; the main sponsor was the European Union.

Some 70 participants from 20 countries participated in the conference and exchanged views on the:

- ecology and cultivation of *Aquilaria* (botany, geography and ecology of *Aquilaria genus*, propagation and management of *Aquilaria* trees);
- sustainable production technologies (mechanisms of agarwood formation in nature, artificial inducement of resin in plantation-grown trees, chemistry of agarwood);
- conservation and legal status (protection of natural *Aquilaria* stands and legal issues, community participation in sustainable agarwood production);
- manufacturing and sale of sustainable agarwood products (world markets for agarwood products, price trends, marketing strategy, extraction technology and value-added product development, packing, labelling and product promotion).

Some 30 presentations were made on the above issues. A field trip to An Giang Province was organized in order to show participants the activities of the TRP project, with regard to the establishment of *Aquilaria crassna* plantations, the research carried out on inducement techniques and the establishment of tree nurseries. Finally, working group sessions were held in order to discuss further the following key issues: i) Management of agarwood plantations and propagation of agarwood producing species; ii) Linking demands with supplies; iii) Trade and legislation; iv) Cultivation of agarwood and impacts of agarwood domestication; and v) International cooperation in agarwood research.

Mr Walter made a presentation on "The impact of certification on the sustainable use of NWFP – Potential implications for the sustainable use of agarwood" and chaired the working group on "Linking demands with supplies". In addition, Mr Walter organized an informal round table with experts dealing with agarwood issues in Papua New Guinea.

For further background information on the conference and the TRP project, visit the Web site (www.agarwood.org.vn). Information from experimental agarwood trials at NuiGiai Mountain, An Giang Province, Viet Nam, carried out during the First International Agarwood Conference field trip, can be found at: http://forestpathology.coafes.umn.edu/agarwoodmeeting.htm

# INTERNATIONAL ACTION

In Papua New Guinea, Mr Walter met with the National Project Coordinator and other representatives from governmental and non-governmental organizations as well as the private sector, in order to discuss issues with regard to agarwood management and utilization in Papua New Guinea in general, with particular emphasis on the implementation of TCP/PNG/2901. In addition, Mr Walter assisted in the preparations and participated in the 5th Inter-agency Committee Meeting on Agarwood. During the meeting, the results of the international agarwood conference were shared and the TCP project presented and discussed.

Mr Walter carried out a backstopping mission to Cameroon from 8 to 13 December 2003 in the context of TCP/CMR/2905 "Institutional support and sustainable management of non-wood forest products", in order to: i) establish contacts with the implementing agency (Ministry of Environment and Forests [MINEF]); ii) elaborate a work plan together with the project team; and iii) analyse the information available on NWFPs in Cameroon. [*Please see FAO in the Field below for more information on this TCP project.*]

During the mission, several project team meetings were organized in order to inform collaborators about project objectives and procedures, to clarify the tasks of each partner (FAO, MINEF and consultants) and to discuss administrative as well as technical aspects.

**Volunteers**

*Report from Daniela Göhler, who worked as a volunteer with FAO's NWFP Programme.*

The FAO volunteer programme is a very good chance for young people to gain an insight into the work of international organizations and to have firsthand experience in the UN system. It is just as important to find financial support for such an internship. An excellent opportunity is the Carlo Schmid Programme of the German Academic Exchange Service (DAAD), which provides scholarships for students and graduates.

I worked as an intern in the Forest Products Service from September to December 2003 under the supervision of Olman Serrano and Paul Vantomme. The main task was to contribute a paper to the NWFP Programme about the role of edible forest insects, mainly caterpillars, to food security in central Africa. Based on four case studies carried out by national experts, I prepared a synthesis that consolidates key information and recommendations, and outlines fields of further research. Additional literature was reviewed to complement some information to specific topics. Numerous discussions with Paul Vantomme and Sven Walter, but also remarks and suggestions of other colleagues, such as entomologists, contributed a lot to my work. [*An article by Daniela on this subject has been included in Special Features*.]

The final Working Paper, which will be published in the spring of 2004, includes the synthesis as well as the case studies. In addition, an article on the subject will be produced (ODI Wildlife Policy Briefing) focusing more on policy issues. I also had the opportunity to attend several presentations and conferences on various topics, and to work in another of my fields of interest, the international forest regime. Under the supervision of Christian Mersmann, I reviewed a document summarizing forest-related institutions and processes at the global and regional levels.

I regard the internship with FAO as a very important step in my professional career and very much appreciate the open-minded conversations with my colleagues. (*Contributed by:* Daniela Göhler, M.Sc. in Forestry [Technical University of Dresden].)

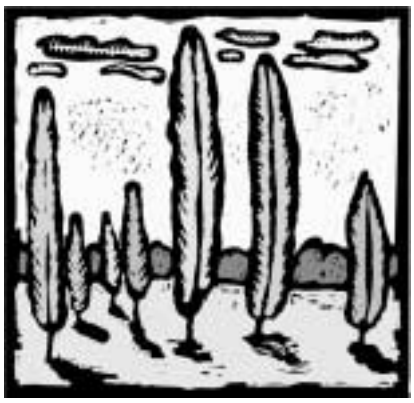
**NWFP-Digest-L**

FAO's NWFP Programme has been producing the NWFP-Digest-L since April 2000. The goal of this free e-mail journal is to link NWFP interests worldwide, share information, foster discussion pertaining to NWFPs, promote regionally oriented e-mail lists and Web sites, and complement existing NWFP awareness networks. Diverse views and materials relevant to NWFPs are encouraged.

To join the list, please send an e-mail to: mailserv@mailserv.fao.org, with the message: subscribe NWFP-Digest-L

To make a contribution once on the list, please send an e-mail to the following address: NWFP-Digest-L@mailserv.fao.org

Back issues of the Digest may be found on FAO's NWFP home page: www.fao.org/forestry/foris/webview/fop/index.jsp?siteId=2301&langId=1



## FAO IN THE FIELD

**Cameroon: sustainable use and management of non-wood forest products**

FAO was requested to assist the Government of Cameroon in the development of their non-wood forest product (NWFP) sector.

FAO's Technical Cooperation Programme project "Institutional support

# INTERNATIONAL ACTION

to promote the sustainable use and management of non-wood forest products in Cameroon" (TCP/CMR/2905[A]) will analyse the NWFP sector, elaborate recommendations for the sustainable management and use of selected products and will contribute to the elaboration and implementation of a national strategy and action plan. The FAO NWFP Programme is the lead technical unit responsible for the technical implementation of the project.

Many households in Cameroon depend on NWFPs as a source of food, construction material, medicines and income. Fruits (e.g. *Irvingia gabonensis*), leaves (e.g. *Gnetum* spp.) and spices (e.g. *Ricinodendron heudelotii*) are among the most relevant edible NWFPs. Other important NWFPs include medicinal plants (e.g. *Prunus africana*) and rattan (e.g. *Laccosperma secundiflorum*). Despite the actual and potential benefits of using NWFPs for both subsistence and trade, various legal and institutional constraints hinder the sustainable use of NWFPs, including the inappropriate management of resources providing NWFP and unclear tenure systems.

The Government of Cameroon recognizes the important role of NWFPs in poverty alleviation, particularly in rural areas. In 1998, the Ministry of Environment and Forests (MINEF) created a Subdivision for the Promotion and Processing of NWFPs (Sous-direction de la promotion et de la transformation des produits forestiers non ligneux [SDNL]) in order to promote the sustainable use of NWFPs.

In November 2001, the University of Yaoundé and FAO co-organized a seminar on "NWFP in Cameroon: Potentials, Constraints and Perspectives" (www.fao.org/DOCREP/005/Y7384F/Y7384F00.HTM), which was followed by a national workshop organized by MINEF in January 2002 on "The Status of the NWFP Sector in Cameroon". These workshops analysed the NWFP sector and identified key challenges faced by NWFP producers, consumers and traders. Furthermore, the workshops acknowledged the efforts made by governmental organizations and their partners such as the Center for International Forestry Research (CIFOR), the Department for International Development (DFID) and FAO to promote the sustainable use of NWFPs.

The Technical Cooperation Programme project TCP/CMR/2905(A) will build on these and will support MINEF and SDNL in their efforts to promote the sustainable use of NWFPs. In this context, the project will collaborate with key stakeholders and organizations, including the Forests and Environment Sector Programme (Programme sectoriel des forêts et de l'environnement [PSFE]).

The project's main outputs will be:

- An assessment of the production and market chain of key NWFPs, including economic, ecological, social, technical, legal and institutional aspects.
- Strategies for the sustainable management, consumption and commercialization of two selected NWFPs.
- A proposed national strategy for the development of the entire NWFP sector.

Project activities will start with a rapid appraisal of the NWFP sector in Cameroon, followed by the in-depth assessment of two selected NWFPs and their production, consumption and trade patterns.

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**For further information, please contact:**
**Ms D. Diallo Ba, FAO Representative,**
**PO Box 281, Yaoundé, Cameroon.**
**Fax: +237 2204811;**
**e-mail: FAO-CMR@field.fao.org;**
***or***
**Mr Sven Walter, Forestry Officer,**
**NWFP Programme, FAO, Rome, Italy.**
**E-mail: Sven.Walter@fao.org**

**Papua New Guinea: Eaglewood Management Project**

Upon request of the Government of Papua New Guinea, FAO is assisting the Papua New Guinea Forest Authority in the sustainable management and commercialization of eaglewood (*Gyrinops ledermanii*, also known as agarwood, aloeswood or gaharu) through its Technical Cooperation Programme "Eaglewood Management Project" TCP/PNG/2901(A).

Eaglewood is a valuable non-wood forest product that has been commercially exploited in Papua New Guinea for approximately ten years. High external demand combined with low national capacities with regard to eaglewood production and commercialization has resulted in uncontrolled exploitation and inappropriate trade structures which marginalize local producers. Rough estimates indicate that if unsustainable harvest and trade continue, eaglewood resources in certain areas will be totally depleted by 2005 not only threatening the tree species but also leading to substantial economic losses.

The objectives of the 20-month project, which started in October 2003, are: i) to strengthen institutional capacities of technical staff from governmental and non-governmental organizations at the national level and the management capacities of local resource owners and producers at the grassroots level; and ii) to assist the governmental organizations concerned in the elaboration of a national eaglewood conservation and management strategy. This strategy will be based on the assessment of the ecological and socio-economic impact of eaglewood production and the identification of appropriate processing and harvesting technologies, including inoculation techniques to promote oleorosin production. Collaboration among all stakeholders concerned will be enhanced.

Expected project outputs are:

- Sustainable management strategies, guidelines and policy measures on

eaglewood as part of the ecoforestry policy are formulated.
- The extension and regulatory capacity of governmental and non-governmental organizations is strengthened.
- Effective training and awareness campaigns on eaglewood management are carried out at the grassroots level.
- Workable community-based eaglewood management models on customary land in three selected areas are designed and undertaken.
- Promising extraction methods are tested.
- Cost-effective fungal inoculation techniques adapted to Papua New Guinea conditions are developed.

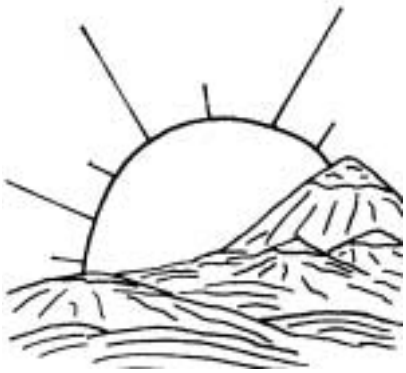
As a result, it is expected that the assistance will contribute to sustaining the management of eaglewood resources and the livelihoods of people using eaglewood resources.

**For further information please contact:**
**Mr Michael Avosa, National Project Coordinator, PNG Forest Authority, Port Moresby, Papua New Guinea.**
**E-mail: mavosa@pngfa.gov.pg;**
***or***
**Mr Sven Walter, Forestry Officer, NWFP Programme, FAO, Rome, Italy.**
**E-mail: Sven.Walter@fao.org**
[*Please see under Products and Markets for more information on Agarwood.*]

## CENTER FOR INTERNATIONAL FORESTRY RESEARCH (CIFOR)

CIFOR was created in 1993 to promote a different type of forestry research – research that would find solutions to the challenges facing our forests and those who use or depend on them. The vision was for a "centre without walls", creating new spaces for scientists from national institutions around the world to work with each other and to build closer ties with the policy community and with local people. To celebrate ten years of activity, CIFOR has produced *Forests and people: research that makes a difference*, which highlights some of CIFOR's key achievements in its first decade of research. A chapter "Beyond timber" is dedicated to CIFOR's work with non-wood forest products.

**For further information, please contact:**
**CIFOR, PO Box 6596, JKPWB,**
**Jakarta 10065, Indonesia.**
**Fax: +62 251 622100;**
**e-mail: cifor@cgiar.or**



## INTERNATIONAL CENTRE FOR HIMALAYAN BIODIVERSITY (ICHB)

The Himalayan region is the largest, highest and most populous mountain chain in the world, and it is one of the world's richest ecosystems in terms of biological diversity. Extreme variations in altitude, aspect, geology and soils over short distances have resulted in a wealth of natural ecosystems. The Himalayas are home to hundreds of endemic plant species and some of the world's rarest wildlife species. These rich biological resources have traditionally served as the foundation for the economic and cultural life of mountain people.

Human beings use the environment heavily. Projected population growth and economic activity will mean loss of biodiversity at a greater rate. Although biological resources are renewable, their overuse is usually associated with loss of biodiversity. Among the major threats are overexploitation of forest and vegetation resources for fuel, fodder, manure, grazing, fishing and hunting, expansion of agricultural land for an ever-increasing population, and the practice of slash-and-burn agriculture in mountain regions. Biological resources are deteriorating rapidly throughout the world, primarily because of unsustainable approaches used in human activities.

Against this background, the International Conference on Himalayan Biodiversity (ICHB-2003) was organized from 26 to 28 February 2003 in Kathmandu, Nepal, on the occasion of the International Year of Mountains (IYM, 2002). The participants at the conference recognized that:

1. The Himalayan range is a unique chain of mountains with fragile ecosystems and high endemic, rare and endangered species of wild flora and fauna that fulfil basic daily needs for millions of people living in mountains and plains.
2. These mountain ecosystems are largely neglected and are greatly threatened by human pressure.
3. Exploration of flora and fauna and their habitats and mechanisms for maintenance of biological diversity are inadequate at present.
4. Degradation and loss of biological diversity are at high levels.
5. Appropriate approaches needed to address these issues are lacking, but recent developments (e.g. large-scale conservation) appear positive.
6. Traditional practices (forestry, agriculture) and indigenous technology are disappearing.
7. There is a lack of coordination and communication among scientists and a lack of partnership among scientists, planners and managers.
8. A comprehensive Red Data Book is lacking.

9. There is a need for habitat mapping using geographic information systems and global positioning system techniques.
10. There is a lack of appropriate teaching curricula and infrastructure and research capabilities in the area of biotechnology to assign and use biodiversity for the betterment of society.

As a result, the conference passed a series of resolutions in the Kathmandu Declaration of the International Conference on Himalayan Biodiversity (ICHB-2003). In considering the mandate of the ICHB-2003, as well as the ways in which governments and local, national and regional/global level organizations could help achieve a better understanding of biological diversity and its related issues and greater cooperation in ensuring the sustainable development and poverty alleviation of Himalayan regions, the International Centre for Himalayan Biodiversity (ICHB) was created by the Himalayan Resources Institute (HIRI) in close coordination, collaboration and cooperation with institutions and individuals working in education, research and training in the field of conservation and sustainable use of biological diversity supporting Himalayan people in their search for sustainable development. The centre will run as an autonomous project of HIRI.

The centre is committed to attracting students from Himalayan countries who will play leadership roles in future conservation efforts, as well as graduate students from Nepal and abroad seeking expertise in Himalayan biodiversity, systematics and conservation biology. Students associated with the centre study both the Himalayan and tropical ecosystems with particular strengths in Himalayan plant-herbivore dynamics, population biology and conservation of birds in the Himalayas, ecology of forest fragments, systematics of flowering plants, evolution of genes and genomes, population genetics of Himalayan and tropical flora and fauna. The centre in future will not only maintain state-of-the-art equipment, laboratories and Himalayan greenhouses to conduct biochemical, molecular, ecophysiological and ecological research, but will also develop research and international training programmes and activities throughout the Hindu Kush-Himalayan (HKH) and other mountain countries in the world.

The centre's major programmes and activities include the following aspects.

The centre will:

- actively establish an information management system with the support of the various national and international organizations to meet the needs of non-governmental, rural and indigenous organizations and individuals working on biodiversity conservation in both the developed and developing countries;
- store and plot information about geographical areas and record or attach area attributes such as species' distribution, habitats, management plans, surveys and reports;
- keep track of information on indigenous peoples, cultures and ethnic groups;
- catalogue scientific and traditional knowledge of plants and animals – species distribution, references to source materials, bibliographies, surveys, taxonomy, research, management, protective status and experts;
- publish and disseminate a newsletter of Himalayan biodiversity;
- publish a yearly International Journal of Himalayan Heritage;
- organize regular international training courses, workshops, seminars, conferences and congresses on Himalayan biodiversity;
- develop and maintain a regional and international network for future cooperation, collaboration and coordination on Himalayan biodiversity;
- develop and maintain the biodiversity Web site.

In this way, the centre will maximize the impact on "Himalayan biodiversity" by bringing together all stakeholders in a common forum to exchange expertise.

**For more information, please contact:**
**Ram Bhandari, Coordinator,**
**International Centre for Himalayan Biodiversity, ICHB Secretariat,**
**Himalayan Resources Institute,**
**GPO Box 13880, Kathmandu, Nepal.**
**Fax: +977 1 4484328;**
**e-mail: hirinepal@mail.com.np *or***
**hirinepal@yahoo.com** ●

***You will find something more in woods than in books. Trees and stones will teach you that which you can never learn from masters.***

**Saint Bernard**
**(1090–1153)**

# RECENT EVENTS

## TREASURES OF THE CARIBBEAN

**LONDON, UNITED KINGDOM**
**6–7 APRIL 2003**

The Caribbean stretches along the humid coasts of nine Latin American countries to the tip of Florida. The extraordinary biodiversity of the ecosystems of the 20 or more nations of the "Land of the Caribs" offers an incredible wealth of medicinal and aromatic plants, many of them little known in Europe.

Equally diverse are Caribbean culture, religion and economy. The Caribs followed the Arawaks, both bringing plants, medicines and implements from their native lands along the Amazon. European influence arrived with Columbus in 1492, paving the way for a continued exchange of trade, people and technology with the newly discovered "West Indies".

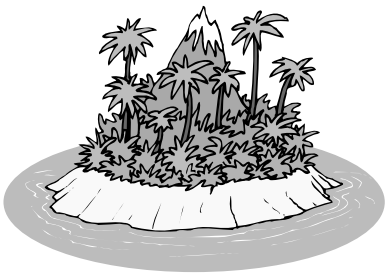
Every wave of newcomers brought their own traditional medicines and sacred plants, which also had to adapt to the special conditions of their new environments. Over the centuries, Caribbean herbs and spices have thus often developed differing characteristics to botanically identical plants grown in other parts of the world.

"Treasures of the Caribbean" was one of the first attempts to promote Caribbean herbal products on the European market. The special exhibition provided information on some of the Caribbean's most important medicinal plants and their uses and was prepared with contributions from nine leading herbal companies from the region. The exhibition included product samples and technical information on many of the Caribbean's most important herbal products as well as material on its herbal medicine and botanical heritage. Some of the products included in the exhibition, such as *Aloe vera* and nutmeg, are well known. Others, such as Santa Maria, quassia and fitweed, are relative newcomers to Europe. The exhibition and accompanying poster formed part of the awareness campaign to highlight the importance of the Caribbean as a potential source for new plant-based materials and natural remedies.

Treasures of the Caribbean was designed by the British European Design Group (www.bedg.org) and organized by Denzil Phillips International (www.denzil.com), CDE associate consultant for pharmaceuticals.

The companies represented come from Trinidad and Tobago, Saint Lucia, Grenada, Saint Vincent and the Grenadines, Barbados, Belize and Jamaica. They have recently formed the Caribbean Herbal Products Association.

**For more information, please contact: Denzil Phillips International, CDE Associate Consultant Pharmaceuticals, 25 Stanmore Gardens, Richmond, Surrey TW9 2HN, UK.**
**Fax: +44 20 89482673;**
**e-mail: denzil@denzil.com;**
**www.denzil.com;**
**www.naturalproducts.co.uk *or* www.caribbeanherbs.net**



## INVOLVING HARVESTERS IN INVENTORYING AND MONITORING OF NON-TIMBER FOREST PRODUCTS

**PORTLAND, OREGON, USA**
**4 SEPTEMBER 2003**

This participatory workshop was built around small group activities and interactive discussions on: a) current inventory and monitoring efforts of NTFPs; b) potential barriers to including harvesters in inventory and monitoring and how to overcome them; and c) participants' recommendations on the design and implementation of a pilot programme that would involve harvesters in inventory and monitoring.

This workshop was part of a national study funded by the National Commission on Science for Sustainable Forestry (www.ncssf.org).

The project's goal is to assess the relationships between forest management practices, NTFPs and biodiversity in the United States.

**For more information please contact: Katie Lynch, Institute for Culture and Ecology, PO Box 6688, Portland OR 97228, USA.**
**E-mail: ktlynch@ifcae.org;**
**www.ifcae.org *or* www.ifcae.org/ntfp/**

## INTERNATIONAL CONFERENCE ON BAMBOO RESOURCE UTILIZATION AND PROCESSING TECHNOLOGY

**YIYANG, CHINA**
**8–10 SEPTEMBER 2003**

**For more information, please contact: The Bureau of Scientific and Technical Science and Technology of Yiyang City, No. 31, South Kangfu Road, Yiyang City, Hunan Province, China 413000.**
**E-mail: iyinfo@mail.hnst.gov.cn *or* hhuang@cs.hn.cn**

## RECENT TRENDS IN PHYTOMEDICINE AND OTHER ALTERNATIVE THERAPIES FOR HUMAN WELFARE – GLOBAL SUMMIT ON MEDICINAL PLANTS (GSMP)

**MAURITIUS**
**25–30 SEPTEMBER 2003**

**For more information, please contact: Dr Anita Menon, Organizing Secretary, Global Summit on Medicinal Plants, c/o Century Foundation, No. 35, 3rd Cross Road, Vignannagar, Malleshpalya, Bangalore 560 075, India.**
**www.cenfound.org/global/global.html**

# RECENT EVENTS

## THE 4TH CHINA NATIONAL BAMBOO CULTURE FESTIVAL

**XIAN NING, CHINA**
**9–11 OCTOBER 2003**

This meeting was organized by the State Forestry Administration of China, the Hubei Provincial Government and the International Network for Bamboo and Rattan (INBAR). The co-organizers were the China Bamboo Industry Association and the Forestry Bureau of Hubei Province, Government of Xian Ning.

An international training workshop on bamboo furniture processing was held immediately after the festival and showed the innovative Chinese products that are made from bamboo – from furniture through panelling and flooring to handicrafts and edible shoots.

INBAR held a one-day seminar on the utilization of bamboo during the festival.

**For more information, please contact:**
**Fu Jinhe, Ph.D., Program Officer, International Network for Bamboo and Rattan, Beijing 100101-80, China.**
**Fax: +86 10 64956983;**
**e-mail: jfu@inbar.int**

## SYMPOSIUM ON INDUSTRIAL LEADERSHIP FOR THE PRESERVATION OF MEDICINAL AND AROMATIC PLANTS

**PHILADELPHIA, USA**
**14–15 OCTOBER 2003**

This symposium explored supply, demand and natural inventory issues facing the medicinal and aromatic plants (MAP) industry and laid the foundation for addressing sustainability, environmental and human rights issues on an industry-wide basis and determined appropriate models. The symposium demonstrated that models for sustainability already exist and illustrated how much of the MAP supply comes from supply chains that are not sustainable or that still need assistance to make the transition to full sustainability.

The symposium was organized by members of the Medicinal Plant Working Group, which is part of the Plant Conservation Alliance, a consortium of ten federal agencies and more than 145 non-federal cooperators working collectively to prevent plant extinction and to encourage natural habitat restoration.

**For more information, please contact:**
**Natasha Hall, AHPA, 8484 Georgia, Avenue, Suite 370, Silver Spring, MD 20910, USA;**
***or***
**Lori Diamond, Aveda Corporation.**
**E-mail: ldiamond@aveda.com;**
**www.plantconservation.org/mpwgconference/ or www.nps.gov/plants/medicinal/index.htm**

## NATURAL FORESTS IN THE TEMPERATE ZONE OF EUROPE – VALUES AND UTILIZATION

**RAKHIV, TRANSCARPATHIA (UKRAINE)**
**14–18 OCTOBER 2003**

The objectives of the conference were to:

- review the status quo and the state of knowledge about natural (old growth) forests in the temperate zone of Europe;
- show the value of natural forests from different points of view and to analyse conflicting interests and aims on a local, national and international level;
- assess the economic potential of natural forests and forest reserves;
- intensify the international and interdisciplinary cooperation in research on natural forests;
- promote and support the long-term protection and conservation of old-growth forests.

**For more information, please contact:**
**Brigitte Commarmot, Swiss Federal Research Institute, Zürcherstrasse 111, CH-8903 Birmensdorf, Switzerland.**
**Fax: +41 1 7392215;**
**e-mail: rakhiv_2003@wsl.ch;**
**www.wsl.ch/forest/waldman/rakhiv_2003/;**
***or***
**Dr Fedir D. Hamor, Carpathian Biosphere Reserve, PO Box 8, UA-90600 Rakhiv, Zakarpatska Oblast, Ukraine.**
**Fax: +380 3132 22054;**
**e-mail: cbr@rakhiv.ukrtel.net**

## NON-TIMBER FOREST PRODUCTS CONFERENCE: WORKING WITH ALL THE FOREST

**DUNCAN, BC, CANADA**
**4 AND 5 NOVEMBER 2003**

Subjects covered included:

- What is happening with NTFPs in Canada?
- Potential employment and business opportunities
- Information on how NTFPs can be used
- New ways of looking at the forest as a whole ecosystem
- Reclaiming traditional practices through NTFPs

**For more information, please contact:**
**Stella Johnny, NTFP Coordinator, Cowichan Tribes, 5760 Allenby Road, Duncan, BC V9L 5J1, Canada.**
**Fax: +1 250 7481233.**

# RECENT EVENTS

## MONITORING AND INDICATORS OF FOREST BIODIVERSITY – FROM IDEAS TO OPERATIONALITY

**FLORENCE, ITALY**
**12–15 NOVEMBER 2003**

This international conference was arranged by IUFRO, together with its collaborators. The conference had four main themes:

1. Validation and further development of indicators of forest biological diversity.
2. Pan-European Forest stratification/Forest types for assessing biological diversity.
3. Pressures on forest biodiversity and causes for biodiversity loss in European forests.
4. Emerging user needs and creating a dialogue for successful implementation.

**For more information, please contact:**
**Ms Brita Pajari, European Forest Institute, Torikatu 34, FIN-80100 Joensuu, Finland.**
**Fax: +358 13 134393;**
**e-mail: brita.pajari@efi.fi;**
**www.efi.fi/events/2003**

## WORLD HERBO EXPO 2004

**BHOPAL, MADHYA PRADESH, INDIA**
**12–14 JANUARY 2004**

The World Herbo Expo 2004 was the first of its kind and was an attempt towards the eradication of poverty from India through the utilization of the US$62 billion market for botanical medicines. The World Herbo Expo 2004 was sponsored by the Ministry of Tribal Affairs, the Ministry of Environment and Forests and ISMH (Ministry of Health and Family Welfare, Medicinal Plants Board), Government of India.

The aims of the World Herbo Expo 2004 were the development of commercial and novelty products that will have high value added, so that rural communities achieve sustainable economic growth through market development. These biodiversity products have a high potential to offer realistic gains and the World Herbo Expo 2004 explored new investment and trade opportunities for biodiversity-friendly products to benefit the rural poor in India.

**For more information, please contact:**
**Dr R. Sugandhi, President, People For Animals, "Vasundhara Bhawan", E-4 Patel Nagar, Bhopal 462021, M.P., India.**
**E-mail: sugandh_09@satyam.net.in;**
**www.thegreenearth.org**

## REGIONAL CONFERENCE ON SUSTAINABLE DEVELOPMENT OF RATTAN IN ASIA

**LOS BAÑOS, THE PHILIPPINES**
**21–23 JANUARY 2004**

The emergent pressure on the ecosystem and the environment brought about by deforestation and increasing dependence on timber has been influential in the shift towards NTFPs. Rattan is second only to timber in many ASEAN countries in economic importance. The significance of NTFPs as a source of livelihood and capital inputs is now being realized.

**For more information, please contact:**
**Mr Celso P. Diaz, Director, ERDB, Overall Project Coordinator, ITTO Pre-Project, College, Laguna 4031, the Philippines.**
**Fax: +63 49 5363481/5362850;**
**e-mail: itto_rattan@yahoo.com;**
**opc_rattan@hotmail.com *or***
**erdbodir@laguna.net;**
**www.erdb.laguna.net**
[*Please see also under News and Notes for more information on Rattan.*]

## BORNEAN BIODIVERSITY AND ECOSYSTEM CONSERVATION INTERNATIONAL CONFERENCE 2004

**KOTA KINABALU, MALAYSIA**
**23–25 FEBRUARY 2004**

This conference was organized by the Bornean Biodiversity and Ecosystems Conservation Programme and had for its main theme "Biodiversity Conservation: Now or Never".

**For more information, please contact:**
**Ms Kertijah Abd. Kadir, BBEC IC 2004, Science and Technology Unit, 7th Floor, Block B, Wisma MUIS, 88100 Kota Kinabalu, Sabah, Malaysia.**
**Fax: +60 88 249410;**
**e-mail: bbecic_2004@hotmail.com *or***
**Kertijah.AbdKadir@sabah.gov.my;**
**www.bbec.sabah.gov.my/announcement.htm**

## VII WORLD BAMBOO CONGRESS

**NEW DELHI, INDIA**
**28 FEBRUARY–4 MARCH 2004**

The seventh World Bamboo Congress convened under the theme "Bamboo for Development: Prosperity for People and the Environment".

**For more information, please contact:**
**Congress Secretariat, B-66 (Basement), Shivalik, Malviya Nagar, New Delhi, India.**
**Fax: +91 11 26163085;**
**e-mail: dch@mantraonline.com;**
**www.worldbamboo.org** ●

# FORTHCOMING EVENTS

## PEOPLE IN PARKS: BEYOND THE DEBATE

**NEW HAVEN, USA**
**2–3 APRIL 2004**

**Achieving conservation in human-inhabited protected areas**

The debate over people in parks has been a fiery one, yet one thing has become clear: human-inhabited protected areas (HIPAs) are a reality of the conservation landscape. Protected area managers and policy-makers acknowledge that areas of high conservation value are already a home and subsistence base for local communities, and are attempting to incorporate these communities in conservation planning. The challenge that remains is how to achieve conservation in HIPAs.

Although formally HIPAs are a relatively new phenomenon, some preliminary conclusions about what works and what does not can now be drawn. Major efforts to integrate communities within protected areas have been under way for the last decade, providing time for reflection and analysis of empirical data. Other protected areas that incorporate local community participation may also prove highly instructive for identifying the effective elements to conservation in HIPAs.

The Yale Chapter of the International Society of Tropical Foresters will convene all sides of the debate to identify constructive lessons in the effort to create human-inhabited protected areas of lasting conservation value. Social and natural scientists, resource managers, policy-makers, community leaders and other interested parties will come together to share their experiences in dealing with this challenge.

**For more information, please contact: Yale ISTF Conference, c/o Tropical Resource Institute, Yale School of Forestry and Environmental Studies, 210 Prospect Street, New Haven, CT 06511, USA.**
**E-mail: istf@yale.edu;**
**www.yale.edu/istf/**

## MANAGEMENT OF TROPICAL DRY FOREST WOODLANDS AND SAVANNAS: ASSESSMENT, SILVICULTURE, SCENARIOS

**BRASILIA, BRAZIL**
**12–14 APRIL 2004**

**For more information, please contact: Prof. Dr José Imaña Encinas, University of Brasilia, Forestry Department, CP 04357, 70919-970, Brasilia, DF, Brazil.**
**Fax: +55 61 3470631;**
**e-mail: iufro@unb.br**

## INTERNATIONAL WORKSHOP ON SOLITARY BEES AND THEIR ROLE IN POLLINATION

**CEARÁ, BRAZIL**
**26–29 APRIL 2004**

The workshop is promoted by the Brazilian Pollinators Initiative and organized by the Universidade Federal do Ceará, with the support of the Brazilian Ministry of Environment and the Brazilian Council for Scientific and Technological Development.

The purpose of the workshop is to update knowledge on solitary bees, especially their use for crop pollination. Subjects such as rearing, building up population techniques, standardized methodologies, losses of species diversity, population declining and management practices, assessment of the economic value of their pollination services and the economic impact of the decline of pollination services will be covered and discussed.

**For more information, please contact: Breno M. Freitas, Organizing Committee, CP 12168 Campus do Pici, 60.021-970 Fortaleza, CE, Brazil.**
**E-mail: freitas@ufc.br;**
**www.solitarybees.ufc.br**

## 2ND INTERNATIONAL SYMPOSIUM ON GENDER AND FORESTRY: CHALLENGES TO SUSTAINABLE LIVELIHOODS AND FORESTRY MANAGEMENT

**ARUSHA, UNITED REPUBLIC OF TANZANIA**
**1–10 AUGUST 2004**

The conference is being organized by the Gender and Forestry Research Group of International Union of Forest Research Organizations (IUFRO), in collaboration with ENVIROCARE, University of Dar-es-Salaam, Sokoine University, Morogoro.

The aim of the symposium is to identify areas in which women and men have access to forest resources in the effort of improving the livelihoods of resource-poor people and sustainable forestry management locally and globally. The symposium focuses on such themes as women and forestry, gender, poverty and sustainable development, forest resource utilization and income-generating activities for local people, ideology, religion and environmental responsibility.

The objectives include:

- To identify non-wood forest products for medicine and food and see how best women can use such resources for poverty reduction without damaging the environment.
- To address forestry gender issues of national, regional and global importance.
- To promote transparent multistakeholder verification of compliance with forestry management standards that protect the livelihoods of the poor and vulnerable groups such as women.

# FORTHCOMING EVENTS

- To discuss the implementation of national, regional and global laws, conventions and agreements for the sustainable management of forests.
- To enhance women's support for forestry ownership, control and rights of use of forests and sharing of benefits.

**For more information, please contact: Prof. Elizabeth Ardayfio-Schandorf, Chair, Technical Committee, Department of Geography and Resource Development, University of Ghana, Legon, Accra, Ghana. E-mail: ardayfel@ug.edu.gh; www.metla.fi/org/nmh/gender-symposium-2003-1ann.pdf**

## INTERNATIONAL CONFERENCE ON REGENERATING MOUNTAIN FORESTS

**KLOSTER SEEON, BAVARIA, GERMANY**
**12–16 SEPTEMBER 2004**

**For more information, please contact: Prof. Dr R. Mosandl, Lehrstuhl für Waldbau und Forsteinrichtung, RMF 2004, Am Hochanger 13, 85354 Freising, Germany. Fax: +49 8161 714616; e-mail: rmf2004@wbfe.forst. tu-muenchen.de; www.forst.tu-muenchen.de/events/rmf2004/**

## MONITORING SCIENCE AND TECHNOLOGY SYMPOSIUM: UNIFYING KNOWLEDGE FOR SUSTAINABILITY IN THE WESTERN HEMISPHERE

**DENVER, COLORADO, USA**
**20–24 SEPTEMBER 2004**

Efforts of natural resource professionals throughout the Western Hemisphere in the twentieth century have led to a number of revelations regarding the way in which human beings interact with the natural world and how to (and how not to) manage resources sustainably. By sustainability, we mean to leave future generations with as many management and utilization options as the current generation enjoys.

The twenty-first century is being marked by a number of converging scientific, technological and societal factors that advance the possibility of improved concurrent sustainability of natural resources and human institutions. These factors provide the principles upon which this symposium is organized.

**For more information, please contact: Dr Sidney Draggan, Senior Science and Science Policy Advisor, Immediate Office of the Assistant Administrator for Research and Development, US Environmental Protection Agency, Ariel Rios Building, Mail Code 8101R, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, USA. Fax: +1 202 5652431; e-mail: draggan.sidney@epa.gov; www.monitoringsymposium.com**

## MULTIPURPOSE TREES IN THE TROPICS: ASSESSMENT, GROWTH AND MANAGEMENT

**JODHPUR, INDIA**
**22–25 NOVEMBER 2004**

The Arid Forest Research Institute (Jodhpur, India), in collaboration with the International Union of Forest Research Organizations (IUFRO) Divisions 1, 2 and 4, is organizing this international conference. Although the meeting will deal primarily with tropical and subtropical tree species, the organizers are very interested in experiences from non-tropical regions in relation to assessment and management of tree species for multiple products (in particular non-timber forest products).

**For more information, please contact: Dr V.P. Tewari (Forest Resource Management and Economics Division, Arid Forest Research Institute, PO Krishi Mandi, New Pali Road, Jodhpur 342005, India. Fax: +91 291 2722764; e-mail: vptewari@afri.res.in *or* vptewari@yahoo.com; www.afri.res.in/iufroconf2004/index.htm**

## 17TH COMMONWEALTH FORESTRY CONFERENCE: FORESTRY'S CONTRIBUTION TO POVERTY REDUCTION

**COLOMBO, SRI LANKA**
**28 FEBRUARY–5 MARCH 2005**

**For more information, please contact: Libby Jones, Secretary, Standing Committee on Commonwealth Forestry, Forestry Commission, United Kingdom. Fax: +44 131 3164344; e-mail: forlib@sltnet.lk *or* libby.jones@forestry.gsi.gov.uk**

## FORESTS IN THE BALANCE: LINKING TRADITION AND TECHNOLOGY – XXII IUFRO WORLD CONGRESS

**BRISBANE, AUSTRALIA**
**8–13 AUGUST 2005**

**For more information, please contact: Dr Russell Haines, Queensland Forestry Research Institute, PO Box 631, Indooroopilly 4068, Australia. Fax: +61 7 38969628; e-mail: hainesr@qfri1.se2.dpi.qld.gov.au; http://iufro.boku.ac.at** ●

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**Yadav, M.M., Vijay Kumar, C.V.R.S. & Mishra, M.** 2003. *Research study on wood craft and wood carving Industry at Bastar (Chattisgarh) and Jodhpur in Rajasthan*. IIFM-funded research project. (Status: ongoing)

**Yadav, M.M., Sing, R.K., Vijay Kumar, C.V.R.S. & Mishra, M.** 2003. *Promotion of medicinal plants marketing: developing market information system (MIS), market networks and policy framework*. Project sponsored by the National Medicinal Plant Board, New Delhi.

**Zhou JiaJu, Xie GuiRong, Yan XinJian & Milne, G.W.A.** 2002. *Traditional Chinese medicines: molecular structures, natural sources and applications*. 2nd ed. xxvii + 1395 pp. Aldershot, UK, Ashgate Publishing Ltd.

**Zuidema, P.A.** 2003. *Ecology and management of the Brazil nut tree (Bertholletia excelsa)*. PROMAB Scientific Series 6. Bolivia/the Netherlands, PROMAB. 112 pp. ISBN 90-393-3390-4. (For more information, please contact: Dr P.A. Zuidema, Department of Plant Ecology/Prince Bernhard Centre, Faculty of Biology, Utrecht University, PO Box 80084, 3508 TB Utrecht, the Netherlands; e-mail: P.A.Zuidema@bio.uu.nl; www.bio.uu.nl/pbc/ or www.bio.uu.nl/~boev/ or www.promab.org)

# PUBLICATIONS OF INTEREST

## NEW PUBLICATIONS IN THE FAO NON-WOOD FOREST PRODUCTS SERIES

### *NO. 16. RATTAN GLOSSARY AND COMPENDIUM GLOSSARY WITH EMPHASIS ON AFRICA*


**This volume contains a glossary on terms and terminologies used in the rattan sector. The glossary is structured according to the following major sections: rattan resources (biology, management, plantations, harvesting); rattan as a raw material (transport, storage, grading and post-harvest handling, rattan trade); rattan processing (for local artisanal use and for industrial-level furniture manufacture); and trade in raw rattan, furniture and other products. In order to give special emphasis to the emerging rattan sector in Africa, a separate compilation of terms specifically focusing on those used in Africa is provided.**

### *PUBLICATIONS IN FAO'S NWFP SERIES*

**No. 1. Flavours and fragrances of plant origin**
**No. 2. Gum naval stores – turpentine and rosin from pine resin**
**No. 3. Report of the International Expert Consultation on Non-Wood Forest Products**
**No. 4. Natural colourants and dyestuffs**
**No. 5. Edible nuts**
**No. 6. Gums, resins and latexes of plant origin**
**No. 7. Non-wood forest products for rural income and sustainable forestry**
**No. 8. Trade restrictions affecting international trade in non-wood forest products**
**No. 9. Domestication and commercialization of non-timber forest products in agroforestry**
**No. 10. Non-wood forest products – tropical palms**
**No. 11. Medicinal plants conservation and health care**
**No. 12. Non-wood forest products from conifers**
**No. 13. Resource assessment of non-wood forest products. Experience and biometric principles/Évaluation des ressources en produits forestiers non ligneux. Expérience et principes de biométrie/Evaluación de los recursos de productos forestales no madereros. Experiencia y principios biométricos.**
**No. 14. RATTAN. Current research issues and prospects for conservation and sustainable development**
**No. 15. Non-wood forest products from temperate broad-leaved trees**
**No. 16. Rattan glossary and compendium glossary with emphasisi on Africa.**

**To purchase copies of any of the publications in this series, please contact: Sales and Marketing Group, Information Division, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy. Fax: +39 06 5705 3360; e-mail: publications-sales@fao.org**

## NEW WORKING PAPERS FROM THE FAO NWFP PROGRAMME

The following new working papers have been produced by FAO's Non-Wood Forest Products Programme:

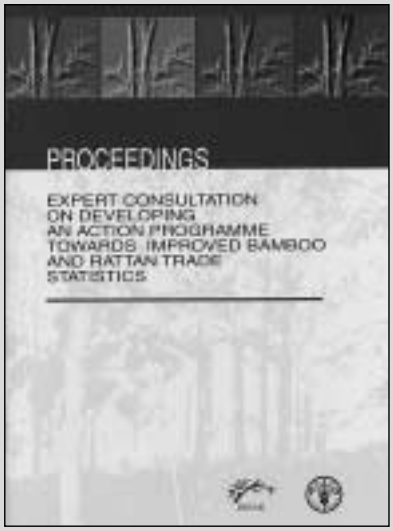
- FOPW/03/4 Expert Meeting for development on inventory techniques to assess non-wood forest product resources in African ACP countries. Lusaka, Zambia. 15–17 October 2001.
- FOPW/03/5 Réunion des experts des pays francophones d'Afrique sur le développement des techniques pour l'évaluation des produits forestiers non ligneux. Yaoundé, Cameroun. 15–17 février 2002.
- FOPW/03/6 Summary of six case study reports as a contribution to development of practical techniques to assess non-wood forest product resources.
- FOPP/03/1 La collecte et l'analyse des données statistiques sur les produits forestiers non ligneux. Une étude pilote à Madagascar. [*Please see under Madagascar in Country Compass for more information.*]

Electronic versions of these publications are available at the NWFP home page: www.fao.org/forestry/foris/webview/fop/index.jsp?siteId=2301&langId=1&geoId=0&sitetreeId=13473

**Hard copies of these working documents are available free of charge from: Non-Wood Forest Products Programme, Forest Products and Economics Division, Forestry Department, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy. Fax: +39 0657055137; e-mail: non-wood-news@fao.org**

# PUBLICATIONS OF INTEREST

## *MEETING REPORT: EXPERT CONSULTATION ON DEVELOPING AN ACTION PROGRAMME TOWARDS IMPROVED BAMBOO AND RATTAN TRADE STATISTICS*




**As part of its overall mandate to collate and improve global statistics on production and trade in forest products, and particularly to improve methodologies and country reporting mechanisms on NWFPs, FAO together with the International Network for Bamboo and Rattan (INBAR) organized the Expert Consultation on Developing an Action Programme towards Improved Bamboo and Rattan Trade Statistics at its Headquarters in Rome from 5 to 6 December 2002. The consultation was organized in close collaboration with relevant international agencies: the United Nations Statistical Division (New-York); the World Customs Organization (WCO, Brussels); the European Commission – Taxation and Customs Directorate (Brussels); customs agencies of member countries such as the Customs General Administration of China (Beijing); and staff from the Economic and Social Department of FAO.**

**The purpose of the expert consultation was to: i) elaborate and agree on a proposed set of new Harmonized System trade codes for bamboo and rattan products; and ii) elaborate a plan of action for improving bamboo and rattan statistics at the national and global levels, with a programme of work and with the roles of the different agencies discussed and agreed upon during the meeting.**

**The meeting focused on bamboo and rattan products, since they can be considered among the most important NWFPs at the global level regarding production and trade values, and involve in one way or another almost all countries worldwide. The meeting further focused on the WCO Harmonized System, as it is now the most widely used product classification and coding system for traded products. The intention was to learn from the experiences gained by improving bamboo and rattan trade statistics in order to apply these lessons gradually on other major groups of NWFPs that are not yet adequately covered by the national and international product classification and coding systems used at present.**

**The meeting resulted in the elaboration and endorsement of a set of new Harmonized System codes for 17 different bamboo and rattan products (currently only two codes exist). For each code a set of required actions and timetables was suggested for submission to WCO.**

**This proposal was submitted by INBAR, in collaboration with FAO and with the support of national customs agencies, to the WCO Review Subcommittee Meeting of September 2003. [*See News and Notes for more information on this process.*]**

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**For more information, please contact: Paul.Vantomee@fao.org *or* non-wood-news@fao.org**
**The report can be downloaded from: www.fao.org/forestry/FOP/FOPw/nwfp/new/doc/rep.htm**

## *STRATEGIE NATIONALE DE RELANCE DE LA PRODUCTION ET DE LA COMMERCIALISATION DE LA GOMME ARABIQUE AU NIGER*


**Dans le cadre du Projet «Appui à la Relance de la Production et de la Commercialisation de la Gomme Arabique» (TCP/NER/0066), la FAO a aidé le Gouvernement nigérien dans l'élaboration d'une stratégie nationale afin d'améliorer et de renforcer le secteur national de la gomme arabique. Cette stratégie est basée sur les trois axes prioritaires:**

- **la création d'emplois et l'augmentation des revenus par une production soutenue d'une gomme de qualité;**
- **le développement et la gestion durable des ressources gommières par l'aménagement communautaire des gommeraies existantes et la création d'autres gommeraies villageoises;**
- **l'organisation et le renforcement des capacités de tous les acteurs de la filière gomme arabique à travers la mise en place et le financement des structures viables de production et de commercialisation de la gomme.**

# PUBLICATIONS OF INTEREST

**Le document, *Stratégie nationale de relance de la production et de la commercialisation de la gomme arabique au Niger*, est disponible sur le site Web de la FAO (www.fao.org/forestry/site/6367/en).**

**Pour plus d'information, contacter: Mme M.H. Semeda, Représentante de la FAO, BP 11246, Niamey, Niger. Télécopie: +227 724709; mél.: FAO-NER@field.fao.org; *ou* M. S. Walter, NWFP Programme, Forest Products and Economics Division, Forestry Department, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy. Fax: +39 0657055618; e-mail: Sven.Walter@fao.org [*See also* Non-Wood News 10 *for more information.*]**

## OTHER RECENT PUBLICATIONS

*Bamboo cookery book*

*Inspirations* is the world's first cookery book for bamboo shoots. It offers a host of fresh and imaginative cooking ideas using bamboo shoots. Price: US$36. www.inbar.int/publication/cookbook.htm

*Old historical texts*

Cornell University Library's Historical Agriculture Monographs contains an online collection of old forestry and agriculture documents. http://historical.library.cornell.edu/neh/

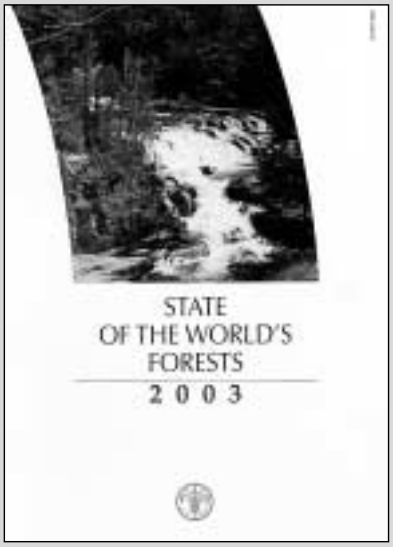
*Portugal botânico de A a Z plantas portuguesas e exóticas*

This book is an easy-to-use lexicon of Portuguese and Latin names of plants. It deals with more than 11 000 scientific and vernacular names of native and exotic plants from Portugal, Brazil, Angola, Mozambique, Cape Verde, Guinea Bissau, Sao Tome and Principe, former Portuguese states of India (Goa, Daman and Diu), Macao and Timor.

This is the first book written about this subject that has ever been published in Portugal. Besides having the Portuguese and Latin names, it also lists the family to which the plant belongs and the correct abbreviation of the author of the plant's name, following the recommended conventions on abbreviations for these authorities.

The authors of the lexicon are: Francisca Maria Fernandes and Luís Mendonça de Carvalho, both from the Beja Polytechnic Institute, Portugal (museu@esab.ipbeja.pt). The preface has been written by two eminent scientists: Prof. Dr David Mabberley (University of Leiden, the Netherlands and Royal Botanic Gardens, Sydney, Australia) and Prof. Dr Vernon Hilton Heywood (Emeritus Professor, University of Reading). The book is published by Lidel Edições Técnicas, Lisbon, Portugal (www.lidel.pt). The book has 365 pages and costs €25.

***STATE OF THE WORLD'S FORESTS 2003***




***State of the world's forests* reports every two years on the status of forests, recent major policy and institutional developments and key issues concerning the forest sector. This is the fifth edition of the publication, the purpose of which is to provide current and reliable information to policy-makers, foresters and other natural resource managers, academics, forest industry and civil society.**

**Copies are available from: FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy; or at: www.fao.org/DOCREP/005/Y7581E/y7581e00.htm**

*The Overstory book*

Available as a book or CD, *The overstory book* contains the first three years of The Overstory, revised, formatted and indexed: www.agroforestry.net/overstory/ovbook.html ●

# WEB SITES

The Web site of FAO's NWFP Programme has been completely updated and revamped and has a new URL: www.fao.org/forestry/foris/webview/fop/index.jsp?siteId=2301&langId=1
**Any comments are welcomed and can be sent to: non-wood-news@fao.org**

**Amazon**
Amazonlink.org, a Brazilian NGO based in the state of Acre, has developed a special section of its Web site focusing on local problems of biopiracy. The pages are available in Portuguese and English.
**www.amazonlink.org/biopiracy/index.htm**

**Anamed (Action for Natural Medicine)**
Anamed is a small independent NGO based in Germany that conducts training seminars in Natural Medicine. The seminars aim to equip both traditional healers and formal health workers in countries in Africa to use medicinal plants for health and healing.
**www.anamed.net**

**Association Technique Internationale des Bois Tropicaux**
**www.atibt.com**

**Bees for Development**
The Bees for Development Web site provides an insight into their work and activities. There is a possibility to download a complimentary copy of their journal.
**www.beesfordevelopment.org**

**Bugwood**
The Bugwood Network has more than 11 000 images and photographs of insect pests, invasive organisms, weeds, IPM images and other forestry images available online.
**www.bugwood.org**

**Cancer Plants**
This Web site is for those who are interested in sustainability of the world's natural medicine chest.
**www.cancerplants.com/**

**Center for Plant Conservation**
Comprehensive information about the United States' native, imperilled plants.
**www.centerforplantconservation.org**

**Chile: Red Chilena de Productos Forestales no Madereros**
**www.redpfm.cl**

**Community-Based Natural Resource Management Network (CBNRM Net)**
**www.cbnrm.net/index.html**

**Databases**
*ECOLEX*
ECOLEX is a database providing the most comprehensive, global source of information on environmental law.
**www.ecolex.org**

*FAOTERM*
FAOTERM, a terminological database covering FAO's specialized subjects in a multilingual format, has been redesigned and enhanced to give online users:
- faster access
- improved overall performance
- more user-friendly interface
- advanced search facilities
- filters by subject and categories
- an e-mail feedback system ensuring transparency and interaction between FAO and its users.

**www.fao.org/faoterm/default.htm**

*Gender and Sustainable Development Resource Directory*
This database places a focus on resources produced in the global South. Subjects include Agriculture, Fisheries and Forestry, Environment and Health.
**http://xel.stfx.ca/coady-library/intro.htm**

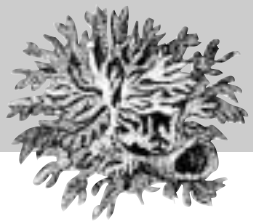
**Earth from the Air**
**www.earthfromtheair.com/**

**EarthwireUK**
**www.earthwire.org/uk**

**FAO Forestry Department's new sites**
*Genetically modified trees and biosecurity*
A new site has been linked in on the Forestry home page. It addresses the issues of genetically modified organisms from a forestry point of view and is available in English, French and Spanish.
**www.fao.org/biotech/sector5.asp**

*Environment and utilization*
Forest utilization is, of course, what Forestry is all about. On the golden path towards sustainable forest management, environmental aspects of all kinds of forestry must be taken into consideration. This site covers this subject in detail and offers much further reading.
**www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=3285&langId=1**

# WEB SITES



## FAO FORESTRY DATABASES

FAO has prepared a small database on sources of funding for activities in support of sustainable forest management. In response to the many positive comments we received on this pilot project, we have been working to expand this further and a much fuller version of the database is now available (www.fao.org/forestry/finance-sources).

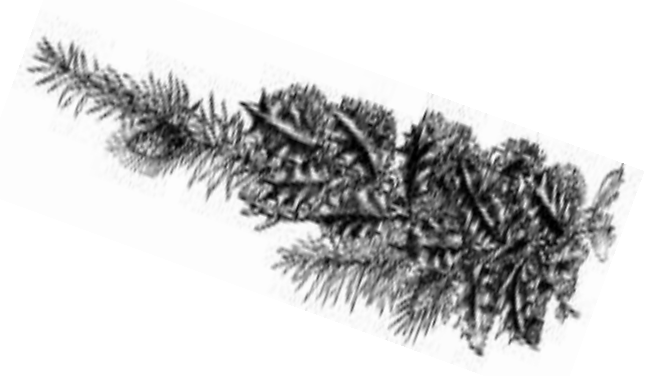
The database contains links to the Web pages of agencies that present clear guidelines and procedures for applying for their funds. The database can be queried by type of activity, country, type of applicant and the amount of funding required. In addition, in recognition of the digital divide, we have a facility to print-on-demand a complete database extraction for any country in the world and we will be disseminating some of these hard-copies to our partners in developing countries.

***Forest valuation database.*** Another area where FAO is frequently asked for advice is the subject of forest valuation. In response to this, we have created a small database of forest valuation studies, with about 30 examples each from Africa, Asia and Latin America (www.fao.org/forestry/valuation).

The database contains short summaries of each study and information such as the location of each study, the forest outputs valued, the valuation methodologies used and the value estimates produced in each study. The database is currently restricted to studies that can be obtained online in full and we have focused on developing countries. The database can be queried by country, type of output and valuation methodology used.

These databases will be updated periodically and FAO would be happy to receive comments, new information or updates to existing information on the databases. Any such information can be sent to Adrian Whiteman (adrian.whiteman@fao.org).

**For more information, please contact:**
**Adrian Whiteman, Senior Forestry Officer, Forest Economics Service, Forest Products and Economics Division, Forestry Department, FAO, Rome, Italy.**
**E-mail: adrian.whiteman@fao.org**



**Focus on Forests**
**www.focusonforests.org**

**Forest and Poverty Mapping in South Asia**
**www.wcmc.org.uk/forest/poverty/**

**Forestry and Land Use Programme, IIED**
The Forestry and Land Use Programme seeks to improve people's livelihoods from forest and land use on the basis of equity, efficiency and sustainability.
**www.iied.org/forestry/about.html**

**Forestry Images**
A joint venture by the US Forest Service and the University of Georgia, Forestry Images holds nearly 4 500 colour JPEG images of forest plants, insects, silvicultural practices, invasive organisms, and general natural scenes.
**www.forestryimages.org/**

**GenderNet**
This World Bank site summarizes knowledge and experience, provides gender statistics, and facilitates discussion on gender and development.
**www.worldbank.org/gender/index.htm**

**Global Trees Campaign**
A Global Tree Conservation Atlas will be one of the main outputs of the Global Trees Campaign. The Campaign is a partnership between Fauna & Flora International and UNEP-WCMC.
**www.globaltrees.org/**

**Geographic Aspects of Inequality and Poverty**
**http://wb.forumone.com/poverty/inequal/povmap/**

**Idealist.org**
Idealist.org is a portal for everyone interested in non-profit organizations and issues, non-profit careers, and volunteering. Idealist provides numerous services to the global community (almost all of them free of charge) in an effort to connect people, resources and non-profits around the world.
**www.idealist.org**

**Instrumentos institucionales para el desarrollo de dueños de pequeñas tierras forestales**
Este sitio presenta los resultados de un estudio que revisó las experiencias de integración horizontal y vertical que involucran dueños de pequeñas tierras forestales en el Brasil, Chile, Honduras, México y Nicaragua, y que adecuó instrumentos y metodologías disponibles en la literatura aplicable a la integración.
**www.iadb.org/en2/home-in.html**

**Manejo campesino de recursos naturales y productos forestales no maderables**
**www.manejoypfnm.org.mx**

# WEB SITES

**"Medicinal Plant Working Group" – Green Medicine**
**www.nps.gov/plants/medicinal/index.htm**

**Megadiverse – "The biologically richest countries in the world"**
The Link-Minded Group of Megadiverse Countries – Bolivia, Brazil, China, Costa Rica, Colombia, Ecuador, India, Indonesia, Kenya, Mexico, Malaysia, Peru, the Philippines, South Africa and Venezuela – operate a Web site about the group's work. The site is available In Spanish and English.
**www.megadiverse.org**

**Networks or newsletters**
*Revista Bosques Amazónicos Virtual*
Bosques amazónicos virtu@l, es una publicación quincenal de Bosques Tropicales S. R. Ltda.

**Para más información, dirigirse a:**
**Juan Mateluna Florián, Director, A.P. 556, Iquitos, Perú.**
**Fax: +51 65 223039;**
**correo electrónico: mateluf@terra.com.pe**

*Caucasus Environmental NGO Network*
The Caucasus Environmental NGO Network (CENN) is a voluntary effort of more than 6 000 members to foster regional cooperation by improving communication among environmental organizations in the Caucasus hotspot. Visitors to its Web site can subscribe to free daily news and monthly bulletins and find links to environmental organizations throughout the region.
**www.cenn.org/**

*Forest biometry, modelling and information sciences (FBMIS)*
FBMIS is a peer-reviewed Internet journal which provides free access to original research and review articles.
**www.fbmis.info/**

*Forestry and Society Newsletter*
**www.cfnetwork.com.cn**

*Forests-L*
The International Institute for Sustainable Development, providers of the *Earth Negotiations Bulletin*, in collaboration with the secretariat of the UN Forum on Forests, has created a new e-mail list for news and announcements related to forest policy issues. To sign up to Forests-L, go to:
**www.iisd.ca/email/subscribe.htm**

*RAinforest REport (RARE)*
*RARE*, a quarterly e-zine, packed with exciting rain forest news, reviews, expedition updates and student research opportunities.
**www.coralcay.org/news/rare.html**

**Red chilena del bambu**
**www.bambu.cl**

**SAMPDA (Samagra Adivasi Medicinal Plants Development Association)**
Herbal research, extension and education.
**www.sampda.org**

**Scirus**
A search engine for scientific information.
**www.scirus.com**

**Small Grants Programme for Operations to Promote Tropical Forests in Southeast Asia (SGP PTF)**
The SGP PTF aims to enable civil society organizations to implement forest-related projects in nine Asian countries, including the Philippines, Thailand and Viet Nam. Ii includes details on recent calls for proposals and application guidelines.
**www.sgpptf.org/**

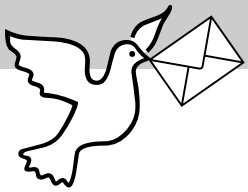
**Techno Tree Biology Dictionary**
**www.treedictionary.com**

**The Guiana Shield Initiative (GSI)**
**www.guianashield.org/ie/index.htm**

**Trees outside forests**
**www.fao.org/forestry/tof**

**Urban Forestry Forum**
**www.nufu.org.uk** ●

# READERS' RESPONSE



*The dissemination of our "family of NWFP information materials"* – Non-Wood News*, the NWFP-Digest-L and the publications in our NWFP series – is proving to be very successful and has resulted in our reprinting many of our publications. In addition, we received many messages of congratulations for our tenth anniversary edition (a selection of them is printed below). So, thank you to all our readers for their interest in our work and for being part of the NWFP network.*

Greetings from Kampala Uganda, East Africa. This message comes to appreciate the work you've done in the last ten years of the *Non-Wood News* information bulletin, and above all keeping me on your mailing list. May *Non-Wood News* grow from strength to strength and succeed in all its missions. (Evan Kalungi, Kampala, Uganda)

Thank you for many interesting issues we have been able to read in *Non-Wood News* during the ten years! (Tapani Tyynelä, Finland)

Hace poco, uno de mis colegas tuvo la magnífica idea de alcanzarme su última publicación correspondiente al 2003, y quedé gratamente sorprendido por la labor que Ustedes vienen haciendo y por la calidad de su publicación, y sobre todo por su especialización hacia los no maderables. (Alberto García Mauricio, Iquitos, Perú)

I would like to thank all of you for bringing out such a wonderful journal that I found extremely useful, informative, updating and attractive. I hope your efforts will have more and more success. (Ghada Abou Ammar, Damascus, Syrian Arab Republic)

***Request for assistance***

Rhynchophorus palmarum *and* Carapa guianensis
I am looking for information on:

- *Rhynchophorus palmarum*. The larvae of this insect are cooked with their own oil; these cooked larvae are consumed since it is said they have antibronchial properties. The larvae are known locally as suri. Oil is also obtained from these larvae. I am also looking for cooperation to investigate the possibility of their industrial use.
- the oil extraction of *Carapa guianensis* – especially the equipment needed for the extraction and marketing of the oil.

(If you can help, please contact: Victor Acosta Avila, Romulo Espinar 117, Iquitos, Loreto, Peru; e-mail: vicacost@yahoo.es)

*Bamboo cultivation and utilization awareness creation programme in Ghana*
To arrest the dwindling forest condition of Ghana and its associated environmental degradation, a reforestation programme which includes bamboo cultivation has been adopted. I would therefore be most grateful to have the following donations to help establish a bamboo nursery:

- Élite bamboo seeds and seedlings
- Educational materials on bamboo
- Films on bamboo cultivation and processing
- Equipment – mist systems, projectors etc. (both used and new)

(If you can help, please contact: Abraham A.A. Allotey, PO Box GP 3752, Accra, Ghana; e-mail: aaaallotey@yahoo.co.uk)

*Bamboo in Madagascar*
I am seeking information on bamboos in Madagascar. I can only find some scientific articles about bamboo in Madagascar, especially from Kew Botanical Gardens. Recent work about Malagasy bamboo has been carried out, especially by the taxonomist Soejatmi Dransfield, Kew Gardens. But what I am looking for is also information about the ethnobotanical value and economic uses of Malagasy bamboos.

Does anyone know about small- or large-scale bamboo plantations in Madagascar, about charcoaled bamboo, about the general bamboo market there, about bamboo species introductions to Madagascar, about master's or doctoral theses on Malagasy bamboos? (If you can help, please contact: Norbert Drese [Landscape Architect], Belgium; e-mail: norbert.drese@swing.be)

*Boreal foods*
I would like to take the opportunity to ask: What do you do with all those mushrooms? Indeed, what do you do with all NTFPs from the boreal?

At the Winnipeg meeting in 2002, a decision was taken to produce a Boreal Cookbook. I offered to collect recipes and compile the initial booklet. It would be wonderful to have it ready for the next biannual meeting in September 2004. I know there are a vast number of recipes. Please send recipe ideas to me. If you have any photos/illustrations or humorous stories relating to your experiences with boreal foods please send those too. (Feja Lesniewska at: info@brenweb.org) ●

***He that plants trees loves others beside himself.***

**Dr Thomas Fuller**
**(1654–1734)**

# Forest foods

Forests house an abundance of edible NWFPs, such as nuts, fruits, berries, mushrooms, leaves, herbs, spices and condiments, insects and bushmeat.
These forest foods have an important role in food security. NWFPs supplement the daily diet of rural communities and provide a wider variety of food types.

*PRINTED ON ECOLOGICAL PAPER*

**M/X--1--1/4/00/3000**