

non-wood

news

EDITORIAL

The editorial for this issue of Non-Wood News has been written by Sophie Grouwels, Forestry Officer in charge of the small-scale forest enterprise development programme.

The Millennium Development Goals commit most countries to reducing global poverty in half by 2015. Perhaps nowhere are the stakes higher for meeting this goal than in forest-dependent communities in tropical countries, where poverty tends to be more pervasive and deeper than in urban and more-favoured rural areas. According to the World Bank, approximately 90 percent of the poorest people rely on forests for subsistence and income. The development of small and medium forest enterprises (SMFEs) represents an opportunity for strengthening the livelihoods of these people and conserving the natural resource base through sustainable forest management and processing of timber and non-wood forest products (NWFPs). Local benefits from SMFE development may include wages and employment, profit-sharing, capital accumulation, cultural and political empowerment, investment in public goods, and increased conservation of forest ecosystems through long-term sustainable management.

Several new market trends favour the development of SMFEs, including increased tourism, providing expanding markets for handicrafts and ecotourism; specialized export markets, e.g. fair trade NWFPs and bio-ingredients; and growing specialized domestic and regional markets for NWFPs such as bamboo, rattan and palm hearts. In this issue, *Non-Wood News* has highlighted a variety of aspects related to this development. For example, one of the Special Features includes information on the marketing of traditional NWFPs, including various handicrafts. In addition, in the Products and Markets section, you will find articles on the fair trade of two specific NWFPs (shea butter and palm fronds), as well as information in the Products and Markets section on bamboo and rattan.

However, most SMFEs are not able to capture the benefits from these opportunities fully. They struggle to advance beyond the start-up stage of business development, exhibiting low levels of output, productivity, value added and profit. Overcoming these challenges requires concerted action and long-term investments among the various stakeholders, including SMFEs themselves, their business partners (processors and buyers) and service providers, as well as government agencies and non-governmental organizations (NGOs). One of the key constraints that

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SMFEs face has to do with isolation. They are isolated in various ways, not only from neighbouring enterprises with whom they might work for scale efficiencies and bargaining power, but also from potential buyers who would give them sales options, from financial and business development service providers who would help them with sustainability and upgrading and from decision-makers governing their forest access and use.

Forest Connect, an alliance launched in 2007, is dedicated to tackling this. Its overall goal is to avoid deforestation and reduce poverty by better linking sustainable small forest enterprises to each other, to markets, to service providers and to policy processes such as National Forest Programmes. In fact, across the different countries where Forest Connect operates there are signs that SMFEs can contribute – and are already contributing considerably – to local economies and the sustainable management of the forest, including NWFPs.



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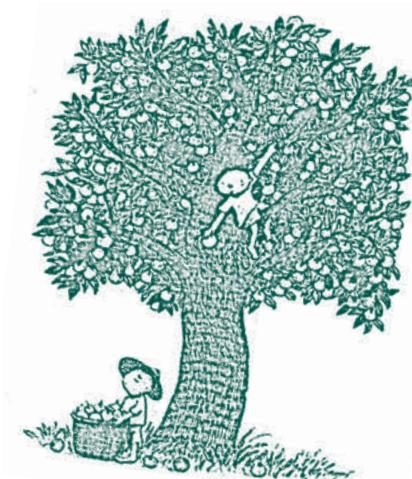
Non-wood forest products (NWFPs) are goods of biological origin other than wood, derived from forests, other wooded land and trees outside forests. Non-timber forest products (NTFPs), another term frequently used to cover this vast array of animal and plant products, also include small wood and fuelwood.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

COMMUNICATING RESEARCH FOR IMPACT AND ACCOUNTABILITY

What do we do with our research when it is complete? Publish the results in a peer-reviewed journal and knock off the donor report. Then begin anew – on to the next paying project. This well-entrenched model generally ignores communicating with governmental decision-makers as well as communities at the site of the research. The prevailing pattern creates a chasm between where knowledge is generated and where it is needed. Like logging and mining, such an extractive approach to research rarely leads to positive ecological or livelihood outcomes where the work was conducted.

Some of this stems from the fact that scientists are generally measured, and thus moulded, according to one overarching parameter – their publication record. Scientists are trained to produce science, and rewarded for making their findings available through international scientific journals. While the peer-review system is a cornerstone of modern science and critically important as an assurance of scientific quality, the present emphasis on quantity of publications may undermine quality, innovation and risk-taking in research. Critics contend that current incentive structures trigger performance anxiety, leading to short-cuts, reduced amount of time spent in field research, superficiality and stagnation in science.

In research involving forest resources, especially NWFPs, such trends are particularly disturbing. Why? One reason is that local people are often more knowledgeable about forest resources than scientists, and in-depth field research is necessary to understand complex management systems. Cultural practices are also linked with natural resource use, and the insights of forest-reliant people are fundamentally important to conservation and development. Furthermore, on an ethical level, what does it signify to take information and knowledge from struggling forest communities and not give back? Frustration with the lack of impact of research and the missing links between knowledge and action have led to calls for a more discerning analysis of how researchers communicate and disseminate their findings.



Disenchantment among donors, communities, conservationists and researchers

Researchers cite lack of time, funds and training as routine obstacles to sharing research. Communicating science to civil society in an accessible language is also considered damaging to one's professional reputation. Institutional incentives remain firm to engage in linear, top-down communication of results that, in turn, guarantees positive performance measurement in research and academia. Such a surfeit of publishing has made scant progress in ameliorating impoverishment, either of human communities or ecosystems. Such a wide gulf between knowledge and action has led to what some term a "biodiversity tragedy in progress".

An insightful study of 2 202 written texts relating to conservation and natural resource management over a 450-year period in Peru discovered that less than 1 percent was directed at lay people or students. Summarizing what the authors of the study find to be "dysfunction in the tropical literature", it is concluded that "written accounts of tropical biology and conservation reach a tiny fraction of their potential audience ...

One cannot hope for the advance of tropical conservation and science while shrugging one's shoulders at the vastly inefficient way tropical biologists generate and share information."

Today, rural communities are fatigued and donors disenchanted by the revolving door of projects without concrete results. In response, development practitioners, civil society organizations and scientists are questioning the "trickle-down and translate" models of research and

dissemination. Trickle down embodies a belief that communication is a hierarchic one-way process, with little or no input from the users of the research, whether these constitute the government, industry or community. New models of research examine not only with whom we share results, but also the process itself, with the goal of increasing equity along the chain from research design to dissemination. Participatory paradigms recognize the capacity of ordinary people to create knowledge – not only scientists, but also farmers, hunters and forest gatherers.

To improve the conservation and development outcomes of bioculturally related research, the links between culture, communication and natural resource use need to be better recognized. To begin with, researchers need to be forthright when proposing research topics. Have they been to the proposed site? Is the question of relevance local, national or regional? What outputs are planned? Who is the anticipated audience? What communication channels will be used to disseminate the research? Although these are rudimentary questions, researchers often lack the training and the communication skills needed to identify impact pathways and use them. Discussed below are some of the challenges and opportunities for improving communication and giving increased attention to culture in natural resource and NWFP-related research.

Training for relevance and accountability

First, the common practice of developing research questions and projects in areas geographically and conceptually distant from the site of research can result in studies of little relevance at the local level. As a result, conservation and development projects may serve limited and/or self-serving aims – a graduate degree, a publication or a project output. In addition frequently to having minimal local relevance, projects addressing the interface of people and natural resource use are often intrusive. Homes are entered without invitation, rounds of questions asked, incomes and diets pried into and communal areas entered and surveyed. After the last round of data entry has taken place, villagers are accustomed to glimpse researchers' backs as they leave with data-filled notebooks and household surveys. Where does accountability lie?

Significant gains have been made involving company–community partnerships regarding benefit sharing and prior informed consent. However, the intrusive nature of project teams and graduate students entering communities to conduct research has received less attention. Right now, thousands of researcher scientists, graduate students and project consultants are working within rural communities on natural resource-related issues. Of these, how many will leave anything of use behind?

Recently, the need to bridge the gulf between knowledge and action and to be more accountable to local people, policy-makers and civil society has been highlighted by students, academics and conservationists. Professors and students are calling for greater equity in research processes and products. To improve relationships between local communities and researchers, students will need improved training in equitable research processes that move beyond prior informed consent. When working closely with communities on issues of local relevance, consent to someone else's agenda is insufficient. Local people in the vicinity of research need to participate more fully in research design and agenda setting.

To achieve this, proposal conception and development in natural resource-related themes need attention. Timetables set by academic advisers or donors should not require researchers to submit fully fledged proposals prior to minimal understanding or even a visit to research sites. Initial drafts of project proposals involving local communities are better left as rough sketches. These can later be delineated in the field with local constituents, rather than be invented and belaboured far from the research site to meet institutional requirements or to appease bureaucratic mind-sets.

Shrinking amounts of field time need to expand. The recent tendency for field work to consist of a series of multistakeholder workshops or modelling seminars is no substitute for immersion in complex ecosystems and cultures. Fleeting field time can result in misleading analysis, leading to theoretical abstraction that can do more harm than good. Theories are built and tested upon empirical evidence. Students and researchers benefit from substantial time living in and among rural communities and the plants and animals they rely upon.



Culturally attuned research and communication

Communication was formerly viewed as a top-down, linear process, with knowledge conveyed by experts to the uninformed. Today, the flow of information is recognized as a complex, interactive, multidirectional exchange or "shared learning". Interactive communication is now conceived as a means to maximize the impact of research on development. New approaches to communication in the health sector, where lives are literally at stake, offer useful lessons. In the field of health care, uptake pathways are clearly defined and the need for interaction and dialogue with affected communities widely recognized. Researchers working in environmentally related fields have lagged behind but are also recognizing that more attention to communication, local knowledge systems and culture is needed.

Cultural practices and traditional knowledge systems have customarily remained unrecognized and/or underappreciated by natural resource scientists. When perceived by outsiders, cultures have often been belittled and the embedded beliefs, myths and rituals disparaged by rationalist scientists. Theoretical advances in communication and development indicate the need for integration of various knowledge systems. However, for key issues such as land rights and deforestation, cultural concerns remain peripheral and lacking in application.

Research in the social sciences indicates that attention to cultural context and diverse knowledge systems can improve the research process and uptake. Recent interest from conservation biologists in political science, psychology, social issues, communication and education offers

hopeful signs of growing interdisciplinary collaboration.

Since the 1990s, after the signing of the Convention on Biological Diversity, work has been under way to improve socio-economic and environmental justice for traditional peoples. Theoretical and practical progress is evident in the development of agreements for prior informed consent and more equitable benefit sharing, and in strengthened codes of ethics and protection of intellectual property rights. These mechanisms represent significant milestones towards more equitable relationships that respect the cultures and traditional knowledge of communities.

Actors that help move information from where it is generated to where it is needed – often known as knowledge brokers or boundary organizations – also play a critical role. Knowledge brokers help to prevent the costly practice of reinventing the wheel, as they "search out knowledge, synthesize research and scan for best practices and examples from outside their organizations", according to the Canadian Health Services Research Foundation. Although fundamental to an impact-oriented approach, the critical networking capabilities, flexibility and linking functions they perform are often undetected, undervalued and/or actively discouraged by performance measurement systems at research institutes. To increase the potential for impact from research, such organizations should seek out and encourage individuals who demonstrate these skills.

A serious argument against researchers' engagement in communicating results is that they are already stretched too thin. Proposal writing, donor engagements, impact assessments and bureaucratic duties already occupy too much of scientists' time. Clearly, not all research is suitable or relevant to share with non-scientific audiences. In addition, not all researchers have sufficient skills or inclination to engage in targeted communication of research results. However, for impact to occur, recognition of the critical role that some researchers and research organizations play in communicating results to key audiences will be needed. As one author states, the primary activity "must remain the expansion of knowledge ... but the link to policy and action calls for expanding the scope of activities and approaches".

Challenges and opportunities of communicating research

Information is “sticky” – it tends to stay where it is generated. In research, this often means that research findings and analysis remain confined to the ivory tower. For information to have a wider impact than its initial focus, a variety of dissemination and communication methods needs to be employed, linked closely to user needs. Embracing all users – of different economic classes, cultures and educational levels – constitutes a challenge as well as an impact opportunity for researchers.

A central challenge is that one in five people in the world are functionally non-literate. This figure rises to nearly four out of five in some remote regions – regions that may often have scant access to formal education but high biodiversity. If local knowledge is valued, as stated by the Conventions on Biological Diversity and Climate Change, then communication with land and resource stewards will need to move from rhetoric to an integral part of project planning and execution.

Reaching people of all educational levels and economic classes through the use of relevant information and appropriate communication channels has been spearheaded by pioneers such as the Brazilian education theorist Paulo Freire. Popular education and communication theories affirm that research and dissemination strategies that appreciate culture and local knowledge systems are more likely to succeed than conventional projects. Innovative public education is burgeoning in Latin America and Africa, particularly in the health and social service sectors. Radio, theatre, dance, puppetry, comics and video are proving to be highly successful in raising awareness, changing behaviour and improving livelihoods.

As researchers attempt to share their findings with a range of stakeholders, they will be confronted with basic “translation” challenges. For example, how to convey simply the economic and ecological trade-offs between sales of timber and non-timber forest products to inform negotiations of forest communities? How to make graphs of variable fruit production and seasonal prices comprehensible to villagers? How to ensure that women, the elderly and the marginalized are both understood and heard? Published descriptions of endeavours to share research with local users are uncommon in academia. As more scientists invest time in conveying research

through various means to diverse audiences, their experiences can be useful to inform other researchers and students.

Close to the site of research, efforts to share results in culturally compelling ways such as illustrated books, comics, theatre and video, are more likely to be embraced by marginalized populations and civil society. By contrast, scientists may deride research shared through such means as not “legitimate”. However, the “translation” work that goes into making research accessible to a range of audiences is considerable and when done well, the product should not be a “dumbed-down” version, but one whose rigour is enhanced through a thorough process of review by a combination of both scientists and end-users. Farmers, foragers and hunters sustain their families over a lifetime, using the animals and plants that researchers study over a relatively fleeting time frame. If given the chance, such local experts can offer astute and critical reviews of research, honing the analysis with decades of first-hand knowledge. Ideally, scientists will complement local knowledge with socio-economic, ecological and policy analysis unavailable at the local level.



Conclusion

The gap in communication between scientists and local people is part of a well-ingrained professional culture and remains because of institutional incentive structures and personal reward systems in academia. Current performance measurement systems discourage communication to audiences other than scientists. As a result, equity at the research site and broader impact for civil society may be disregarded. The underaddressed problem of low researcher accountability at the study site is compounded by accelerated project time frames, unrealistic donor requirements, financial constraints and the chronic push to move on to the next paying project.

Lessons to tackle this problem in natural resource-related research can be gleaned from the health and social service sectors that have confronted the gap in communication between knowledge generation and application over the last three decades. As in the health sector, there is now rising recognition in the natural sciences that research is socially embedded and that this has implications for research design and dissemination.

To make their research more accountable, scientists working on issues related to the interface of people and natural resource use are posing questions such as: Is the research relevant and to whom? Have a range of stakeholders been involved in the research process and at what stage? Does the research pay sufficient attention to local culture and locally defined needs? What outputs and impact pathways are planned? Are there potential partners engaged in communication and/or popular education who can collaborate in sharing the research?

For an impact-oriented communication paradigm to take hold, research institutions will need to create incentives that support production of an expanded range of outputs and broader dissemination to targeted audiences. Scientists and research organizations will need to distinguish between high citation ratings (i.e. “impact factor”) and actual conservation and development impacts on the ground. Lessons can then be gleaned from rigorous evaluation of research and communication strategies and their impacts on forests and forest-reliant families. (*Contributed by:* Patricia Shanley, Ph.D., Senior Scientist, Center for International Forestry Research [CIFOR], PO Box 0113 BOCBD, Bogor 16000, Indonesia. E-mail: p.shanley@cgiar.org; www.cifor.cgiar.org)

Dr Patricia Shanley is a Senior Scientist at CIFOR and also Associate Director of Woods & Wayside International. Dr Shanley, a renowned scientist with long experience in the Amazon region, has produced award-winning research materials in a format and style suitable for local forest users. Dr Shanley is also one of the editors of a forthcoming joint FAO/CIFOR publication, “Fruit trees and useful plants in Amazonian life”, which will be published shortly in FAO’s NWFP series. Dr Shanley can be contacted directly for the references related to this article.

MARKETING OF TRADITIONAL NWFPS

Are insects valuable? Synopsis of mopane worms

Mopane worms are the larvae of the moth *Imbrasia belina* and are widely consumed in rural areas of southern Africa for their nutrition and income-generation opportunities. They are mostly consumed in the rural areas of countries such as Botswana and Zimbabwe and the Limpopo and Mpumalanga Provinces of South Africa. Mopane worms are good nutritional supplements for the majority of people in rural areas, since they provide approximately 65 percent protein, 51 percent fats and amino acids. The availability of mopane worms creates seasonal employment for rural women. Sixty-five percent of rural dwellers in the southern Africa mopane belt collect mopane worms for subsistence use, while 35 percent sell them at the nearby urban markets.

Women and children are mainly involved in collection and sale of the worms but, in recent years, men too have been engaged, attracted by income-earning opportunities. Mopane worms are sold along the streets in urban areas and in areas where elderly people receive their pensions. Trading of mopane worms is currently a commercial business with good economic returns. During a good year, dried mopane worms sold by an urban vendor at Thohoyandou, South Africa, can make a turnover of about US\$2 975. Mopane worms are currently processed and traded locally and internationally as snacks and canned products. The commercial trade of mopane worms in Botswana, Zimbabwe and the Limpopo and Mpumalanga Provinces of South Africa contributes multimillion rands to the gross domestic product (GDP). This shows the lucrative trade for mopane worms. The price for selling the worms, however, is determined by the number of buyers, abundance of the worms and distance from the market. An abundant supply of mopane worms results in a drop in price because of oversupply in the market, a situation that is reversed when the supply is no longer abundant. Distance from the market increases price since transport costs need to be recovered. Consequently, all these factors determine the income that can be generated from selling mopane worms.

The outbreak of mopane worms occurs twice a year, normally from December to

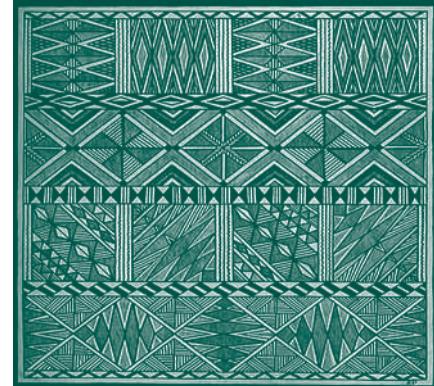
January and from April to May. Outbreak and abundance vary annually, as determined by the availability of rainfall and the presence of host-tree leaves (*Colophospermum mopane*). Low rainfall and scarcity of host-tree leaves limit the abundance of the worms, since there is a shortage of fresh mopane leaves on which they feed. Despite the value of mopane worms, primarily for livelihoods, their abundance has been limited in recent years. The causes of this low supply are uncertain, but could relate to unfavourable conditions resulting from climate change (low rainfall and high temperatures) and the destruction of the mopane worms' host tree. Absence of rules that regulate the harvesting of mopane worms has also increased competition for harvesting between the local people and outsiders, and this also affects their life cycle. All these factors hamper the wealth and nutritional supplement that mopane worms can provide, and increase the vulnerability of rural people to malnutrition. (Contributed by: Rudzani Makhado, Assistant Director, Forestry Research, Forestry Policy and Strategy, Department of Water Affairs and Forestry, P/Bag x 313, Pretoria 0001, South Africa; e-mail: makhado2002@yahoo.com and Martin Potgieter, Department of Biodiversity, University of Limpopo, P/Bag x 1106, Sovenga, South Africa; e-mail: martinp@ul.ac.za)

Bark cloth makes comeback on international fashion scene

Kampala. Bark cloth, a fabric historically used by the Buganda in central Uganda to wrap their dead before burial, is making a comeback in the form of trendy crafts, clothing and household goods. The cloth, made from *Ficus natalensis* trees, was supplanted by the introduction of cotton by Arab caravan traders in the nineteenth century. Now bark cloth crafts such as table mats, bedcovers, jackets, purses and wide-brimmed hats are finding their way on to the international market.

Bark cloth is exported to Germany, Japan, Australia, the United States of America and Canada where significant populations of Ugandans live. There is also huge demand from neighbouring Kenya. Kenyan traders blend the cloth and export the products to Europe and the United States.

The Mwangwe Rural Development Association works to raise consciousness



among artisans to improve the quality of bark cloth products. Vincent Musubire, chairperson of the association, said that "when we look at it critically, bark cloth has a big future but not in the traditional sense of burying people. It has value and can generate income, which is where I am putting the emphasis." He said that prospects for the bark cloth market were promising, especially internationally. "We want to ensure that the crafts from bark cloth produced by women and men meet the quality requirements of the local and international craft market. That is why we are not leaving it to the local community to produce. I'm linking up with skilled young graduates of industrial art and design to work with local craftspeople to produce quality products", he said.

Nuwa Wamala Nyanzi, an artist and owner of a crafts business in Kampala, confirmed that the demand for bark cloth among tourists is high but that it is not being marketed widely enough at international craft expos. Nyanzi also added that bark cloth production is suffering because there are few craftspeople who have the skill to make quality bark cloth. Traditionally, craftspeople of the Ngonge clan have manufactured bark cloth for the Baganda royal family and the rest of the community; however, many have died without passing on their skill.

Bark cloth is recognized as part of the world's collective heritage by the United Nations Educational, Scientific and Cultural Organization (UNESCO). Head of the Uganda National Commission for UNESCO, Augustine Omare Okurut, said that "research is being conducted on the making of bark cloth, how to preserve it and how it can be exploited for the benefit of the local and international community". (Source: Inter Press Service [Uganda], 12 February 2009.)

Chambira palm: baskets bring a new way of life to Peruvians

San Antonio de Pintuyacu, Peru. Women in this remote Amazon village can weave fibres from the branch of the chambira palm tree into practically anything they need – fishing nets, hammocks, purses, skirts and dental floss. But for the last year they have put their hopes in baskets, weaving hundreds to build up an inventory for export to the United States of America. Their first international buyers are the San Diego Natural History Museum and San Diego Zoo, and they plan to sell to other museums and home décor purveyors.

The enterprise is one of many ventures in the Amazon aimed at “productive conservation”, which advocates say will save the rain forest by transforming it into a renewable economic resource for local people.

The government of Loreto, Peru’s densely forested and least populous region, organized the basket project, which is financed by grants from two non-profit groups, Nature & Culture International and the Moore Foundation.

The changes in Loreto may correspond to a broader shift in Peru’s attitude towards conservation. Last spring, motivated by the signing of a free trade agreement with the United States of America, the country set up an environment ministry, which has already started to focus on deforestation.

The basket project is the brainchild of Noam Shany, an Israeli agronomist and entrepreneur. A bird-watching trip in 2005 led him to a remote village on the Tahuayo River, an Amazon tributary. There, he said, he noticed striking local baskets for sale in a tourist lodge.

Mr Shany, who had previously sold artificial plants to Walmart and cacti to nurseries in California and Australia, decided to put his retail experience to an environmental use.

In 2006, he helped found PROCREL, a biodiversity programme that has worked with the regional government to establish three vast protected reserves. The basket programme is one of several conservation initiatives intended to help indigenous peoples benefit from the conservation efforts.

Pitching Peruvian handicrafts to retailers in the United States was easy. “These baskets represent so much more than simply a basket,” said Nancy Stevens, manager of retail and wholesale operations for the San Diego Natural History Museum.

Pitching an international enterprise to the villagers was almost as easy. Mr Shany turned a somewhat haphazard local craft – women making a few baskets, selling them in a local shop, and then making a few more – into something more like mass production, with higher returns to the producers.

Artisans get US\$10–12 for each basket, which sells for \$40 in the United States. About a third of that goes into shipping and distribution, and the rest is retailer profit, meaning that the company distributing the baskets gets a little more per unit than each maker. Mr Shany and PROCREL receive nothing.

The artisans’ cut may not seem substantial, Mr Shany said, but it is more than double previous monthly earnings. Two years ago, households in this region earned as little as \$30 a month selling fish and palm frond roofing at city markets, he said. Today, experienced weavers can earn up to \$100 a month. (Source: *The New York Times* [United States of America], 19 January 2009.)

Ecoenterprises and *Terminalia ferdinandiana*: “best laid plans” and Australian policy lessons

In a recent article in *Economic Botany*, A.B. Cunningham *et al.* review practical policy lessons from trade in a dietary supplement (or nutraceutical) processed from *Terminalia ferdinandiana* (Combretaceae), which contains extremely high levels of natural ascorbic acid (vitamin C). Most production is from wild harvesting by Aboriginal people, who get US\$14/kg for picked, sorted fruit. However, the main Australian company involved is struggling to get the 12 tonnes/year it requires, and could market much more. Although Aboriginal people ideally should benefit economically from the harvest of *T. ferdinandiana*, there are major challenges to this objective, including Australia’s high labour costs compared with Asia, Africa and Latin America where *T. ferdinandiana* can be grown. In addition, although Australia is a signatory to and plays a leading role in the international Convention on Biodiversity (CBD), this has meant little in practice so far.

“Cultural branding” and certification of organic, wild harvested *T. ferdinandiana* fruit collected by Aboriginal people working in partnership with commercial companies offer a possibility for Aboriginal people to continue to benefit from wild harvest or

T. ferdinandiana

fruits have a long history of Aboriginal dietary use. Commercial attention was drawn to the species as a source of vitamin C over 20 years ago. But, unlike the more established markets for carvings, didgeridoos, sandalwood oil and bush tucker, which have been in operation since at least the 1970s, commercial harvesting of *T. ferdinandiana* only started in 1996. However, the fact that the final product produced from *T. ferdinandiana* – naturally occurring ascorbic acid – has been commercially available for a long time, enables *T. ferdinandiana* products to link into an existing niche market.



enrichment plantings. However, even the establishment of commercial horticultural production within Australia faces several challenges.

For Australia to maintain and develop the international market, future development of this bush food must include: (i) implementation of existing international and national policies on the protection of genetic resources; (ii) formation of a producer association to increase production efficiencies; (iii) functioning partnerships between Aboriginal producers and commercial partners that guarantee and expand reliable supply and develop cultural branding and certification as marketing tools; and (iv) scientific research into improving *T. ferdinandiana* fruit yields and production methods, based on improved resource management and efficient processing methods. (Source: *Economic Botany*, 63(1), 2009.)

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First FSC-labelled gin from Belgium

The first Forest Stewardship Council (FSC)-labelled gin was launched on the Belgium market in December 2008. Made from the green pine cones of *Pinus sylvestris*, a common tree in the Flemish region, the launch of this gin also marks the first FSC-certified NTFP originating from Belgium.

Known as *dennenknopje*, "little pine cone" in Dutch, the gin is made from cones that are collected from the FSC-certified Domeinbos Pijnven forest. Owned by the Flemish Government, it is managed as part of a larger FSC group that has been certified since 2006. Certification under FSC's Principles and Criteria for responsible forest management ensures that the natural forest complexity is maintained and social issues are considered, while securing long-term supplies of forest products.

Distilleerderij Leukenheide is the family-owned company responsible for producing the gin. Founded in 1833, it is the oldest traditional gin distillery in the region. The company achieved the FSC chain of custody certification in May 2008, facilitating completion of the supply chain from Domeinbos Pijnven forest by processing the gin and labelling the bottle with the FSC label.

The eye-catching FSC-labelled gin promotes FSC in the country and has strengthened local identity for this relatively forest-rich region. It also demonstrates that responsible management of forests can bring new and interesting opportunities, not only for recreational purposes, but also within the economic perspective of responsible forest product harvesting. (Source: Forest Stewardship Council, 19 January 2009.)

Consumers' contribution towards biodiversity – the cork case study

Cork oak forests extend over an area of almost 2.2 million ha, concentrated mainly in the Mediterranean region, in southern Europe and North Africa.

Cork oak forests are an effective barrier against the desertification affecting a large part of the Mediterranean region, playing a key role in ecological processes, such as water retention, soil conservation and carbon storage (carbon sink of over 14 million tonnes annually) – environmental services with a non-market value (externalities).

In the undergrowth of cork oak forests, and supported by its features of multiple-use low-intensity agroforestry systems – a

unique system shaped by human beings – aromatic and medicinal plants, mushrooms, natural grazing with extensive livestock farming and game complete this fantastic ecosystem and provide rural populations with work and sources of income.

These landscapes also support one of the highest levels of biodiversity among forest habitats (they are listed in the EC Habitats Directive – 92/43/EEC), reaching levels of 60–100 flowering plant species per 0.1 ha, as well as species-rich grasslands with up to 135 species per 0.1 ha. They also provide habitat requirements for a large number of endangered species (Iberian lynx, Iberian imperial eagle, the black vulture, the black stork, etc.), and large numbers of wintering birds from northern Europe, together with a rich diversity of fauna.

The sustainable cork use for wine bottle stoppers is the strongest economic activity. The cork oak tree has a lifespan of around 170–200 years, during which time it will be stripped about 15–18 times (every nine years). After the harvest, the bark renews itself until it is ready to be harvested again; none of the trees are cut.

Through cork, the European Union (EU) is also the world leader in the wine stopper sector – perhaps one of the few cases in which a natural product persistently holds on to its leadership of the market. With a total cork market value of about €1.5 billion, with EU exports worth €0.47 billion, cork stoppers also account for 70 percent of the international wine stopper trade.

Besides their superior quality as closures, cork stoppers have numerous advantages (environmental and social values) that clearly distinguish them from alternative wine stoppers, specifically plastic stoppers and screw tops (aluminium).

Cork for bottle stoppers accounts for almost 70 percent of the total value of the cork market, ensuring a vital role in maintaining the economic value of cork and the low-intensity use of cork oak forests.

There has been a significant decrease in the cork stopper market because of the increase in the market share of alternative wine stoppers (plastic stoppers and screw tops), supported by a huge marketing campaign and by what some retailers are choosing for the wine consumer. This change in the global closure market is reducing the economic value of cork forests, which represents a major threat to the sustainability of these important landscapes.

Even though wine drinkers continue overwhelmingly to prefer cork wine closures

to the alternatives, they do not have the information to enable them to make sustainable choices that take into consideration wider society concerns, because of the absence of labelling about the type of stoppers used in the wine.

The cork oak forests and cork case study is one of the best examples of how a consumer's choice, through an informed purchasing decision, can contribute to supporting high biodiversity levels and sustainable economic activities.

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Honey and wax: a sticky challenge

The Blue Mountains or Nilgiris region of India are considered one of the most ecologically fragile areas in the region. The Nilgiris hills have varied flora, ranging from scrub and dry deciduous to moist evergreen and montane or shola forests. The Nilgiris total land area of 2 749 km² has long faced threats from encroachment and illegal felling of timber; its greatest threat now is the expanding tea and coffee plantations, which cover about 50 percent of the entire cultivated area. Thus, protecting what is left of the forest is crucial to conserving its flora and fauna.

The new system of economics and land use has significantly affected the traditions and culture of the Adivasis, the collective term used to describe the indigenous peoples of India. Numbering about 30 000, the Adivasis of the Nilgiris are known for living in harmony with nature, as seen in their daily lives and survival strategies.

Honey gathering is a traditional activity with a long history in the Nilgiris. For the Adivasis living in the region, marketing support from the Keystone Foundation, using fair-trade practices, was crucial in finding local markets for this traditional product, increasing their incomes and



protecting biodiversity. In 1995, this NGO established its base in the Nilgiris after conducting a survey of honey gatherers and beekeepers in the state of Tamil Nadu. The organization works in the field of environment and development, and the initiative in the Nilgiris was an attempt to harmonize the needs of ecology with the demands of the local economy.

Traditional beliefs, customs and superstitions guide the honey-gathering activity. When collecting from the Idigh cliffs, the Adivasis use forest vines as ladders; collecting honey from trees is easier, since they simply climb up the trees. In both methods, smokers made of fresh leaves and dry twigs are used to flush out the bees. The gatherers use their spears to collect the honeycombs, which are then placed in bamboo baskets and carried to the village.

On average, one honeycomb yields between 8 and 15 kg of honey. During the peak season, which lasts about two months, a group of honey gatherers can collect up to 500 kg of honey. In 1994, honey could be sold to traders for Rs18–30 (around US\$0.45–0.75) per kg in bulk; if bottled, it could be sold for Rs40 (\$1) per kg. Thus, a gatherer's average income would be about Rs3 000 (approximately \$75) during the honey season. In 2008, the price had increased to Rs80 (\$2) per kg but the level of compensation is still quite low, given the amount of effort and skill involved in honey gathering.

To address this issue, Keystone initiated training for a number of honey gatherers in the Kotagiri district. The training focused on both indigenous knowledge and modern/scientific aspects of honey collection. After the training, the honey extracted by the gatherers had a better quality and a longer shelf-life. Keystone started a processing and marketing unit as well, where Adivasis could sell their produce, such as honey and beeswax. In addition, Keystone incorporated fair-trade principles in procuring honey, which increased the confidence of the Adivasis.

Soon, more honey started arriving and more people were trained. News about the "honey unit" spread by word of mouth in the community. The unit conducts regular training for newcomers and now sells over eight tonnes of honey and beeswax every year in the region. It also has over 2 000 Adivasi honey gatherers in its network.

Finding local markets. After experimenting and developing the

appropriate technology for processing, Keystone began bottling honey and forming beeswax into hand-rolled candles and comb foundation sheets. Initially, it was difficult to find a market for these products. Local people in the towns of Nilgiris had no knowledge about the Adivasis or their special niche in collecting forest products. Keystone increased its efforts to inform consumers about the honey and the people behind it. Because of the high-quality products and regular supply, local people from the towns started buying the goods and the clientele steadily increased. The products eventually infiltrated the tourist market and now more than 60 percent of goods are sold in small towns in the Nilgiris.

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Custom-made Crafts Centre: creating new markets and appropriate strategies for communities

A non-traditional approach to the development of traditional crafts has allowed a unique marketing programme in the Philippines to bring the benefits of well-planned marketing strategies to indigenous peoples' communities.

Hinabol is a colourful loom-woven cloth made of abaca fibre produced in Bukidnon Province, in the southern Philippines. It is one of the handcrafted traditions whose cultural value is recognized through the alternative marketing centre, Custom-made Crafts Centre (CMCC), which offers a collection of products from indigenous artisans. Their materials are made from non-timber forest resources and the designs are drawn from timeless traditions that have been fashioned into functional items for home or personal use.

A livelihood programme of the Non-Timber Forest Products – Task Force Philippines, CMCC is a marketing initiative that provides a stable source of income and better returns for artisans, as well as a venue for expressing traditional art forms. It balances the needs of both consumers and producers by "customizing" the crafts to the tastes of the modern market while respecting the artisans' traditions and lifestyles.



Fourteen people's organizations and NGOs participate in the Centre's programmes in manufacturing and marketing community handicrafts. The operations of CMCC also support small cottage industries in Manila and nearby provinces, as well as urban poor enterprises. Moreover, several craft designers and experts contribute their time and effort in coming up with unique and high-quality products for CMCC.

The Centre supports ten cultural communities, each with an array of unique handicraft products – basketry, hand weaving, bead work and embroidery. For these communities, handicraft-making is a heightened expression of their cultures and traditions. At the same time, it is a traditional economic activity as well, with handicrafts being bartered for household needs. When the market economy became increasingly influential in their communities, the economic value of crafts gained more importance and, eventually, handicraft-making metamorphosed into an important source of livelihood. The indigenous artisans learned that they could earn cash by selling their handicrafts. Treating the crafts as novelty products, tourists bought one or two as souvenirs, thus starting the handicrafts trade.

However, the market economy exposed the indigenous communities to risks. While they profited from selling handicrafts, they also learned that the market could be fickle and unstable. They have to scout constantly for regular buyers. Without them, cash flows tend to be irregular.

CMCC faced similar problems. Gaining access to appropriate and new markets, and meeting market requirements were constant worries. Hence, its livelihood programme was designed to weave varied but interrelated socio-economic, cultural and environmental considerations in its production and marketing planning.

(Source: From seeds to beads. Tales, tips and tools for building a community-based NTFP

enterprise. Non-Timber Forest Products Exchange Programme for South and Southeast Asia. ISBN 978-971-93388-1-9.)

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International logos for local products in Nepal

Kathmandu. Nepali lokta paper and Nepali pashmina, together with their own brands, are set to rule the international market. Nepali lokta paper is being promoted with the brand "Nepalokta, the new spirit in paper", while Nepali pashmina has developed its brand name as "Chyangra pashmina".

Nepali lokta paper has already had its brand registered with the EU and also received approval to be used in government correspondence work. The Nepal Pashmina Industries Association (NPIA) has been trying to register its brand logo.

"After the cabinet approval, now Nepali lokta paper will be used in official documenting work. The decision has brought Nepali handmade paper back to life," said Milan Dev Bhattarai, President of Nepal Handmade Paper Association (HANDPASS) during the Nepalokta brand promotion programme today.

Use of Nepali handmade paper in the past was compulsory in government legal correspondence, but was suddenly phased out from government offices. The property ownership certificates issued by the Ministry of Land Reform and the certificate of citizenship and passport issued by the Home Ministry used to be made from handmade paper but, after 1998, the Government started using imported paper for these purposes.

According to Bhattarai, in 2008 the total export of Nepali lokta paper was more than Rs300 million directly and about Rs200 million indirectly through tourists arriving in Nepal. (Source: *The Himalayan Times*, 13 April 2009.)

Brazilian brokering company to market Amazonian NWFP oils
 Unit Brazil, a brokering company headquartered in São Paulo, has just been

hired as the export agent to market Amazonian oils and butters produced by Engefár, a cosmetics raw materials supplier located in the state of Pará.

Engefár's products are oils and butters extracted from exotic fruit pulps and seeds of the rain forest, such as buriti (*Mauritia flexuosa*), açaí (*Euterpe oleracea*), copaiba (*Copaifera spp.*), muru-muru (*Astrocaryum murumuru*) and andiroba (*Carapa guianensis*). These raw materials have functional elements that are desirable to upgrade formulations. For example, açaí oil, extracted from the açaí berry pulp, can add antioxidants to moisturizing creams and shampoos, while buriti oil is widely used as a solar filter for skin protection.

According to John Laurino, Unit's Chief Executive Officer: "We are amazed to see such fast positive feedback from major cosmetics ingredients distributors all over the world; it is like we are offering them a golden raw material, capable to upgrade their product's profile." He believes that the Amazonian oils he just added to his portfolio may represent a US\$20 million/year business in a couple of years. (Source: PR.com, 13 May 2009.)

Guatemalan maya nut producers participate in the Terra Madre event in Italy

The Equilibrium Fund is an NGO with a mission to alleviate poverty, malnutrition and deforestation by teaching rural and indigenous women about the nutrition, uses and processing of maya nut (*Brosimum alicastrum*). In October 2008, two members of the Cooperative for Rural Women's Development (CODEMUR), a partner organization of the Equilibrium Fund, were invited to share maya nut products at the world's largest food fair, Terra Madre, in Turin, Italy.

There they had the opportunity to mingle and exchange ideas with over 1 500 small producers from 142 countries. In conjunction with Terra Madre and the Italian Slow Food Foundation, CODEMUR has decided to form a Maya Nut Presidium, dedicated to the preservation of the maya nut as a traditional food for Central America.

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Marketing and export of yarina (*Phytelephas macrocarpa*) in Loreto, Peru

Yarina, known locally as tagua or vegetable ivory, is a native species used by Amazonian communities: the leaves for roofing houses, the fruits for food and the seeds for the manufacture of organic buttons.

The purchase price of the fruit in the community before being transferred to the manufacturing plant is US\$0.17/kg without the shell and \$0.23/kg shelled. One kilogram is equivalent to 20–25 seeds, depending on the size of the fruit. The trade of the leaves is carried out locally in the communities and can sometimes be found at Iquitos city.

PROCESSING THE SEEDS

The local producers gather the seeds in the field, either in clusters or the ripe fruit that has fallen to the ground, removing the seeds and at the same time removing the skin and the mesocarp. Once clean, the seeds are stored in polypropylene bags of 50 kg to be transported to artisan communities for drying, where the primary processing starts – drying of the shelled seeds and their classification by size, quality and condition.

The seeds are placed on black plastic to dry in the sun for 20–30 days (in some cases, even more), taking care that they do not get wet in the rain. After this period, the seeds have hardened enough to be classified and stored according to size, with any impurities or seeds in poor condition having been removed. The dried seeds are then transported to the purchaser's plant. These companies fulfil the role of transformers-exporters and are responsible for the secondary processing of the seeds, which is the transformation into semi-finished products for buttons and handicrafts.

Some of the processors of yarina, such as Amazon Ivory EIRL, which is responsible for the development of different types of handicrafts, and Marfil del Amazonas SAC, which is responsible for the production of discs for buttons, have driven the commercial development of this resource in the Loreto region, e.g. the basin of the river Yanayacu Pucate at the Reserva Nacional Pacaya Samiria.

The main markets for vegetable ivory and its derivatives are Italy, the United States of America, Germany, France, Chile, the United Kingdom, Costa Rica, the Netherlands, Spain and Belgium, with great export demand in 2005 in Costa Rica (US\$48 723), Spain (\$11 863) and Germany (\$8 458). At present, it is also being exported to the Asian market and has become an activity that contributes to the effective preservation of the Amazon environment. (Contributed by: Joe Sixto Saldaña Rojas, Red Ambiental Loretana (RAL), Av. Guardia Republicana (ex-Guayabamba) N° 163 - a 100 metros del C.O.A, Loreto, Peru. E-mail: redambientaloretana@yahoo.com or jsaldanar@gmail.com; www.redambientaloretana.org)

BERRIES

Mistletoe infection of amla, the value of local management practices

Amla (*Phyllanthus emblica* and *P. indofischeri*) is an NTFP of significant livelihood importance in southern India and wider economic importance throughout the rest of the country. A three-year study completed last year at the Biligiri Rangaswamy Temple (BRT) wildlife sanctuary in Karnataka investigated the scale of mistletoe infection, its ecological and economic implications, and the potential of alternative management approaches to offer a solution to this threat to sustainable harvesting (see *Non-Wood News* 14/07).

Forest surveys, mistletoe removal experiments and mistletoe seed deposition surveys were employed to assess the prevalence of mistletoe infection in the amla population, characteristics of infection in relation to resource value and the appropriateness of local versus institutional management approaches to the problem. The findings of this study suggest that not only is

AMLA, THE INDIAN GOOSEBERRY



Amla is an important medicinal plant species, its fruit being used extensively in the traditional Indian medicine system, Ayurveda. Amla berries are also used for making pickles, jams and cosmetics and are an important food resource for a number of ungulate species. Trade in the south of India is largely from wild extraction but several cultivars are grown in commercial plantations in Uttar Pradesh, Maharashtra, Gujarat, Rajasthan and Andhra Pradesh, and also in some areas of Tamil Nadu and Karnataka. The economic value of amla fruits (including processed products) has been estimated at between Rs200 and 250 million (US\$5–6.25 million) but demand appears to be growing and market potential is considered to be much higher.

mistletoe infection widespread in the BRT sanctuary, affecting over half of the amla population, but that it is particularly severe in those trees of greatest reproductive value. Infection characteristics and resource values differ between the two *Phyllanthus* species, the species of greatest value (*P. emblica*) being that most seriously affected.

Institutional perspectives on the management of these two species conflict with local practices. The Karnataka Forest Department advocates removal of mistletoes by hand and has promoted this strategy to harvesters. In contrast, harvesters consider removal by hand to be both impractical and ineffective and therefore prefer to chop off the infected branches in order to remove mistletoes, a practice most commonly implemented during the annual harvest. This cutting of branches by amla collectors was previously considered destructive but in

fact has been shown to have management benefits. These benefits include increased productivity through resprouting of amla trees and subsequently higher levels of fruit production, as well as reduced risk of further mistletoe infection. However, neither mistletoe removal by hand nor branch cutting appears to offer a viable control strategy in isolation. A multifarious strategy, including new approaches to management, is probably needed to safeguard the role of this resource in local livelihoods and future work will aim at developing such a strategy as part of ongoing participatory management undertaken by the Ashoka Trust for Research in Ecology and Environment (ATREE).

This study, conducted by scientists from ETH Zürich and Imperial College London, in association with ATREE has shown that local harvesting practices may not be as damaging as first suspected and indeed may have significant management benefits. Local NTFP harvesting and management practices should be evaluated objectively without preconceptions about their efficacy. The recognition and acceptance of their benefits (as well as deficiencies) within scientifically driven management and policy frameworks may have significant value. (Contributed by: Lucy Rist, ETH Zürich, Institute for Terrestrial Ecosystems, Professorship Ecosystem Management, Universitaetstrasse 22, Zürich 8092, Switzerland. E-mail: lucy.rist@env.ethz.ch; <http://www.ecology.ethz.ch/>)

Summer berries in British Columbia, Canada

Wild berries abound in the summer. Berry quality can vary greatly depending on habitat. The berries can be either sold fresh or made into a variety of value-added products, such as preserves, baked goods and even wine.

With the exception of blueberries and huckleberries, most wild berries do not currently have a large commercial market (i.e. it may be difficult to find a buyer for the berries). Therefore, it is not easy to estimate prices that might be obtained for the various berries. The best option for fresh berries is to sell directly to a restaurant, grocery store or at a farmers' market. This will also increase the price paid per litre, especially if the berries are of high quality and clean.

There are many species in the *Rubus* genus (the raspberry clan), all of which

have edible berries. It is interesting to note that the new shoots (branches) of most *Rubus* species can be eaten in the spring when they are still soft and bendable (the skin is peeled and they are eaten raw or cooked). The shoots do not store well and have therefore not yet become a popular commercial product. All the species of *Rubus* have leaves and twigs that make a

good tea when dried, and have been used by many Aboriginal peoples for a variety of health ailments. Leaves and twigs can be harvested at any time but are best when harvested in late autumn.

Processing berries can add value to the product. Wild berry jam generally sells for around US\$6 per 250 ml jar (with about four jars of jam from one litre of berries,

plus the cost of the jar, label and sugar). (Source: Wendy Cocksedge and Michelle Schroeder (eds). 2007. *A Harvester's Handbook. A guide to commercial non-timber forest products in British Columbia*. Victoria, British Columbia, Canada, Royal Roads University, Centre for Non-Timber Resources.)

SALMONBERRY (*RUBUS SPECTABILIS*)

Salmonberries grow in thickets, with erect branches up to 13 ft (4 m) tall, although averaging about 5 ft (1.5 m). They are very common all along coastal British Columbia, from low up to subalpine elevations and thrive in wet areas – beside streams, lake edges, depressed areas within forests, and also on disturbed sites.

Salmonberries have a high moisture content, so do not store as well as other berries when fresh (they become mushy very quickly). Although they are often considered more of a "weed" than a delicacy, they are actually very tasty and have good commercial potential. They make a sweet jam with a distinctively beautiful colour.

HUCKLEBERRY AND WILD BLUEBERRY (*VACCINIUM SPP.*)

There are a variety of huckleberry and blueberry species that grow in the Pacific Northwest, including Alaska blueberry (*Vaccinium alaskaense*), red huckleberry (*V. parvifolium*), oval-leaved blueberry (*V. ovalifolium*) and evergreen huckleberry (*V. ovatum*) at lower elevations, and black huckleberry (*V. membranaceum*) and cascade huckleberry (*V. deliciosum*) at higher elevations. All are edible and delicious.

Huckleberries and blueberries are very common and appear along the whole coastal area of British Columbia. Red huckleberry and evergreen huckleberry occur at low elevations, with evergreen huckleberry often found close to the ocean. Alaskan blueberry and oval-leaved blueberry occur from low to subalpine elevations, and black huckleberry and cascade huckleberry are found at middle to high (alpine) elevations.

Although huckleberry and blueberry bushes will grow in the shade, they require light to produce berries. Good berry bushes are found most often in clear-cuts and young forests, mature forests where there are gaps in the canopy, along forest edges, and along streams and lakes. Berries found in partial shade tend to be juicier and sweeter than those produced on plants growing in direct sunlight (such as in a clear-cut).

Berries are used either fresh or as a value-added product. Huckleberry preserves are very popular. Picking the berries individually by hand results in the least amount of damage to the plant, although this method can be quite slow. A small berry comb can be dragged through the bush, pulling off the berries. Berry combs can be purchased, or a wide-toothed hair comb or pick can simply be used. Combs should be used carefully to avoid excessive damage to the foliage. Using a comb also requires sorting the berries once picked to remove leaves and imperfect berries. A standard method of sorting is to roll the berries down a wet board or rough blanket – the leaves will stick to the board or become caught in the blanket while the berries roll to the bottom.

To maintain quality for both the *Rubus spectabilis* and *Vaccinium spp.* mentioned above, the berries should be cooled (recommended to about 5 °C) as soon as possible after picking. Do not wash the berries prior to storing them in a fridge or cooler, as this will decrease their storage life. Berries should be taken to a buyer within a day or two after picking, unless they are frozen. When transporting, take care to use wide shallow containers or baskets to avoid crushing. If you plan on making preserves, freeze the berries first as this helps break the cell walls of the berry.



Thousands of Thai berry pickers invited to Finland

Finnish berry farms and suppliers invite thousands of seasonal workers from Thailand to Finland to pick wild berries next summer.

According to First Secretary Vesa Häkkinen from the Unit for Passports and Visas at the Ministry for Foreign Affairs, a total of 3 500 prequalification assessments for visas to Finland have so far been submitted to the Finnish representation in Bangkok.

Häkkinen adds that the problem evidently is that the further away the berry pickers, the higher the related expenses. A flight ticket alone costs more than a berry picker's annual income would be in Thailand. In addition, the picker has to pay for a visa and possibly even a fee to an agent in Thailand. In Finland, he or she has to pay for accommodation, transport, petrol and food.

"The process involves unscrupulous collection of money at nearly every stage. I regard it as a kind of extortion. It is not trafficking in human beings but it is something similar. Juridically, everybody comes here at their own risk, like self-financing entrepreneurs. Nevertheless, it is a major ethical issue," said Häkkinen.

A total of some 12 000 foreign berry pickers arrive in Finland every year. Most of them come from the neighbouring areas of the Russian Federation and the Baltic states. The Ministry for Foreign Affairs recommends that berry farms should

increasingly hire pickers who come from neighbouring countries. Then it would be easier to react to the situation if prospects for the berry crop appear to be worse than usual.

"When berry pickers come to Finland from far-off countries with high hopes of earning money and the berry-picking season turns out to be worse than expected, they have no money for a return trip," Häkkinen adds.

Most seasonal Thai workers come to Finland in order to pick wild berries. In practice, berry farms and berry-processing companies invite berry pickers to Finland and then buy the berries they have picked. The income may be low if the berry crop remains poor but, if the season is good, many can earn a year's income from picking wild blueberries and lingonberries and selling them to berry buyers.

Berry pickers from Thailand are preferred as they are in a league of their own, says Export Manager Ben Strömsten from Riitan Herkku. "They are diligent pickers and easy team members," he says. (Source: ScandAsia.com, 3 May 2009.)

Berry products showcased

Many new developments in functional food and the nutraceutical industry were shared at the Vitafoods International and Finished Products Expo, running from 5 to 7 May 2009 in Geneva, Switzerland.

Premium Ingredients International will be at the show with its unique product, LingonMax™. Extracted from the lingonberry (*Vaccinium vitis-idaea*), LingonMax is a natural skincare ingredient effectively shown to increase skin moisture, decrease skin spots, reduce wrinkles and decrease sensitivity. (Source: NPI center news, 22 April 2009.)



Antioxidant in berries stops wrinkles

Data are mounting that phytochemicals found in a host of berries can improve health from the inside. Now comes research just presented at the Experimental Biology 2009 meeting held in New Orleans, Louisiana, United States of America, that a specific type of antioxidant phytochemical called ellagic acid holds the promise of enhancing our bodies on the outside, too. In fact, it may hold the key to slowing down or even stopping skin ageing successfully.

Researchers in the laboratory of Dr Young-Hee Kang at Hallym University in the Republic of Korea have found that topical application of ellagic acid markedly prevents the two major causes of wrinkles – the destruction of collagen and inflammation.

Ellagic acid is found in many fruits, vegetables and nuts but it is especially abundant in raspberries, strawberries, cranberries and pomegranates.

Scientists from the University of Louisville and Fox Chase Cancer Center published research recently in the *International Journal of Molecular Science* that strongly suggests ellagic acid can also reduce damage to DNA and, in fact, may help repair faulty DNA. (Source: *Natural News*, 24 April 2009.)

Açaí berry, superfood or superfraud?

Is the açaí berry a superfood or a superfraud? For years, the media has been raving about the açaí berry and its health benefits, but a recent rash of negative publicity has forced people to ask the question – is açaí the real deal?

"The media tends to like juicy stories – either something very positive or something very negative. Of course, the truth usually lies in the middle. This is the case with the açaí berry," states Bob Peters, Director of Communications for PowerSupplements.

The açaí berry comes from the açaí palm trees in the Amazon rain forest. The berry is very high in antioxidants, healthy omega fats, vitamins, minerals and phytonutrients. Because of its impressive nutritional profile, it has been called a superfruit or superfood.

The mention of the açaí berry on the Oprah television show in the United States of America set off an avalanche of positive publicity on the berry as a superfruit.

Unfortunately, in 2008 a number of marketing companies decided to create

JUNIPER "BERRIES"

In certain dishes there is no substitute for juniper, with its unique aroma: piney, woody and vaguely peppery. It is especially popular when used with game, but it is also good with pork, beef and duck, and is a standard addition to dishes containing sauerkraut. Contemporary cooks have been more playful with juniper, dancing around its association with gin or abandoning it altogether for new associations that sound promising.



The "berries" are actually the modified cones of the conifer *Juniperus communis*; underripe berries are preferred by gin makers while overripe specimens are gathered for culinary purposes. Green or ripe, the berries have a lot of pinene, the essential oil that gives rosemary its distinctive snap, and they contain some of the same compounds that give citrus fruits their fresh scent. But in riper berries the sharper notes give way to a softer, vegetal aroma. (Source: *The Seattle Times* [United States of America], 17 May 2009.)

fictitious açaí berry review sites and açaí diet blogs. These açaí scam companies would promise "free trials" and guarantee that you would lose "30 pounds in one week". The açaí that they sell is of very low quality, was never endorsed by any celebrities and the only weight you lose is in your wallet.

"We have been raising red flags about these açaí scam companies for over a year now," states Peters. "However, it is unfair to say that the açaí berry is a scam or fraud simply because there are some fraudulent companies selling açaí supplements. If consumers do their research and look for the Perfect Açaí Consumer Bill of Rights seal, they will be fine." (Source: *TransWorld News*, 8 April 2009.)

"Miracle fruit" turns sour things sweet

The small fruit has the colour of a cranberry, the shape of an almond and tastes like a flavourless gum. But after chewing the fruit and rubbing the pulp against the tongue, the berry, known by



the promising name "miracle fruit" or *Synsepalum dulcificum*, releases a sweetening potency that alters the taste buds. For about 15 to 30 minutes, everything sour is sweet. Lemons lose their zing and taste like candy. Oranges become sickeningly sweet.

Through word of mouth, these miracle fruits have inspired "taste-tripping" parties, where foodies and curious eaters pay US\$10–35 to try the berries, which are native to West Africa.

About five months ago, a hospital in Miami, Florida (United States of America) began studying whether the fruit's sweetening effects could restore the appetite of cancer patients whose chemotherapy treatments have left them with dulled taste buds. Dr Mike Cusnir, a lead researcher on the project and oncologist at Mount Sinai Medical Center, filed for an investigational new drug application, which is required by the US Food and Drug Administration to use an unapproved product in a new patient population. His study seeks 40 cancer patients. If the results show promise of helping cancer patients to maintain a healthy body weight and appetite, there will be further studies, Cusnir said. The process is expected to take several years.

Linda Bartoshuk, a professor at the University of Florida's Center for Smell and Taste, is also working to understand better how the berry works. In the 1970s, she studied the fruit while working for the United States Army and Navy laboratories. Bartoshuk explains that the miracle fruit contains a natural protein, called miraculin, which has sugar molecules that bind to the tongue. When acid enters the mouth, the sugar molecules press into the sweet receptors.

"This new resurgence of interest is fascinating," said Bartoshuk. "It popped on

the scene and people are having fun with it. It motivated us to go back and do research." Bartoshuk said she has not seen any reports of dangers from eating the berries, but warned against premature health benefit claims. (Source: CNN [United States of America], 25 March 2009.)

Guarana beverage

BAWLS is the brainchild of entrepreneur Hoby Buppert, Chief Executive Officer of Hobarama, LLC, who named the beverage for the caffeinated "bounce" the drink packs. Widely distributed, BAWLS is a premium, non-alcoholic, carbonated beverage made from the guarana berry harvested in the Amazonian rain forest.

The caffeine found in BAWLS contains the same amount of caffeine as coffee and nearly three times that of traditional sodas because of a naturally occurring form of the stimulant found in the guarana berry. (Source: BevNET [United States of America], 5 March 2009.)

Maqui superberry

Novelle International, the first company to introduce maqui berry (*Aristotelia chilensis*)-based supplements, has added SuperFruit Energy Powder to its product list. The maqui-based SuperFruit Energy Powder boasts a premier energy blend of rhodiola, rosea, Siberian ginseng, yerba maté and B vitamins. Maqui is the highest antioxidant superfruit in the world delivering a high value of oxygen radical absorbance capacity (ORAC) of almost double the açaí berry.

Recently Novelle donated specialized computer equipment to serve Mapuche Indian schools. "The Mapuche Indian families have used the maqui berry as a food supplement and for health care for centuries. Novelle is honoured to support their education and help sustain their land through organic certification and sustainable harvest practices," said Annie Eng, President and Founder of Novelle. (Source: Market Watch [United States of America], 2 March 2009.)

Berry-based natural sweetener "brazzein" to hit the market in 2009

A new sweetener derived from the berry of the West African plant ouibli (*Pentadiplandra brazzeana* Baillon) has been successfully synthesized in a form compatible with mass production and the company Natur Research Ingredients

expects to make it commercially available between late 2008 and mid-2009.

Oubli has long been used as a food source by West Africans and was first synthesized into a sugar alternative in 1994 by researchers from the University of Wisconsin at Madison, United States of America.

Because the University of Wisconsin used an artificial process to extract the brazzein sweetener from ouibli berries, it was able to obtain patents over the sweetener itself. No credit was given or payment made to the indigenous Africans who had used the sweetener for centuries, drawing accusations that the university had engaged in "biopiracy". The university retains several patents over the ingredient brazzein. (Source: Natural News [United States of America], 22 December 2008.) ♣



Facing it, always facing it, that's the way to get through. Face it.

Joseph Conrad

"Non-Wood Forest Products (NWFPs) 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)



making its own gum using only chicle gum base and natural flavourings and sweeteners. (Source: CNN [United Kingdom], 3 April 2009.)

BIOPROSPECTING/ BENEFIT-SHARING OR BIOPIRACY?

Bioprospecting: "The Green Gold Rush"

The Green Gold Rush is the name of a video documentary about bioprospecting and indigenous peoples that was produced in October–November 2008 in Geneva, Switzerland. This project is the result of collaboration between the Swiss NGO Group of Volunteers Overseas (GVOM) and the Vice-presidency of the Plurinational State of Bolivia.

The objective of the project is to stimulate the debate about the protection and valorization of traditional knowledge and biological resources in the Plurinational State of Bolivia. It is articulated in two phases. During the first two months in Geneva, a video documentary was produced and information about international experiences and strategies was collected. During the next six months in La Paz, Plurinational State of Bolivia (January–June 2009), various public presentations of the video documentary and debates, weekly meeting of experts, seven workshops with more than 700 delegates of indigenous peoples and a national encounter of 50 delegates of indigenous peoples, were being organized.

The national encounter was to take place in La Paz over three days during the first week of June 2009 in coordination with a regional encounter of 180 indigenous peoples' delegates on "intellectual property and traditional knowledge", organized by COINCABOL. It is also expected that various international experts, intellectuals and activists will be able to participate. (Source: TheGreenGoldRush.org)

BIODEGRADABLE CHEWING GUM

United Kingdom authorities and environmental groups were welcoming the launch this week of the world's first biodegradable chewing gum, which they say could help save some of the millions spent on clearing up the mess that ordinary gum creates.

The new gum becomes non-adhesive when dry and decomposes to dust within six weeks, a spokesman for Mexico's Chicza Mayan Rainforest Chewing Gum told CNN. Unlike other gums that contain petrochemicals, the natural gum is produced from the sap of the chicozapote tree (*Manilkara zapota*) found in the Mexican rain forest.

A spokesman for campaign group Keep Britain Tidy told CNN they welcome any product that can help eradicate the staining on pavements caused by dropped chewing gum. According to the Local Government Association, removing chewing gum litter costs local authorities £150 million a year.

The producer of the new gum is Consorcio Chiclero, which comprises 46 cooperatives with around 2 000 chicleros farmers, working in an area of 1.3 million ha of rain forest. Locals have been extracting the natural chicle gum base from the bark of the chicozapote trees for a century, a spokesman for Chicza told CNN.

After years of exporting the gum base to be used as an ingredient in the manufacture of regular chewing gum, the cooperative recently decided to start

India moves to protect traditional medicines from foreign patents

In the first step by a developing country to stop multinational companies from patenting traditional remedies from local plants and animals, the Indian Government has effectively licensed 200 000 local treatments as "public property", free for anyone to use but no one to sell as a "brand".

The move comes after scientists in Delhi noticed an alarming trend – the "bioprospecting" of natural remedies by companies abroad. After trawling through the records of the global trademark offices, officials found 5 000 patents had been issued – at a cost of at least US\$150 million – for "medical plants and traditional systems".

"More than 2 000 of these belong to the Indian systems of medicine ... We began to ask why multinational companies were spending millions of dollars to patent treatments that so many lobbies in Europe deny work at all," said Dr Vinod Kumar Gupta, who heads the Traditional Knowledge Digital Library (TKDL), which lists in encyclopaedic detail the 200 000 treatments. The database, which took 200 researchers eight years to compile by meticulously translating ancient Indian texts, will now be used by the European Patent Office to check against bioprospectors. (TKDL can be found at: www.tkdl.res.in/tkdl/langdefault/common/home.asp?GL=Eng)

Gupta points out that in Brussels alone there had been 285 patents for medicinal plants whose uses had long been known in the three principal Indian systems: Ayurveda, India's traditional medical treatment; Unani, a system believed to have come to India via ancient Greece; and Siddha, one of India's oldest health therapies, from the south.

In the past, India has had to go to court to get patents revoked. Officials say that to lift patents from medicines created from turmeric and neem, an Indian tree, it spent more than US\$5 million. In the case of the neem patent, the legal battle took almost ten years. "We won because we proved these were part of traditional Indian knowledge. There was no innovation and therefore no patent should be granted," said Gupta.

India's battle to protect its traditional treatments is rooted in the belief that the developing world's rich biodiversity is a potential treasure trove of starting material for new drugs and crops. Gupta said that it

costs the West US\$15 billion and 15 years to produce a "blockbuster drug". A patent lasts for 20 years, so a pharmaceutical company has just five years to recover its costs – which makes conventional treatments expensive.

"If you can take a natural remedy and isolate the active ingredient then you just need drug trials and the marketing. Traditional medicine could herald a new age of cheap drugs." (Source: guardian.co.uk, 22 February 2009.)

Rural communities in Kenya to benefit from plan to market natural plants

Rural communities are set to benefit from research firms and the University of Nairobi's plan to market natural plants. The move is aimed at boosting the living standards of rural communities and preserving the environment.

The initiative involves looking for special genes or plants that can be used to manufacture medicine, industrial products and food supplements for commercial purposes.

Kenya has not tapped into this market, which now stands at about US\$600 billion globally, despite its richness in biodiversity. International researchers and multinational drug manufacturing companies are now looking for ways to exploit the country's biodiversity, bearing in mind its potential to contribute to the discovery of medicine extracts. However, the strain used to manufacture a drug known as Acarbose used for treating diabetes came from Ruiru, although the community around there has not benefited much from its discovery.

Bioprospecting is not common in Kenya because of lack of research and product development, poor technology, uncoordinated gathering of information, and lack of skills and awareness. Dr Wilbur Lwande, a researcher at the International Centre for Insect Physiology and Ecology, says bioprospecting can be a tool of economic development, but only if products are developed and proceeds from the sale of the products shared among locals and some used for natural resources conservation. (Source: *Business Daily* [Nairobi], 16 January 2009.)

Biopiracy in the Cuzco region, Peru

A session workshop on "Biopiracy in the Cuzco region" was held during the international workshop "Implementation of the Biosafety Protocol and the Regional

Order 010-2007-CR/GRC.CUSCO" that took place from 21 to 23 April 2009 in Cuzco, Peru. This session analysed the impacts and challenges of biopiracy in Peru, and its relevance to the recently promulgated Order 048-2008-CR/GRC.CUSCO.

This regional legal benchmark seeks to regulate the activities of access to genetic resources and associated traditional knowledge, practices and innovations within the traditional territories of indigenous and native communities of the Cuzco region, as well as aspects related to the protection and promotion of the biocultural heritage of indigenous communities in Peru.

The workshop sought to advance the design and implementation of tools, such as local biocultural registers, customary law-based protocols and intercommunity agreements that will protect and defend the region's biocultural heritage and promote tools that foment creative economies based on solidarity, as well as protect the traditional institutions and customary laws within the respective Andean-Amazonian communities. (Source: www.andes.org.pe/php=left_en05.php)

(Please also see page 20 for more information on the NGO ANDES.)

BIRD FLU ANTIVIRUS SOURCED FROM INDIAN TREES

A team of scientists in Bangalore (India) reported in *Current Science* last week (25 March) that they have identified several tree species that contain shikimic acid, a crucial component in the production of Tamiflu, the only drug used against bird flu caused by the H5N1 virus.

Plants meet two-thirds of the requirements for shikimic acid and the remaining one-third is met by engineering the bacterium *Escherichia coli* to produce the chemical – which is not cost-effective.

The researchers screened 210 tree species in the Western Ghats region for shikimic acid content and shortlisted seven trees that contain 1–5 percent shikimic acid by dry weight.

The acid is mostly present in the leaves of these trees. This is an advantage, the scientists report, as the sheer volume of leaves present on trees – compared with fruits – will make extraction cheaper.

"Industries have existing technologies for isolation of shikimic acid from *Illicium vernum* [the Chinese plant]. The same could

be applied to these [Western Ghats] plants as well, with minor modifications," says Uma Shaanker, a researcher at the University of Agricultural Sciences in Bangalore, and one of the authors of the paper. The process is relatively simple as shikimic acid is highly water soluble, he says.

Besides isolation, commercialization would require bulk extraction on a large scale and validation of the shikimic acid content.

Shaanker's laboratory now plans to demonstrate the feasibility of bulk extraction – in tens of kilograms compared with milligrams in the laboratory – in the two species, *Araucaria excelsa* and *Calophyllum apetalum*, with the highest shikimic acid content. (Source: *SciDev.Net* Weekly Update [31 March to 5 April 2009].)



"CORK REHARVEST"

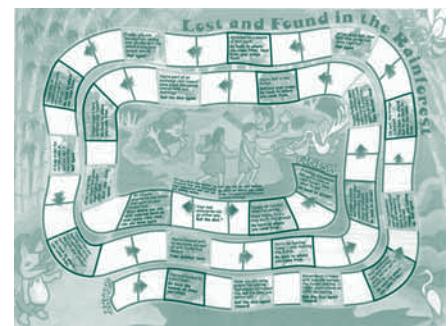
The Willamette Valley Vineyards in Oregon, United States of America – the world's first winery to earn Forest Stewardship Council/Rainforest Alliance certification for using cork stoppers harvested from responsibly managed forestlands – has launched a new cork recycling programme: "Cork ReHarvest".

A first for Oregon and a model for wineries around the globe, the programme has two aims: to collect and recycle used corks; and to educate the public about the importance of sustaining the cork forests of the Mediterranean. (Source: *Rainforest Matters*, March 2009.)



EDUCATIONAL TOOL WITH A DIFFERENCE

Are you a NTFP gamer? Watch out for this fun game called "Lost and Found in the Rainforest!" This board game popularizes the various issues surrounding NTFP management in an easily accessible form



for youth and adults alike. It is hoped that playing the game will initiate deeper discussions on the issues and threats related to NTFPs and managing forests. (Source: *Voices from the Forest*, 15, September 2008.)

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FORESTS, HUMAN HEALTH AND THE IMPACTS OF CLIMATE CHANGE

The World Health Organization dedicated the focus of this year's World Health Day, on 14 April 2008, to "Protecting health from the adverse effects of climate change". Although one may not readily see a connection between climate change and health, the two are inextricably linked. Studies from around the world, including those by Carol Colfer of the Center for International Forestry Research (CIFOR), demonstrate that climate and weather have a powerful impact on human life and health, especially the health of vulnerable forest-dependent people.

However, according to CIFOR scientist Patricia Shanley, who has spent over five years studying the complex relationship between forests and health, "at present, people living in forests deal with much more immediate problems than climate change, like children dying of dysentery and malaria and other diseases caused by the indirect effects of forest degradation. Add to this the fact that many of their medicinal plants and other Non-Timber Forest Products (NTFPs) are being destroyed through logging."

Climate change is likely to exacerbate these problems by influencing the

biodiversity assets and ecosystem services of tropical forests. This will lead to indirect impacts such as a decrease in water supply and quality, which in turn will lead to an increase in water-related diseases, especially water-borne diseases following extreme rainfall. (Source: *CIFOR News* 46, November 2008.)

the latter are often simply thrown away. If we can improve this process and the packaging, the kernels can be a very good product for export."

In an important development for the export potential of dried baobab fruit, the EU has recently categorized it as a novel food (see *Non-Wood News* 18), opening up a whole new export market. "And the baobab is prominent throughout Africa, so this product can be very valuable for poor African farmers." (Source: *Resource Weekly for Wageningen UR*, 29 January 2009.)

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HOPE FOR AFRICA IN BAOBAB

The baobab tree produces fruit that is rich in vitamin C, antioxidants and minerals. "The pulp of the fruit has the most vitamin C of all the natural foods in the world," says Flora Chadare in *Critical Reviews in Food Science and Nutrition*. "The baobab is a very rich tree. Its edible products are the fruit pulp, the seed and kernels, and the leaves."

Chadare carried out a literature study of the macro- and micronutrients, amino acids and fatty acids in the pulp, leaves, seeds and kernels of the baobab tree. "The pulp has a high antioxidant level as well as a lot of vitamin C, and the link between these is also strong. The leaves have a high mineral content, mainly calcium and iron. They also contain antioxidants. Baobab seeds and kernels are oily and fatty." Chadare found very varied results in the literature, probably because several different measuring methods were used, and because the origin of the samples was variable. No conclusions can yet be drawn about biological variation either. Chadare's follow-up research looks into how available and digestible the minerals in the leaves are.

Chadare was recently awarded a grant by the Storm-van der Chijs Fund for promoting the careers of women scientists at Wageningen UR. But her interest goes beyond the nutritional value of baobab products. She has already published articles about the various baobab food products processed by the people of Benin. "For example, they use fermented foods that are unknown in the literature. People in Benin also use the fresh leaves, which are only available during the rainy season, to make a sauce. The leaves are slimy, just like okra. In dried powder form, the leaves are eaten in the dry season as well. The baobab fruit is eaten too, and the surplus is often sold at the market."

There are some problems to be addressed, as Chadare explains: "The kernels are good for selling and eating, but it is difficult to get them out of the seeds, so

JAPAN'S DENSO DEVELOPS "ORGANIC" RADIATOR TANK

Denso says it has developed a plant-derived resin radiator tank using an organic compound derived from the castor oil tree (*Ricinus communis*). The company says it will start mass-producing this new product in the spring of 2009 for vehicles sold worldwide.

The plant-derived resin, which Denso jointly developed with DuPont Kabushiki Kaisha, is produced by a chemical reaction between two organic compounds that are derived from the castor oil tree and petroleum. An additive, such as glass fibre, is then added to the substance to produce the resin. The plant-derived ingredient comprises about 40 percent of the ecofriendly resin.

Since engine compartment components, such as the radiator tank, need to be extremely heat resistant and durable, it was previously difficult to develop a resin with a high percentage of plant-derived ingredients.

Denso says that, compared with conventional products, the new radiator tank releases fewer carbon dioxide (CO₂) emissions into the atmosphere during its life cycle because it is partially made from material extracted from plants, which absorb CO₂ through the photosynthesis process.

The new product also helps conserve oil and has a cold weather advantage, Denso says. (Source: *just-auto.com* [Japan], 20 February 2009.)



NWFPS – A GLOBAL PERSPECTIVE

NWFPS IN NORTH AMERICA

The North America region, consisting of three countries and two areas, has 7 percent of the world's population, 16 percent of its land area and 17 percent of its forest area (677 million ha). About one-third of the region's land area is forested. The highly varied climate conditions create great diversity in forest ecosystems, ranging from humid tropical to boreal. Some of the world's most productive forests are found in this region.

Rural communities in Mexico depend on NWFPs for subsistence and income, although their use is declining rapidly because of urbanization, changes in employment and availability of cheaper alternatives.

NWFP harvesting in Canada and the United States of America typically takes place as part of forest recreation and cultural traditions, and it is increasing. Production of the few economically important NWFPs with long-established markets – notably maple syrup and Christmas trees – is highly commercialized. Both markets have been stable since 1994 and are expected to remain so. Canada accounts for 85 percent of the world's maple syrup production and the United States produces the rest. Canada produced 3.2 million Christmas trees in 2005. Markets for herbal products, including forest medicinal plants, are expanding as society becomes increasingly health conscious. Large pharmaceutical companies are investing in the production and marketing of herbal plant products, which have become a multibillion-dollar industry in the United States. (Source: *State of the World's Forests 2009*.)

PFNM EN AMÉRICA LATINA

La región de América Latina y el Caribe, formada por 47 países y áreas, contiene el 22 % de la superficie forestal mundial, el 14 % de la superficie de tierra global y el 7 % de la población del mundo. En esta región se encuentra el mayor bloque continuo de bosque

pluvial tropical del mundo: la cuenca del Amazonas.

La mayoría de los PFNM de la región se destinan a un uso de subsistencia local, aunque algunos se venden en mercados nacionales e internacionales como ingredientes para productos sanitarios y de cuidado personal y de fármacos. La nuez del Brasil (*Bertholletia excelsa*) constituye una notable fuente de ingresos para los grupos indígenas de Bolivia, el Brasil y Perú y es, asimismo, el PFNM comercial más importante: la cadena de suministro proporciona empleo directo a 15 000 personas. Este producto representa el 45 % de las exportaciones de Bolivia relacionadas con el bosque, porcentaje superior al de todos los productos madereros, y contribuye en más de 70 millones de USD anuales a la economía nacional.

Con el objeto de reducir los conflictos entre las comunidades indígenas dependientes de los PFNM y los explotadores madereros y los ganaderos del Amazonas, el Brasil ha creado reservas extractivas para la recolección exclusiva de PFNM. Este modelo, que concede derechos a largo plazo en bosques públicos a grupos dedicados a actividades sostenibles, se está extendiendo en toda la región. Las iniciativas apoyadas por las organizaciones de la sociedad civil y los gobiernos han mejorado la recolección de los PFNM, la agregación de valor y la comercialización, con el respaldo de las organizaciones de certificación y de comercio justo.

Se prevé que, a medida que las economías crezcan y se urbanicen, y se disponga de oportunidades de producción de ingresos más lucrativas, disminuya la dependencia de los PFNM para la subsistencia. La elaboración y la comercialización de productos que ya son bien conocidos mejorarán. Las cadenas de valor locales serán sustituidas en gran medida por cadenas nacionales y mundiales, con frecuencia asistidas por iniciativas de comercio justo y de etiquetado orgánico. (Fuente: *Situación de los Bosques del Mundo 2009*.)

NWFPS IN EUROPE

Europe, consisting of 48 countries and areas, accounts for about 17 percent of global land area but has one-quarter of the world's forest resources, approximately 1 billion ha, of which 81 percent is in the Russian Federation. Europe has a long tradition of multiple-use forest management with substantial emphasis on the provision of social and environmental services.

Although not a major activity in Europe, the collection of NWFPs is a common form of recreation. Key commercial products include Christmas trees, game meat, cork, mushrooms (including truffles), honey, nuts and berries. Most of these have limited but well-established (and sometimes highly profitable) markets. Two recent developments include a decline in the viability of cork production (because of substitutes) and increased interest in food from forests as part of the growing consumer demand for organic products.

As with wood, European producers and forest managers have continuously adapted their practices to take advantage of the changing market conditions. For example, cork producers have improved marketing and introduced stricter quality controls, standards and certification to compete against substitutes. Producers of forest food products in Eastern Europe have taken advantage of low labour costs to serve the niche market for organic foods. In Western Europe, forest managers are earning income from NWFPs, for example through permits for recreational collection of mushrooms or sale of Christmas trees. (Source: *State of the World's Forests 2009*.)

PFNL EN AFRIQUE

Le continent africain, composé de 58 pays et zones, possède des écosystèmes très diversifiés. Il regroupe 14 pour cent de la population mondiale. Les forêts en Afrique couvrent 645 millions d'hectares, soit 21,4 pour cent de la surface totale des terres. Les forêts du bassin du Congo constituent le deuxième massif forestier tropical du monde.

Les PFNL africains (gommes et résines, miel sauvage et cire d'abeille, teintures et

tanins, bambou et rotin, gibier, fourrages et un nombre important de plantes médicinales) sont largement utilisés comme produits de subsistance ou échangés de manière informelle. Leur contribution aux moyens d'existence et leur importance au niveau local dépassent de loin ce qui peut être déduit des statistiques officielles.

Du fait du renforcement des possibilités de commerce local, régional et international, des changements considérables se produisent dans le secteur des PFNL en Afrique. Les Gouvernements africains multiplient les politiques et les lois en vue de formaliser des chaînes de valeur de ces produits. Il est important de noter l'émergence de marchés d'«alimentation ethnique», de plantes médicinales et de produits naturels ou biologiques, comme le miel, la cire d'abeille et le beurre de karité. Plusieurs produits échangés aux niveaux national et international couvrent à la fois les secteurs formel et informel. Les activités de récolte des produits sauvages, par exemple, font partie du secteur informel, tandis que leur transformation et leur vente s'inscrivent dans le secteur formel.

Compte tenu du large éventail des produits et de leurs utilisations finales, il est difficile de faire des prévisions applicables aux différents cas, mais on peut anticiper:

- une consommation de subsistance de la majeure partie des produits, accompagnée d'une attention insuffisante accordée à la gestion des ressources;
- une surexploitation et un épuisement de certaines ressources forestières sauvages récoltées à des fins commerciales;
- une pression supplémentaire exercée sur les ressources en gibier, due à l'augmentation de la population;
- une domestication, une culture et une transformation commerciales d'un petit nombre de produits par des entrepreneurs ou des communautés locales;
- une demande croissante émanant des marchés de niche pour des produits certifiés et des produits du commerce équitable.

(Source: *Situation des forêts du monde 2009*.)



NWFPs IN WESTERN AND CENTRAL ASIA

Western and Central Asia, consisting of 25 countries and areas, is the least forested region in the world, with only 4 percent forest cover (1.1 percent of the global forest area). A few countries account for most of the forest area; 19 countries have less than 10 percent forest cover. About 75 percent of the region is arid, with low biomass productivity. Vegetation ranges from desert scrub in Central Asia and the Arabian Peninsula to pockets of mangrove forests on the Persian Gulf coast and alpine meadows in Central Asia. In view of the low forest cover, trees outside forests, especially on farms and in other wooded land, have important productive and protective functions.

As in other regions, the pattern of NWFP use consists of many subsistence products and a few commercially important ones, many of which are domesticated and cultivated systematically. Subsistence use of and trade in NWFPs are particularly significant for low-income rural communities. In many countries, NWFPs provide more income than wood production.

Commercial products include honey, mushrooms, medicinal plants, pine nuts, walnuts, pistachio nuts, bay leaves, thyme and fodder. In the more diversified economies, commercially important NWFPs have been

systematically developed with private-sector involvement. Lebanon's privately owned pine (*Pinus pinea*) plantations are managed primarily for nut production. The production and processing of, and trade in, bay leaves from Turkey have improved largely because of private-sector investments.

No major changes are expected in the pattern of NWFP use. The main challenge will be to improve the production and value addition of less commercialized products, to develop markets and, thus, to enhance income opportunities for low-income households. (Source: *State of the World's Forests 2009*.)

NWFPs IN ASIA AND THE PACIFIC

The Asia and the Pacific region, consisting of 47 countries and areas, is home to more than half of the world's population and has some of the most densely populated countries in the world. It has 18.6 percent of the world's forest area in a wide array of ecosystems, including tropical and temperate forests, coastal mangroves, mountains and deserts. Rapid socio-economic changes in the region are having profound impacts on all sectors, including forestry. While wood products demand is increasing, so is the demand for environmental services of forests.

NWFPs from the region are diverse – food, medicines, fibres, gums, resins, cosmetics and handicrafts. Most are used for subsistence, collected and consumed locally or traded in limited quantities. More than 150 NWFPs from Asia and the Pacific are traded internationally, although apart from bamboo and rattan the quantities are usually small. Increasing interest in "natural products", owing to their perceived health and environmental benefits, is drawing attention to the multitude of NWFPs commonly used by local communities.

The consumption of many subsistence NWFPs is likely to fall in the long term because of:

- declining supply from the wild, largely because of reduction in forest cover and poor management;
- development of synthetic materials and their substitution for NWFPs as a result

of increasing incomes and consumer access;
 • the decreasing attractiveness of NWFP collection relative to more remunerative and less arduous occupations available when incomes rise.

Several NWFPs – especially medicinal plants – have been commercialized and are traded nationally and globally. Increasing demand has led to their intensive collection and to depletion of

wild stock. Products from open-access public forests are particularly vulnerable. In many cases, collection and trade are informal, offering minimal financial benefits to collectors.

Declining supply from the wild has led to substantial investment in the domestication of some NWFP resources. Bamboo, rattan and several medicinal plants are grown on a large scale and, thus, have largely ceased to be forest

products. Cultivation of medicinal plants on farms and in home gardens, often with technical and financial support from pharmaceutical companies, is becoming popular. As with most cultivated crops, periodic demand-supply imbalances create challenges for organized cultivation of NWFPs. (Source: *State of the World's Forests 2009*.) (Please see page 73 for more information.)

NON-PROFIT ORGANIZATIONS AND NGOS

ApiTrade Africa

ApiTrade Africa is a non-profit-making, member-based company with a Secretariat in Kampala, Uganda, and has the aim of promoting African bee products on the world market.

FOR MORE INFORMATION, PLEASE CONTACT:
 ApiTrade Africa/Uganda Export Promotion Board, 5th Floor, Conrad Plaza, Plot 22, Entebbe Road, PO Box 5045, Kampala, Uganda. E-mail: info@apitradeafrica.org; www.apitradeafrica.org

The Association for Nature and Sustainable Development (ANDES), Peru
 ANDES is an indigenous NGO that seeks to defend indigenous rights to genetic resources, traditional knowledge and landscape character in Peru. It was established in 1995 with volunteer staff and no funding, and has grown considerably over the years. It now works with 39 indigenous rural communities, many of which live in conditions of poverty or extreme poverty.

The association has successfully bridged traditional Quechua principles with modern organizational models to assert indigenous rights to heritage in practical terms by establishing a new form of protected areas known as Indigenous Biocultural Heritage Areas (IBCHAs). These are locally and sustainably managed through community associations; form the basis for local enterprise (agricultural and cultural ecotourism); involve and benefit marginalized groups; unite communities; encourage participation by and

negotiation with indigenous people; and create a model for future protection and development.

FOR MORE INFORMATION, PLEASE CONTACT:
 Asociación ANDES, Calle Ruinas 451, Casilla Postal N° 567, Cusco, Peru. Fax: 51-84-232603; e-mail: andes@andes.org.pe; www.andes.org.pe/

Le Centre de développement des forêts communautaires au Cameroun

Le Centre de développement des forêts communautaires, CeDeFCom, est une organisation non gouvernementale (ONG) à but non lucratif. Basé au Cameroun, il travaille dans le domaine de la conservation des écosystèmes forestiers et de la faune sauvage. Crée en 1998, il a été reconnu officiellement en 2001.

Le Centre vise la promotion des initiatives locales de développement en harmonie avec la nature, c'est-à-dire leur organisation et leur consolidation en vue de mettre en place des communautés villageoises fières de leur existence dans un environnement aimé et protégé.

POUR PLUS D'INFORMATIONS, CONTACTER:
 Atangana Enama Barthélémy Léopold, Coordonnateur des programmes, CeDeFCom, B.P. 379, Mbalmayo, Cameroun. Courriel: cedefcom@yahoo.fr

PALM FRONDS: FAIR TRADE AND ECOFRIENDLY

This weekend about 2 500 congregations from every major denomination will use fair-trade palm fronds in their annual celebration of Jesus' arrival in Jerusalem in the days before his crucifixion.

The University of Minnesota's Eco-Palms programme ensures that the leaves were harvested in Mexico and Guatemala in an environmentally sensitive manner by workers getting paid a fair price and organizers say they are getting more orders than ever.

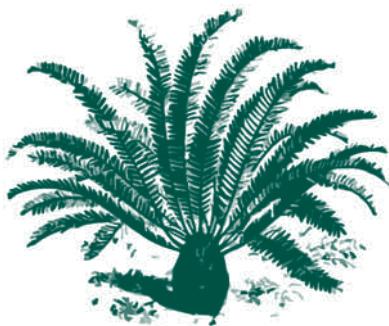
The project grew from a 2001 study on the effects of the North American Free Trade Agreement (NAFTA) to a 2005 pilot project that today has become a US\$4.5 million business.

The project makes sure that workers get a better wage for picking only the highest-quality fronds from palm trees growing wild in the rain forests of northern Guatemala and southern Mexico's Chiapas state, a practice that allows the plants to continue growing.

And communities also benefit through an annual rebate. The programme this year, for example, will send about \$32 000 to ten communities in Guatemala. Money in the past has been used for scholarships for girls and to supplement teacher salaries. (Source: Associated Press in wcco.com [United States of America], 3 April 2009.)

PHOTOVOICES: NEW WAY TO SHARE TRADITIONAL KNOWLEDGE

Photovoices provides cameras and training on the basics of good photography to indigenous people, many of whom cannot read or write. Each project lasts from six months to a year. Facilitators, fluent in local languages and dialects, are assigned to visit the villagers each month to document the stories behind the photos on a computer. The information is then given to scientists and government leaders. (Source: *The New Straits Times* [Malaysia], 17 March 2009.)



SUSTAINABILITY STANDARDS IN WILD PLANTS HARVESTING – FAIRWILD AND ISSC-MAP

Two sustainability standards specialized in wild harvesting of plants – the FairWild (FW) Standard and the International Standard for Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP) – recently merged into one enterprise, offering a comprehensive framework for ecological, social and economic certification of products and guidelines on sustainable resource use for governments, intergovernmental organizations (IGOs), NGOs and a wide range of other stakeholders.

Joint implementation of FW and ISSC-MAP addresses overall sustainability requirements in a more efficient manner than any of the other existing standards. In October 2008, at the IV IUCN World Conservation Congress in Barcelona, Spain, an agreement was signed between the four founding institutions of ISSC-MAP to endorse global implementation of the standard through the newly established FairWild Foundation. The German Federal Agency for Nature Conservation (BfN), the Medicinal Plant Specialist Group (MPSG) of the International Union for Conservation of Nature (IUCN) Species Survival Commission (SSC), the World Wide Fund for Nature (WWF Germany), Swiss Import Promotion Programme (SIPPO), Forum Essenzia e.V. and the Institute for Marketecology (IMO) are among the organizations involved in activities of standards development since inception.

While ISSC-MAP is primarily an ecological sustainability standard with supporting elements of economic and social sustainability, the FairWild Standard is primarily a social standard with supporting elements of ecological and economic sustainability. Certification is based on resource assessment, the management plan, sustainable collecting practices, cost calculation along the supply chain,

traceability of goods and finances and documented fair-trading practices.

A few wild harvest enterprises, from Europe to Central Asia, have achieved the minimum entrance criteria for FairWild certification, meeting the fair-trade requirements for the social certification component and organic wild-crop certification as the minimum indicator for the ecological component. As a result, certified finished herbal products should begin to appear in the European and North American markets by late 2009. These initial products will be certified on the basis of meeting fair-trade and organic wild requirements. As the checklist for ISSC-MAP compliance is still under development, this module will be gradually implemented in a stepwise approach over a few years.

Countries in which the FairWild and ISSC-MAP Standards are currently being implemented include, among others, Afghanistan, Bosnia and Herzegovina, Brazil, Cambodia, France, India, Lesotho, Macedonia, Nepal, South Africa and Uzbekistan.

Some of the key plant species include liquorice (*Glycyrrhiza glabra*), cardamom (*Amomum ovoideum*), cinnamon (*Cinnamomum cambodianum*), kutki (*Neopicrorhiza scrophulariiflora*), chiraito (*Swertia chirayita*), jhula (*Parmelia* spp.), *Ailanthus triphys*, puxuri (*Licaria puchury-major*), buriti (*Mauritia flexuosa*), preciosa (*Aniba canellilla*), andiroba (*Carapa guianensis*), andirobinha (*Carapa procera*), *Pelargonium sidoides* and wild garlic (*Allium ursinum*).

The FairWild Foundation hopes that the major beneficiaries from the application of the standards will be the wild collection communities, which will be supported and rewarded for implementing these sustainable collection practices in partnership with their trade partners up through the supply chain.



Glycyrrhiza glabra

The marketing of FairWild certified ingredients and finished products will benefit companies that support ecological and social best practice throughout the supply chain from processors and wholesale ingredient distribution companies to finished product marketers and manufacturers, finished product distributors and retailers of certified products.

The FairWild Foundation is looking for partners among businesses, governmental and non-governmental organizations.

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THE ROLE OF NWFPS AND FORESTS IN IMPROVING AND SUSTAINING LIVELIHOODS

Forests sustain livelihoods

Forests play an important role in the livelihoods and welfare of a vast number of people in both developed and developing countries – from urban citizens taking a recreational stroll in a nearby forest to isolated hunter-gatherers who live in and off the forest.

The World Bank has estimated that 1.6 billion people around the world depend to some degree on forests for their livelihoods. Although only an estimate, this clearly indicates that forest dependency is widespread. In developing countries, it is projected that a large number of people will remain at or below the poverty level. In relation to forests, this raises the question of whether forested areas can play a role in poverty alleviation.

A livelihood involves income-generating activities determined by natural, social, human, financial and physical assets and access to these. Trees, shrubs, herbs, game and a wide range of other forest products all constitute important natural assets that are harvested in significant quantities by a large number of households across virtually all forest types. Such assets therefore make an important contribution to livelihoods.

Examples are numerous. Forest-harvested fuelwood is an important source of household energy for heating and cooking in many countries. NTFPs, such as bushmeat, are important to help meet dietary deficits and are a vital source of protein. Medicinal plants from the forest, used in self-medication or in traditional medicine systems, are in many regions the sole or main source of medicinal remedies for maintaining or improving health. Small-scale forest product processing, such as wood carvings or cane furniture, may be an important source of non-farm employment.

Even though forests are often very important to households, there is surprisingly little knowledge on the actual level of household forest income and the role of such income in maintaining livelihoods. Households typically use forest products for subsistence purposes or products are traded in informal markets. Much forest use is therefore not recorded in regular income surveys. However, available evidence indicates that income derived from the forest may constitute 20 percent or more of total household income, with the poor being the most dependent on forests.

There is evidence that forests are often of particular importance for women, children and ethnic minorities. For instance, forest foods are crucial for many children and the involvement of women in NTFP collection and trade improves intrahousehold equity. There are also studies indicating that richer households may be highly forest dependent – although such dependence relates to other sets of products than those extracted by poor households. For instance, fuelwood and the use of dung have been found to decrease as income rises in India, while fodder and the use of wood for construction increase.

The evidence regarding the role of forests in allowing households to move out of poverty is scant and mixed; there are examples such as the above study from India indicating that income from forests allows households to accumulate assets

and escape poverty. However, by way of contrast, figures from Madagascar show that areas there with high forest cover have low densities of people but high poverty rates.

The World Bank and FAO have urged that forests can and must play a far greater role in meeting the United Nations Millennium Development Goals, including the target of halving extreme poverty by 2015. There are also international initiatives aimed at improving our understanding of the relation between forests and livelihoods and the impact of policies on such relations, including the Poverty and Environment Network, the Programme on Forests and the International Forestry Resources and Institutions research programme.

Being able not only to harvest forest products but also to transport and sell such products is important for hundreds of thousands of households in order to exploit the benefits of the forest fully. However, legislation often discriminates against small forest users, typically by heavily regulating their access rights. It also often gives preferential treatment to influential companies and organizations and promotes corruption. Such is the case in Honduras where local communities cannot gain secure rights to the forests in which they live while common, systematic and high-level corruption has characterized the workings of the timber industry. There is thus scope for increasing the contribution of forests to poverty prevention and reduction.

Building upon the emerging evidence of the absolute and relative importance of forests and forest products for livelihoods, governments and other development bodies should take action to make policy reforms in negotiation with small-scale forest users in order to create conducive production conditions, including securing ownership and rights use; and revise legislation in order to remove bias against household-level producers and supporting small-scale commercial units, including community-based forestry. Such initiatives would allow households to use forests actively, enabling them to build up their assets and improve their livelihoods. (Source: *Vital Forest Graphics*, 2009.)

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The role of NWFPs in improving rural livelihoods

NWFPs play many different roles in supporting the rural economy by contributing to subsistence food security; nutrition; medicine; generation of additional employment and income; supply of raw materials; opportunities for processing enterprises; foreign exchange earnings; and the support of biodiversity conservation and other environmental objectives.

In addition, the activities related to the collection and primary processing of NWFPs represent opportunities for rural women to engage in income-generating activities. The degree of processing and value addition varies greatly between NWFPs, and while trade in some products is largely confined to regional markets, others are successfully traded internationally.

Over the past 20 years, there has been a rapid growth of interest in NWFPs among both conservation and development organizations. This is the result of increased recognition of the contribution that these goods make to the livelihoods of large numbers of people in developing countries; however, this potential contribution is not always realized.

When thinking about the contribution of NWFP activities to reduce poverty and vulnerability, and stimulate rural development, three different NWFP-use strategies have been identified. They highlight the fact that people may use NWFPs in different ways at different times, or that the same NWFP may provide a safety net for some and a stepping stone for others.

The three categories of NWFP activity with regard to *poverty reduction* are the following.

- 1) Safety nets to prevent people from falling into greater poverty by reducing their vulnerability to risk. These are particularly important in times of crisis and unusual need (e.g. during natural disasters, such as drought or family illness).
- 2) Gap-filling activities, carried out regularly during the non-agricultural season, allowing for income spread and generally making poverty more bearable through improved nutrition or higher income. There is a large body of evidence suggesting that, although many NWFP-based activities generate only small amounts of income, the timing of this income during the non-agricultural season may increase its relative importance. Such seasonal income can play a key role in reducing the vulnerability



of the poor through a decrease in the variance of their annual revenue.

3) Stepping-stone activities to reduce poverty. Where these can permanently lift people out of poverty, the activity is termed poverty removal or elimination. It is only in areas that are well integrated into the cash economy that some NWFP producers are able to pursue a specialized strategy in which the NWFP contributes more than 50 percent of total household income and collectors and producers tend to be better off than their peers.

Likewise, three *household economic strategies* have been identified with regard to NWFP activities, based roughly on the level of integration into the cash economy and the proportion of household income contributed by the NWFP. They are the following.

1) *Coping strategies*. Households wild harvest a large number of NWFPs from unmanaged or lightly managed forests and, in most cases, resources are in decline.

2) *Diversified strategies*. Households use NWFP-generated income as additional income, earning the bulk of their income from agriculture or non-farm sources.

3) *Specialized strategies*. Households following these strategies tend to get better production per hectare of NWFPs, command higher prices for their products, have higher household incomes and are the most integrated into the cash economy.

Thus, there is a need for those involved in and supporting NWFP activities to be both realistic about objectives and outcomes, and clear and methodical about how the social and ecological impacts will be monitored and managed. (Source: Elaine Marshall and Cherukat Chandrasekharan. 2009. *Non-farm income from non-wood forest products*. Diversification booklet 12. Rural Infrastructure and Agro-Industries Division. Rome, FAO.)

(See also pages 30 and 73 for more information.)

TULSI TO "INSULATE" THE TAJ MAHAL

Tulsi, the well-known medicinal herb *Ocimum sanctum* (also known as holy basil), will now help to protect the Taj Mahal from environmental pollution. One million tulsi saplings will be planted near the marble mausoleum by the Uttar Pradesh Forest Department and the Lucknow-based Organic India.

Tulsi is one of the best plants to purify the environment. It cleanses as it releases high amounts of oxygen, which minimizes the adverse impact of industrial and refinery emission.

(Source: *The Hindu*, 5 February 2009.)



WHO OWNS THE WORLD'S FORESTS?

Who owns the world's forests? When Andy White and Alejandra Martin posed and answered this question in their 2002 report by the same name, they found that 77 percent of forests worldwide were administered by governments. The good news was that the forested area owned and designated for use by local communities and indigenous peoples was rising.

William Sunderlin and colleagues have now updated the numbers in their report, *From exclusion to ownership? Challenges and opportunities in advancing forest tenure reform*. Their findings are sobering for those who hoped to see an upsurge in community control over forests. Sunderlin *et al.* found that only a few of the 30 most forested countries in the tropics had made significant changes in forest tenure since the 2002 study. Most are in Latin America.

Brazil alone is responsible for much of the global progress, with an increase of 56 percent in the forest area designated for use or owned by communities and indigenous peoples. Peru and the Plurinational State of Bolivia recorded significant increases. Colombia also posted a small increase. In Africa, communities made small gains in the United Republic of Tanzania, the Sudan and Cameroon. But Zambia and the countries of the Congo Basin registered virtually no change at all. In Asia, India added more than 5 million ha to the forested area designated for use by communities and indigenous peoples. Indonesia recorded no gains.

Even in the few countries that have reformed forest tenure, the granting of rights has not guaranteed their realization. In Peru, for example, the Government has allocated forested areas for oil, gas and mining exploration in violation of indigenous land titles in the Amazon. In Brazil, the Government has failed to prevent illegal incursions into extractive reserves by loggers, ranchers and miners. Even when there is a will to recognize rights, there is not necessarily a way: meaningful tenure reform requires administrative capacity,

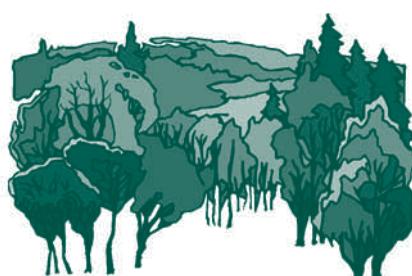
expertise and financial resources to demarcate and enforce community rights.

Are there any reasons for optimism? Sunderlin says yes. Countries ranging from Angola to the Bolivarian Republic of Venezuela have made changes in law and policy to facilitate recognition of indigenous, customary and community rights to forest lands. These recent developments could set the stage for accelerated tenure transitions in the near future. In addition, rising interest in Reducing Emissions from Deforestation and Forest Degradation (REDD) will put a new premium on clarifying forest-related property rights.

But unless the pace of change is quickened and extended to more countries, it could take decades to shift the global balance of forest ownership from governments to rural people. Translating rights on paper into control over what happens on the ground is an equally daunting challenge, and one that will depend on sustained commitment from potential beneficiaries, governments and the international community.

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Knowledge is power. Information is liberating. Education is the premise of progress, in every society, in every family.

Kofi Annan

BAMBOO



Bamboo bicycles: a growing industry

Riding your bike to work is becoming even more environmentally friendly with the growth of the bamboo bike industry. Londoners who can afford the £3 000 price tag can now buy an organic, biodegradable bike made from bamboo. Calfee Design, one manufacturer of bamboo bikes, is using bamboo harvested in the remote mountains of Yushan National Park, Taiwan Province of China. The bamboo is shipped to the United States of America where it is smoked and heat-treated to prevent splitting. The pieces are then assembled with lugs made from hemp fibre and sent to the United Kingdom for sale.

Bamboo bikes are cropping up in the United States of America as well, and you can even take part in the construction of your ecofriendly transportation. Bamboo Bike Studio, based in New York, is offering two-day bamboo bike-building courses. For US\$1 000, you get all the raw materials and instructions to build your own bike, custom-fit for your body and riding style and made with a local, renewable resource – all while supporting a good cause. That cause is the Bamboo Bike Project, which seeks to build a sustainable, ecofriendly bike industry in Ghana – to create a sustainable form of transportation for poor Africans in rural areas.

Here are a few additional reasons why bamboo bikes are growing in popularity:

- bamboo absorbs five times as much greenhouse gas as a “conventional” tree plantation;
- it does not undergo fatigue like metal;
- it is stronger than mild steel and more elastic than carbon fibre;
- it is the fastest growing plant: some species can grow 1.5 m per day.

If the cost does not turn you away, a bamboo bike could soften your ride to work and your impact on the planet. (Sources: various.)

Bamboo keyboards manufactured in China

Jiangqiao Bamboo and Wood hail from China's Jiangxi Province, where bamboo resources are plentiful. Although the company began as a flooring company, it is now diversifying its production to include the latest in green design: bamboo keyboards.

In recent years, bamboo has gained popularity as a sturdy, sustainable alternative to wood flooring. Currently, China produces 200 000 m³ of bamboo plywood annually.

Jiangqiao, which began manufacturing the green keyboards last October, has already received orders for 40 000 finished units and is China's sole producer of these keyboards. The company says the product is as strong as its plastic equivalent. Proof that bamboo's strength surpasses what its flexibility suggests lies in the fact that modern Hong Kong developers prefer bamboo over steel reinforcing rods when constructing some of the world's tallest skyscrapers.

Jiangqiao faced the same difficulties that are typical when adapting bamboo for industrial use: keeping the bamboo keyboard frame from cracking, preventing the bamboo bottom plate from distorting and firmly fastening the buttons with the main board. However, the company has successfully developed (and patented) its formula, and also developed a bamboo mouse and USB expected to go on the market this spring.

Although Jiangqiao is not the first company to use natural resources in computer accessories, it may be the most ecofriendly. Much of the bamboo used in the keyboards is leftover scrap from bamboo floorboard manufacturing, says the company's general manager.

Combining efficiency with aesthetically pleasing design, Jiangqiao is earning a name for itself in innovation and sustainability. (Source: Sustainablog.com [United States of America], 7 May 2009.)

Bamboo, cornstalk used in cement-bonded boards in the Philippines

Manila. The Forest Products Research and Development Institute (FPRDI) of the Department of Science and Technology has developed a low-cost construction material from bamboo and cornstalk. Dr Dwight Eusebio, head of FPRDI's Composite Products Section, said the alternative

construction material, called cement-bonded board or CBB, is made from locally available agroforest waste materials.

Eusebio said two bamboo species – kauayan tinik (*Bambusa blumeana*) and bayog (*Bambusa merrillianus*), which thrive all over the country – were selected in making the boards.

The other material, cornstalk, also abounds in the countryside and has no use in most farms in Cagayan and the Ilocos Provinces, including La Union.

Eusebio said CBBs have shown good properties and met required standards in laboratory tests. He said they based the standards on a previously developed wood wool cement board (WWCB) made of yemane (*Gmelina arborea*).

“CBBs are generally known for their resistance to fire, water damage, fungal and termite attack. They also provide excellent sound and thermal insulation,” Eusebio said. CBBs passed tests on such properties as static bending, nail head pull-through, thickness swelling and water absorption, he added. He said these boards are commonly used as exterior panels, interior partition walls and ceilings, and in cabinets.

Eusebio said he and a building product manufacturer in Bay, Laguna have already produced 24 2 x 8 ft (0.6 x 2.4 m) boards, which are more than enough to use for a housing unit in Tandang Sora, Quezon City to test the serviceability of CBBs.

FPRDI is mandated to conduct basic and applied research and development to improve the utility and value of wood and non-wood products. (Source: *The Philippine Star* [Philippines], 7 May 2009.)

Are ecoconscious consumers being bamboozled?

Because of its many benefits, bamboo has been touted as an environmental miracle crop. It is a significant carbon sink, grows quickly, is more termite-resistant than timber, and can be used for everything from food to clothing material to scaffolding for building construction. But are environmentalists being bamboozled? Despite its benefits, increased bamboo production may also give rise to a number of concerns.

Perhaps the most pressing concern about bamboo arises from the fact that it cannot be sustainably grown on a large scale in North America and Europe, meaning it has to be imported from abroad. Currently, 80 percent of the world's bamboo production comes from China.

There is also concern that increased demand for bamboo could encourage farmers to bolster their use of pesticides to boost yield, which would readily accumulate as runoff in the moist regions where bamboo grows best.

There is also increased distress that bamboo is environmentally inappropriate as a raw material for textiles and clothing fabrics. Because of its rugged fibres, bamboo must be cooked in strong chemical solvents and turned into a viscose solution before it can be reconstructed into proper weaving material.

Furthermore, while expanding bamboo production worldwide could help to prevent deforestation and timber usage at home, there are concerns that it could prompt farmers in the developing world to clear their native forests.

The good news is that many of these concerns are outweighed by the immense benefits that bamboo production brings. Agricultural efficiency is easily its largest benefit. Since bamboos are the fastest growing woody plants in the world, the crop can be replenished quickly. Furthermore, bamboo is self-regenerating, which means that after the stalk has been cut, it rapidly regrows from the remaining rootstock. As long as bamboo is grown in its native habitat, its impact on local ecosystems is minimal compared with the destructive foresting practices of timber production.

Although concerns about bamboo as a textile and clothing fabric are warranted, bamboo is a remarkably suitable replacement for timber as a building material.

Moreover, despite the fact that almost all bamboo has to be imported to North America and Europe, the carbon-conscious consumer can rest more easily knowing that the fuel used for transporting bamboo from Asia to California is essentially equivalent to shipping timber coast-to-coast in the United States of America, according to the United States Department of Energy.

For farmers and local communities in developing countries such as Viet Nam, it is impossible to deny the economic benefits of growing more bamboo. As many as 1.5 billion people already rely upon bamboo or rattan in some significant way, according to the International Network for Bamboo and Rattan (INBAR). (Source: Ecoworldly, *Guardian Environment Network*, guardian.co.uk, 18 February 2009.)

USE OF NEEM (*AZADIRACHTA INDICA A. JUSS.*) SEED OIL TO PROTECT BAMBOO

Bamboo, a woody perennial plant belonging to the family Poaceae, plays a dominant role as a woody raw material for a variety of products. There are about 75 genera and 1 250 species of bamboo in the world, of which 30 genera and 136 species occur in India; the total forest area covered by bamboo is 9.57 million ha. India is considered to be the second largest producer of bamboo, where annual production may reach up to 4.6 million tonnes.

Because of its remarkable growth rate and versatile properties, bamboo has been exploited for various industrial and architectural uses. It has wide application in the manufacturing of pulp and paper, as a constructional material and for the preparation of handicraft articles.

However, low natural durability and biodegradation by fungi, termites and borers are significant problems in bamboo. Decaying fungi seriously affect the pulp yield, resulting in a loss of up to 25 percent per year. In addition, the loss of fibrous material caused by fungal, borer or termite attack increases chipping losses and reduces digester capacity.

The service life of bamboo can be increased by treatment with preservative solutions. The Forest Research Institute, Dehra Dun, India has been working towards the development of various methodologies and chemicals to enhance the service life of bamboo. Research has been directed towards the

development of preservatives prepared from natural products since synthetic preservatives possess environmental polluting properties. *Azadirachta indica*, commonly known as neem, which is a native of the Indian subcontinent, is known for its marked medicinal, insecticidal, pesticidal and fungicidal activity. Previous studies carried out at the Forest Research Institute have also suggested that samples of non-durable wood species treated with neem seed oil performed excellently when subjected to wood-decaying fungi and termites.

A study was therefore carried out to screen the potential of neem seed oil for bamboo protection. The oil was impregnated at different concentration levels into various species of bamboo by the Boucherie process. Treated and untreated samples of bamboo, converted into a sample size of 1 ft (30.5 cm), were installed in a test yard and observations were made at regular intervals on a visual basis. After 12 months, it was noted that samples treated with 10, 15 and 20 percent of neem seed oil were in a sound and normal condition as compared with the control untreated samples that were moderately attacked by termites and fungi.

Further study is therefore required to explore and exploit the potential of neem seed oil for bamboo and wood protection so that it can replace synthetic chemicals. (Contributed by: Dr Swati Dhyani, Wood Preservation Discipline, Forest Products Division, Forest Research Institute, Dehra Dun, Uttarakhand, India. E-mail: swatidhyani2004@yahoo.co.in

Bamboo firewood and charcoal programme in Ethiopia and Ghana

Addis Ababa, Ethiopia. The International Network for Bamboo and Rattan (INBAR) and the European Union, together with their partners: the Rural Energy Development and Promotion Centre (EREDPC), Ethiopia; the Forestry Research Institute of Ghana (FORIG); the Federal Micro and Small Enterprises Development Agency (FeMSEDA), Ethiopia; the Bamboo and

Rattan Development Programme (BARADEP), Ghana; and Nanjing Forestry University (NFU), China, announce the launch of their "Bamboo as sustainable biomass energy: a suitable alternative for firewood and charcoal production in Africa" programme in Ethiopia and Ghana.

The project is the first to develop bamboo firewood and charcoal as an alternative to timber charcoal in the region. It will increase the range of useable bamboo available in

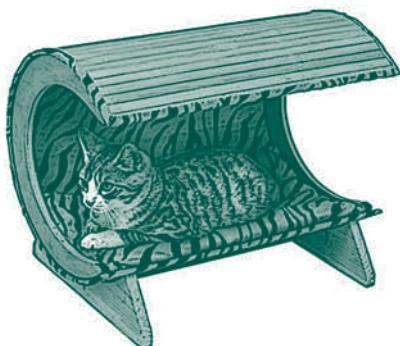
each country, establish bamboo charcoal micro and small enterprises (MSEs), and help government and civil society organizations to support bamboo firewood and charcoal production and use. The experiences from the programme will be applicable throughout the bamboo-growing regions of Africa.

Dr Coosje Hoogendoorn, Director General, INBAR said: "We are very excited to launch this innovative new programme today. The new bamboo charcoal technologies developed in Asia by INBAR and our partners over the past decade have enormous potential to help reduce deforestation and generate sustainable incomes, and this programme marks a major step in their application for improved energy security, environment and livelihoods of the peoples of the bamboo-growing regions of Africa."

The programme will work in Benishangul-Gumuz state, Amhara national regional state and Southern Nations Nationalities and Peoples' regional state in Ethiopia and the Western region of Ghana to develop at least 1 000 enterprises producing bamboo charcoal, and 30 000 households using it. It will train over 6 000 people in bamboo cultivation, best bamboo firewood practices and bamboo charcoal production, set up three bamboo charcoal technology centres and develop marketing strategies for bamboo charcoal.

Funding for the programme comes mainly from the European Commission's "Environment and sustainable management of natural resources, including energy" programme. [Source: INBAR press release, 6 April 2009.]

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FRANKINCENSE

Frankincense: a brief update

The year 2008 saw the publication of a number of papers on the analysis and therapeutic properties of frankincense gum, extracts and distillates. Frankincense gum (syn. *olibanum*) (syn. *incense*) is obtained by tapping the trees of a number of *Boswellia* spp., and the gum and derivatives are valuable exported commodities for the Horn of Africa region (Djibouti, Ethiopia, Eritrea, Somalia and the island of Socotra [off Yemen]), but also for the Sudan and other African regions. Frankincense gum is used to prepare incense, and extracts and distillates have been widely used as fragrance ingredients. Indian, Arabian and African *Boswellia* spp. have a number of uses in local ethnic medicine, which is starting to translate into uses in evidence-based conventional medicine (see, for example, the major feature on frankincense and derivatives in *Phytomedicine*, June 2008).

For a working definition, frankincense can be said to be the dried exudation obtained from the schizogenous gum-oleoresin pockets in the bark of various *Boswellia* spp. – the *Boswellia* group itself being placed within the Burseraceae 12 family.

Frankincense has been very highly valued for thousands of years, and has many uses and applications. It is the Horn of Africa's highest volume export and, apart from uses in incense/perfumery, the gum oleoresin and preparations thereof are also used in a number of medicinal systems, for flavourings and for skin cosmetic applications for toner, emollient and antiwrinkle uses.

Several *Boswellia* spp. are listed in the IUCN Red List of Threatened Species 2008, including several individual species from the island of Socotra. [Source: Cropwatch Newsletter [United States of America], 14 January 2009.]

Frankincense oil may be a treatment for bladder cancer

According to a study published this week in *BMC Complementary and Alternative Medicine* 2009, 9:6, "Frankincense oil derived from *Boswellia carteri* induces tumor cell specific cytotoxicity". Scientists at the University of Oklahoma Medical Center have found *in vitro* evidence that frankincense oil (probably its constituent boswellic acid) can kill bladder cancer cells without affecting non-cancerous cells.

In order to determine that frankincense was the effective oil, they compared it with sandalwood, fir, palo santo and hemlock oils, which did not differentiate between the types of cells. The study references numerous other studies that have found that frankincense has potential in treating cancerous cells. [Source: Aroma Connection [United States of America], 21 March 2009.]



HEDYCHIUM SPICATUM

Hedychium spicatum – a commercial Himalayan herb needs entrepreneurship at local level

The genus *Hedychium* (Zingiberaceae), represented by about 50 species, is found in Africa (Madagascar) and tropical to warm-temperate Asia, with major distribution in tropical and subtropical Asia. Of 30 species in India, *Hedychium spicatum* Buch.-Ham., a rhizomatous perennial herb, is native and near endemic to the Indian Himalayas, growing along a 900–2 800 m altitude in temperate/subtemperate forests in Himachal Pradesh to Arunachal Pradesh; it is found up to 3 200 m in China, Bhutan, Myanmar and Nepal.

Commonly referred to as "bari-sothi/ban-haldi" (shathi) or "kapurkachari" (in the trade), it is used in the Indian indigenous medicine system.

Its robust pseudostem (<1.5 m) produces broad sessile leaves and extends a little over 30 cm. The white flowers in terminal spikes are fragrant and attract visitors.

This species has scarcely been studied substantially for quantum availability in nature, which is sciophytic, growing as patches, with partial shade. I have investigated over a dozen microhabitats within Himalayan niches. In the relatively dry northwest, the species grows on the ground, especially shady/rocky habitats, whereas in the high rain zones of Sikkim, it flourishes as an epiphyte, besides retaining ground niches.

Uses. The rhizomes yield about 4 percent essential oil, possessing antiseptic properties, considered stomachic, carmative, stimulant, insect-repellent and tonic and are used for dyspepsia, asthma, diarrhoea, dropsy, headaches and skin diseases. In addition, the plant is used to curb hair loss. Abir, a fragrant coloured powder marketed for religious ceremonies, is prepared from dried rhizomes. Recently, in the preparation of the anticancer drug,

PADMA 28, a rich antioxidant supporting healthy circulation and general immune health (as PADMA Basic multiherb Tibetan medicine-based formula), a crude rhizome extract of *H. spicatum* is used, as an important ingredient of a mixture among 18 dried/milled herbs/spices, etc. In Tibetan medicines, the species has 19.43 percent uses in 175 herbal formulations. Similarly, one of the pharmaceutical companies in India revealed in the Therapeutic Index its use in 10.3 percent of 233 formulations.

Ethnobiologically, the species is not commonly popular throughout the Indian Himalayas, but use is practised specifically in different regions. In Himachal Pradesh, I studied ethnobiological use of its leaves in making mats for the home, combined with wheat straw, enhancing the durability of the product. In Manipur, the rhizome is cooked to prepare chutney. However, in Sikkim, the people do not see its importance even though appropriate agroclimatic conditions exist, indicating the immense possibility of adopting species under *ex situ* cultivation.

Markets. *H. spicatum* is traded in India and wholesalers are available – the Amritsar and Delhi markets are particularly large. As dried slices, rhizomes are marketed from different Himalayan ranges. Large traders often employ local agents to collect raw material from villagers, who are lured economically for *in situ* harvesting. In Himachal, the species is mentioned under export permit after 1993, by the State Forest Department, with Rs70/quintal royalties. In Sikkim, by 2001, the state government had completely banned the harvesting of herbs from the wild, viewing their depletion with concern. However, good populations of *H. spicatum* at present available are an important genetic resource and need to be identified and evaluated for elite stock and immediate *ex situ* multiplication. In recent years, few organizations have fixed their selling rates of self-produced fresh rhizomes/whole plants of herbs; for *H. spicatum*, rates varied between Rs8–10/plant or 50–80/kg (fresh rhizome).

Increased wild harvesting has led *H. spicatum* to be considered vulnerable (IUCN criteria; CAMP workshop, north India), and as rare for Garhwal-Himalayas. Specific habitat requirements have made the species highly susceptible to forest degradation. Ongoing global warming and resulting habitat loss may further adversely affect its populations. Its natural spread is



Hedychium spicatum

highly rhizome-dependent and voluminous *in situ* harvesting may negatively influence its survival.

For global demand, the herb offers immense scope for commercial entrepreneurship through *ex situ* conservation/cultivation. Rhizome segments may be used for developing planting material at short intervals and *ex situ*-produced seeds for mass multiplication. Sandy loam soil with forest humus is the best substrate for vegetative propagation providing >90 percent success and averaging 30–60 percent seed germination in wild populations. Standardizing propagation, suited to regional physiography, is a prerequisite, choosing 2 000–2 400 m as appropriate altitudes. Organic-based field demonstrations at different agroclimatic zones, involving stakeholders, are strategic at the local/regional level.

Marketing produce should not be a problem; direct connectivity between growers and pharmaceuticals needs strengthening and scientific guidelines/monitoring are vital. (Contributed by: Dr Hemant K. Badola, Scientist, Conservation of Biodiversity, G.B. Pant Institute of Himalayan Environment and Development, Sikkim Unit, Gangtok (Campus: Pangthang), Sikkim 737 101, India. E-mail: badolahk@yahoo.co.in or kbadola@rediffmail.com)

HONEY

Scientists identify antibacterial agent in manuka honey

Chemistry Department researchers at New Zealand's Waikato University made a breakthrough discovery when they identified the source of the antibacterial

activity in manuka honey. Waikato University Associate Professor Dr Merilyn Manley-Harris said: "We have known for some time that a unique antibacterial activity of manuka honey is associated with the presence of methylglyoxal, or MGO. But until now the origin of methylglyoxal was not known."

The research showed dihydroxyacetone, or DHA, was present in young honey shortly after the bees had deposited it in the comb. As the honey ripens, the DHA converts to MGO, the component that gives manuka honey its antibacterial activity. The researchers stored the young manuka honey for 120 days and found a strong correlation in the dropoff of DHA, and an increase in MGO. Since DHA is not antibacterial like MGO, the antibacterial activity increases as the honey matures.

Dr Manley-Harris said that when the researchers realized that DHA was the precursor of MGO, they set about determining its origin. "They discovered it when they tested the nectar from manuka flowers from various trees around Hamilton and the Waikato," she said.

This discovery will enable producers to determine when a batch of honey will mature, whether it will remain inactive and other details. (Source: Indian newslink [New Zealand], 12 May 2009.)

British beekeepers charge high prices for "local" manuka honey

Beekeepers in the United Kingdom have imported manuka plants from New Zealand to produce their own version of medicinal manuka honey, which they are selling at £5 (US\$13) a teaspoonful.

The honey is being produced on the Tregothnan estate in Cornwall, United Kingdom. Tregothnan's garden director, Jonathan Jones, said: "The honey is expensive, but it is Britain's only manuka honey. It has become a lifestyle product, a luxury. This year is the first time the plants produced nectar, which gave us our first jars, around 100. They were sold to women of a certain age who are very health conscious, but recently we have been getting much wider interest."

The estate company claimed the price tag was justified because its 100 000 bees are housed in 20 special hives claimed to be worth £5 000 each and have the exclusive run of the garden's manuka bushes.

The honey is claimed to have medicinal qualities and can help ailments including

gum disease, sore throats, acne, sunburn and digestive problems. (Source: *The New Zealand Herald* [New Zealand], 19 May 2009.)

Exporters misuse the "Kashmir" honey brand

Honey exporters of Punjab and Tamil Nadu have been alleged of selling inferior quality honey under the brand name "Kashmir". Kashmiri apiculturists have demanded legal action against the "brand theft".

Apiculturists have alleged that a Punjab-based exporter, Kashmir Apiaries Exports, a leading honey producer in India, has been selling honey extracted from Punjab and elsewhere under the Kashmir brand to European and Middle Eastern countries.

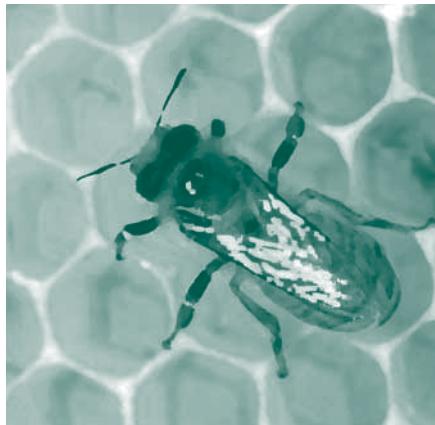
Every year, 70 000 tonnes of honey are produced in India, of which 25 000 tonnes are exported. Punjab's contribution to the honey exports is around 5 500 tonnes, of which 3 000 tonnes, worth US\$3 million, are exported to the United States of America, United Kingdom, Europe and West Asia.

Although the Punjab-based honey exporter claims to be collecting honey from Kashmir to Kanyakumari, Kashmiri bee keepers belie the claim, saying that the exporter is cheating buyers by mixing Kashmir honey with significantly large volumes of honey produced from other states.

Lion Kashmir Honey, a Chennai-based honey exporter, claims to meet international standards for the Kashmir status. However, since no geographic identification (GI) status has been granted to Kashmir honey, such claims by manufacturers are baseless. A proposal has already been sent to the Ministry of Food Processing and as soon as Kashmir honey is granted a GI status, a campaign will be launched against all such parties.

Kashmir honey is unique because it is produced from wild trees – about 90 percent from acacia trees (commonly known as kikar) and the remaining 10 percent from wild flowers. The honey produced in other states comes either from poplar trees or mustard plants. Moreover, Kashmir honey is a fertilizer- and pesticide-free product, and its glucose and fructose content is several times higher than that of the honey produced in other parts of the world.

If the Good Manufacturing Practices (GMP) and Good Agricultural Practices (GAP) standards are maintained, 1 kg of



Kashmir honey would sell for more than Rs1 000 on the international market. (Source: Institute of International Trade [India], 12 May 2009.)

KAVA

Kava (*Piper methysticum*) can help treat anxiety, depression

Kava (*Piper methysticum*), used for generations in traditional ceremonies by Pacific islanders, is an effective and safe treatment for anxiety, university researchers say. During a 60-person trial undertaken at the University of Queensland (UQ), Australia, people with "chronic high levels of anxiety" feel less worried and, in some cases, less depressed. "We've been able to show that kava offers a natural alternative for the treatment of anxiety and, unlike some pharmaceutical options, has less risk of dependency and less potential of side-effects," said lead researcher Jerome Sarris, a Ph.D. candidate from UQ's School of Medicine. "We also found that kava had a positive impact on reducing depression levels, something which had not been tested before."

Critically, the study's participants did not show any signs of potential liver damage – contrary to concerns that prompted European, United Kingdom and Canadian authorities to ban kava sales in 2002. Kava products sold in these countries were based on ethanol or acetone extracts of the kava plant, Mr Sarris said, not the water-soluble extracts used traditionally by Pacific islanders and approved for sale in Australia.

Kava contains the psychoactive agent "kavalactones" and a traditional ceremony involves pulping roots of the plant and then drinking them mixed with water. This is said to have a tranquilizing effect but

without the loss of mental clarity associated with alcohol.

Vanuatu and Fiji are among the world's largest producers of kava, and Mr Sarris said that the loss of major export markets had delivered a significant blow to the islands' economies. "Allowing the sale of kava in Europe, the United Kingdom and Canada would significantly enhance Pacific island economies, which have lost hundreds of millions of dollars by not being able to export the plant over the past several years," he said. (Source: *The Age.com* [Australia], 11 May 2009.)

MEDICINAL PLANTS AND HERBS

Medicinal plants becoming extinct

According to a report from the international conservation group, Plantlife, 15 000 of 50 000 medicinal plant species are under threat of extinction. Medicinal trees at risk include the Himalayan yew (*Taxus wallichiana*), a source of the anticancer drug, paclitaxel; the paper bark tree (*Warburgia spp.*), which yields an antimalarial; and the African cherry (*Prunus africana*), an extract of which is used to treat a prostate condition.

Most people worldwide, including 80 percent of all Africans, rely on herbal medicines obtained mainly from wild plants. This presents a risk because the loss of medicinal plants used to make traditional remedies, together with the loss of medicinal plant diversity in general are quite disastrous. Commercially, collectors generally harvest medicinal plants with little care for sustainability, partly through ignorance, but mainly because such collection is unorganized and competitive.

The solution is to provide communities with incentives to protect these plants. Projects in many countries have shown that this approach can succeed. (Source: *Times of India*, 12 January 2009.)

Cat's claw (*Uncaria tomentosa*) could tackle dengue fever

Curitiba. An Amazonian plant could form the basis of a drug to combat dengue fever, according to Brazilian researchers.

A group of scientists at the Viral Immunology Laboratory of the Brazil-based Oswaldo Cruz Foundation has found that compounds of the plant cat's claw (*Uncaria tomentosa*) – native to the Amazon rain forest – have both antiviral and immune system-regulating properties

when they come into contact with infected cells in the laboratory.

Cat's claw is known in traditional medicine for its anti-inflammatory – immune system-regulating – effects, which prompted the scientists to investigate the plant.

Dengue fever is a disease caused by a virus of the genus *Flavivirus*, transmitted by *Aedes aegypti* mosquitoes. The World Health Organization (WHO) estimates there might be 50 million dengue infections worldwide every year. No effective medicine exists so the only recommended treatment is hydrating patients while they are recovering.

Besides *Uncaria tomentosa*, the Brazilian group is currently looking for antidengue properties in solutions of approximately 15 other plants.

The research was published in International Immunopharmacology in December. (Source: SciDev.Net Weekly Update [2–8 March 2009].)

Medicinal value of forskolin

India is rich in medicinal plant biodiversity and is one of the 12 megabiodiversity hot-spot regions of the world, having 2.4 percent of the world's area with 8 percent global diversity. *Coleus forskohlii* is a medicinal plant well recognized by traditional users, pharmaceutical industries, entrepreneurs and innovative and progressive growers.

The tuberous roots of *Coleus forskohlii* are found to be a rich source of forskolin; a labdane diterpenoid activates cyclic adenosine monophosphate or cyclic AMP [cAMP] in the cells. In addition, diterpenoids have been reported to be present in these tuberous roots.

Coleus is the only known natural source of forskolin.

Because of its versatile pharmacological effects, forskolin is used for the treatment of eczema [atopic dermatitis], asthma, psoriasis, cardiovascular disorders and hypertension, where the decreased intracellular cAMP level is believed to be a major factor in the development of the disease process.

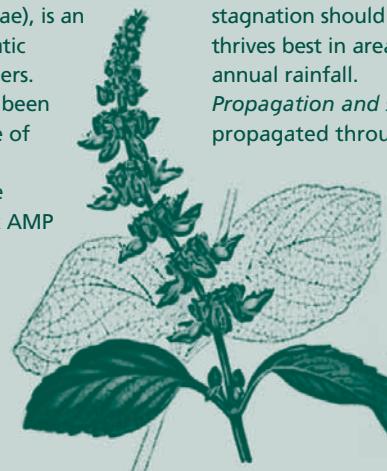
It is being developed as a drug for glaucoma, congestive heart failures and certain types of cancers. The drug is claimed to improve appetite, facilitate digestion and increase vitality. The crop is popular owing to its extensive use in preparing Ayurvedic and Unani medicines for curing anaemia, inflammation,

CULTIVATION OF MEDICINAL COLEUS (*COLEUS FORSKOHLII* BRIQ.) IN INDIA

Coleus forskohlii Briq. (syn. *Coleus barbatus* Benth.), belonging to the Labiate family (Lamiaceae), is an ancient, perennial aromatic herb with fasciculate tubers. The tuberous roots have been found to be a rich source of forskolin; a diterpenoid activates cyclic adenosine monophosphate or cyclic AMP in the cells. In addition, minor diterpenoids, i.e. deacetyl forskolin, 9 – deoxyforskolin, 1, 9 – deoxyforskolin, 1, 9 – dideoxy-7 – deacetyl forskolin and four other diterpenoids have been reported to be present in the tuberous roots of *C. forskohlii*.

This plant is well known throughout the country and is known as *Pasan Bhedi* in Sanskrit, *Patharchur* in Hindi, *Garmalu* in Gujarati, *Maimmul* in Marathi, *Makkadi beru* or *Mangani beru* in Kannada and *Koorkan kilangu* in Tamil. The crop has been distributed all over the tropical and subtropical regions of India, Pakistan, Sri Lanka, Egypt and Ethiopia. In India, it is found in the subtropical Himalayan regions from Kumaon to Nepal, Bihar and the Deccan plateau of South India.

In India, the plant is cultivated in Rajasthan, Maharashtra, Karnataka and Tamil Nadu in an area of about 2 500 ha. The scientific cultivation of the crop is given below.



Varieties. Maimmul, Mangani beru and Garmai are some of the popular varieties in India.

Soil and climate. Well-drained red loamy soils are suited for cultivation. Water stagnation should be avoided. The crop thrives best in areas receiving 70 cm annual rainfall.

Propagation and season. The crop is propagated through terminal cuttings (10 cm). Commercial planting is carried out during June–July. Planting is carried out at 60 x 45 cm spacing (37 030 plants/ha). In low-fertile soils, planting is done at 60 x 30 cm (55 500 plants/ha).

Irrigation is given immediately after planting and subsequently at weekly intervals.

Manuring. Incorporate 15 t/ha of farmyard manure (FYM) during final ploughing. Nitrogen, phosphorus and potassium (NPK) at 30:60:50 kg/ha should be applied in two split doses at 30 and 45 days after planting. Apply 10 kg ZnSO₄/ha to avoid micronutrient deficiency.

Harvest can take place five to six months after planting and must be carried out without damaging the tubers.

Yield. Fresh tubers: 15–20 t/ha; dry tubers: 2 000–2 200 kg/ha.

Post-harvest handling. Harvested tubers are cut into small pieces and dried under shade until they reach 8 percent moisture level.

flatulence, dropsy, insomnia and convulsions. In addition, it possesses positive inotropic, broncho-spasolytic, antithrombotic and platelet aggregation inhibiting activities and has proved to enhance fat loss without loss of muscle mass in human beings.

Forskolin is a vasodilator, increases the skin's natural resistance to burning under ultraviolet light and promotes nerve repair by increasing cAMP concentrations. It has been shown to be safe and effective and has great potential as a sports supplement. Forskolin can reduce blood pressure and improve heart function in people with

cardiomyopathy. It helps in relaxation of the arteries and other smooth muscles. It also increases cerebral blood flow. This indicates that it may be helpful in improving post-stroke recovery. Inhibition of platelet aggregation [blood clotting] also adds to its value in the treatment of cardiovascular and cerebrovascular disorders. It has been found that symptoms of psoriasis have been improved through the use of forskolin.

(Contributed by: M. Velmurugan, K. Rajamani, P. Hemalatha and C. Harisudan, Tamil Nadu Agricultural University, Coimbatore – 641 003, India. E-mail: hortmrvelu@yahoo.com)



NATURAL FIBRES

Natural fibres – an overview

Natural fibres are greatly elongated substances produced by plants and animals that can be spun into filaments, thread or rope. Woven, knitted, matted or bonded, they form fabrics that are essential to society.

Like agriculture, textiles have been a fundamental part of human life since the dawn of civilization. Fragments of cotton articles dated from 5000 BC have been excavated in Mexico and Pakistan. According to Chinese tradition, the history of silk

began in the twenty-seventh century BC. The oldest wool textile, found in Denmark, dates from 1500 BC, and the oldest wool carpet, from Siberia, from 500 BC. Fibres such as jute and coir have been cultivated since antiquity.

While the methods used to make fabrics have changed greatly since then, their functions have changed very little. Today, most natural fibres are still used to make clothing and containers and to insulate, soften and decorate our living spaces. Increasingly, however, traditional textiles are being used for industrial purposes as well as in components of composite

materials, in medical implants, and geo- and agrotextiles. Animal fibres include wool, hair and secretions, such as silk. (Please see page 36 for more information on silk.) Plant fibres include seed hairs, such as cotton; stem (or bast) fibres, such as flax and hemp; leaf fibres, such as sisal; and husk fibres, such as coconut. (Source: International Year of Natural Fibres 2009 Web site: www.naturalfibres2009.org/)

The revival of the most resistant natural fibre in the world

Apart from the non-wood sources of raw materials for pulp making, a number of

EXAMPLES OF PLANT FIBRES

Abacá (*Musa textilis*)

También llamada cáñamo de Manila, el abacá se extrae de la vaina de las hojas que rodean el tronco de la planta de abacá (*Musa textilis*), pariente cercana de la banana, nativa de Filipinas y ampliamente distribuida en los trópicos húmedos. Cosechar abacá es laborioso. Cada tallo debe cortarse en tiras, las cuales son raspadas para remover la pulpa. Luego las fibras se lavan y secan. El abacá es una fibra de hoja, compuesta por células largas y delgadas que forman parte de la estructura de soporte de la hoja. El contenido de lignina está por encima del 15%. El abacá es valorado por su gran resistencia mecánica, flotabilidad, resistencia al daño por agua salada, y por el largo de su fibra - más de 3 metros. Las mejores clasificaciones del abacá son finas, brillantes, de un color habano claro y muy fuertes.

El líder mundial en producción de abacá es Filipinas, en donde unos 90 000 pequeños agricultores (*encima*) cultivan la planta en 130 000 hectáreas. Aunque la planta se cultiva en otros países del Asia sudoriental, el rival más cercano de Filipinas es Ecuador, en donde el abacá ha sido sembrado en muchas fincas y la producción está cada vez más mecanizada.

Usos. Durante el siglo XIX, el abacá fue ampliamente usado en aparejos de barcos, y la pulpa era usada para hacer sobres resistentes de papel manila.

Hoy, aún se emplea para hacer sogas,

bramantes, cordeles, líneas de pesca y redes, así como tela basta para sacos. También está creciendo el nicho de mercado especializado en ropa, cortinas, pantallas y tapicería de abacá.

El papel hecho de la pulpa de abacá es usado para esténciles, para filtros de cigarrillos, bolsas de té y piel de salchichas, y también para papel moneda (los billetes del yen japonés contienen hasta un 30% de abacá).

La Mercedes Benz ha usado una mezcla de polipropileno termoplástico e hilaza de abacá en partes del cuerpo de los automóviles. Se estima que la producción de fibra de abacá utiliza un 60% menos de energía que la producción de fibra de vidrio.
Producción y comercio. En el 2007, Filipinas produjo cerca de 60 000 toneladas de fibra de abacá, mientras que Ecuador produjo 10 000. La producción mundial está evaluada en cerca de 30 millones de USD al año. Casi todo el abacá producido es exportado, principalmente a Europa, Japón y los Estados Unidos de América. Filipinas incrementa sus exportaciones en forma de pasta de abacá más que en forma de fibra bruta.

Ramie (*Boehmeria nivea*)

Native to East Asia and commonly known as China grass, ramie (*Boehmeria nivea*) is a flowering plant of the nettle family. Its bark has been used for millennia to make twine and thread, and spun as grass cloth (or "Chinese linen"). It grows to a height of 3 m. Yields of green plants range from

8 to 20 tonnes/ha, with fibre yields of 1.5 tonnes reported.

Ramie fibre is white with a silky lustre, similar to flax in absorbency and density but coarser (25–30 microns). One of the strongest natural fibres, it has low elasticity and dyes easily. Strands of ramie range up to 190 cm in length, with individual cells as long as 40 cm. Transfibre fissures make ramie brittle but favour ventilation.

The ramie plant is grown for fibre mainly in China, Brazil, the Lao People's Democratic Republic and the Philippines. While it is considered a promising "ecological" fibre for use in textiles, fibre extraction and cleaning are difficult and labour-intensive.

Uses. Coarse ramie fibres are suitable for making twine, rope and nets. Wet-spun, it produces a fine yarn with high lustre, suitable for a wide range of garments, ranging from dresses to jeans.

Fabrics of 100 percent ramie are lightweight and silky, similar in appearance to linen. The Korean traditional costume, the ramie *hanbok*, is renowned for its fineness. However, since it has low elasticity and resilience, ramie is usually blended with other textile fibres. It increases the lustre and strength of cotton fabric and reduces shrinkage in wool blends. It is also blended with silk.
Production and commerce. FAO estimates world production of ramie green plant at 280 000 tonnes in 2005, almost all of it grown in China. Most of the ramie fibre extracted is used in producing countries, and only a small percentage reaches

plants provide fibrous substances suitable for making cloth, ropes and woven materials, including several species of grasses (*Sterculia villosa*, *Broussonetia papyrifera*, *Agave sisalana*, *Ceiba pendandra*, etc.) and palms (*Carludovica palmata* and *Brahea dulcis*). Palms and grasses are used for weaving baskets, hats, mats and other items in Latin America, Africa and Asia. Bromeliad species also provide an important natural source of fibre.

Pita (*Aechmea magdalena*), a thorny-leaved terrestrial bromeliad, grows naturally in the tropical forests of

southeastern Mexico. It is not easy to harvest or carry, and in order to gather 1 kg of pita fibre, about 300 leaves need to be collected.

The longer the leaf the better, because it means a longer fibre and a better market price. Processing begins by scraping away the leaf pulp, pulling out the fibre, bleaching it in lemon juice and washing powder, combing it and finally rolling it into thread. The fibre is then used to embroider leather articles, e.g. belts, boots and saddles, by skilled craftspeople, sold principally in Mexico, the United States of America and Spain.

One hectare of forest can provide about 20 kg of fibre each year and an average cash income can amount to US\$930/ha, an income far superior to that obtained by coffee or cattle producers. Pita is the most valued and sought-after natural fibre on the Mexican market and surpasses the price of linen and silk, with a price as high as US\$100/kg. (Source: Elaine Marshall and Cherukat Chandrasekharan. 2009. *Non-farm income from non-wood forest products*. Diversification booklet 12. Rural Infrastructure and Agro-Industries Division. Rome, FAO.)

international markets. The main importers are Japan, Germany, France and the United Kingdom.

Jute (*Corchorus capsularis* et *C. olitorius*)

Extrait de la tige de plantes appartenant aux genres *Corchorus capsularis* et *C. olitorius*, le jute est une fibre naturelle très résistante; il vient en deuxième position, après le coton, en termes de volume de production et d'utilisation. Pendant la révolution industrielle, il a connu un grand essor dans la fabrication de toile de sac, se substituant au lin et au chanvre cultivés en Europe. Si les sacs constituent encore de nos jours la majeure partie des produits manufacturés en jute, un grand nombre d'articles novateurs à haute valeur ajoutée ont vu le jour: revêtements pour sols, composants, géotextiles, non-tissés, pâte à papier, textiles techniques, produits chimiques, tissus d'habillement, artisanat et accessoires de mode.

La plante herbacée dont est extrait le jute abonde dans les régions humides (températures comprises entre 24 et 38 degrés et précipitations annuelles de 1 000 mm au moins). Le Bangladesh et le Bengale-Occidental sont les principaux producteurs mondiaux de jute, suivis de loin par le Myanmar et le Népal. Le jute est produit par de petits paysans. En Inde et au Bangladesh, on estime que 4 millions environ de paysans vivent de cette culture, assurant la subsistance de 20 millions de personnes, et que des centaines de millions de personnes travaillent dans le secteur manufacturier.

Les paysans vendent leur production à des négociants ou sur le marché local. La fibre change ainsi plusieurs fois de mains et de catégorie avant d'arriver à l'usine ou d'être exportée.

Si la culture du jute est exigeante en main-d'œuvre, elle est peu gourmande en engrais et en pesticides. La fibre est le plus souvent récoltée manuellement, la mécanisation n'étant pas adaptée à la culture à petite échelle pratiquée dans les pays en développement. Les tiges sont fauchées et couchées sur le champ pour les débarrasser des feuilles; au bout de quelques jours, elles sont liées en faisceaux. On procède ensuite au rouissage, qui consiste à faire flotter les tiges sur un cours d'eau pour les libérer de la pectine et autres substances mucilagineuses qui les soudent. Le rouissage est terminé – il dure de une à trois semaines – quand l'enveloppe de la tige, qui contient la fibre, se sépare facilement du cœur ligneux. Après avoir extrait la fibre, le plus souvent manuellement, on procède au lavage et au séchage.

La production de jute fluctue au gré des conditions météorologiques et des cours. Ces dernières années, elle s'échelonne entre 2,3 et 2,8 millions de tonnes, à l'instar de la production de laine. Mais la valeur du jute, nettement inférieure à celle de la laine, est estimée à 480 millions de tonnes. L'Inde fournit 60 pour cent de la production mondiale et le Bangladesh la presque totalité du reste. Ce dernier exporte près de la moitié de sa production annuelle sous forme de fibre

brute et le restant sous forme de produits manufacturés. L'Inde exporte seulement 200 000 tons d'articles en jute, le reste étant utilisé sur place.

Les utilisations du jute sont en plein essor dans le monde entier car le secteur manufacturier s'intéresse de plus en plus aux matières biodégradables respectueuses de l'environnement et pouvant se substituer aux matières synthétiques. Cependant les producteurs de jute et le secteur de transformation n'ont guère innové en matière de production et de transformation.

Le kénaf, fibre apparentée. Tout comme le jute, le kénaf sert à fabriquer des cordes, des ficelles et des toiles grossières, mais il est issu d'une autre plante, *Hibiscus cannabinus*. En 2007, la production atteignait 340 000 tonnes, l'Inde étant le principal producteur. Parmi les utilisations récentes de la fibre, citons le papier journal, les mélanges de cultures, les matériaux d'emballage et les emballages en matériaux composites. (Source: International Year of Natural Fibres 2009 Web site, www.naturalfibres2009.org/)

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(Please see page 66 for more information on the International Year of Natural Fibres.)

NATURAL DYES AND COLOURS

Many forests are rich repositories of plants producing dyes and pigments that can be sustainably harvested for commercial use and processed locally, thereby supporting rural employment and development.

Ornamentation of cloth with natural dyes dates back about 3 000 years, and because of the toxic nature of some synthetic pigments, there has been a resurgence of interest in natural dyes. An advantage of natural dyes lies in the potential for designers to control variations of shade and tones, which is not possible with synthetic dyes. Dye pigments are derived from tree bark, leaves and wood, including the bark of akan-asante or yaruba (*Anonidium mannii*) and the leaves of magnolia (*Rothmannia whitefieldii*).

Examples of natural dyes include henna, which is extracted from the dried leaf of *Lawsonia inermi* and provides a dye ranging in colour from black to red; kamala, an orange-yellow dye used for textiles, obtained from the fruit of the kamala tree (*Mallotus philippinensis*); and the widely used blue-coloured

indigo dye (*Indigofera tinctori*), traditionally used for dyeing a variety of textiles, including silk and wool garments.

Research from the forests of Peru has identified 56 dye-yielding plants, and the Vegetable Dye Society in Bangladesh has identified about 30 dye-yielding plants for textiles.

Some common natural dyes used for silk in the Lao People's Democratic Republic include the following.

- *Pink*. Rind of mangosteen fruit (*Garcinia mangostina*)
- *Red/purple*. Stick lac, wood of *Caesalpinia sappan*
- *Yellow*. Root of berberin (*Coscinium finestratum*)
- *Orange*. Seed of annato (*Bixa orellana*)
- *Greyish-black*. Fruit of ebony (*Diospyros mollis*)
- *Pinkish-grey*. Leaf of teak (*Tectona grandis*)
- *Grey*. Tuber of *Dioscorea bulbifera*

(Source: Elaine Marshall and Cherukat Chandrasekharan. 2009. *Non-farm income from non-wood forest products*. Diversification booklet 12. Rural Infrastructure and Agro-Industries Division. Rome, FAO.)



with economic support from the global home furnishing company IKEA. The subsequent phase (2009–2011) entitled "A switch to sustainable harvest rattan production and supply" was launched on 5 March 2009, with funding mainly from the European Union and IKEA. "Our goal is that by 2010, 100 communities in the Lao People's Democratic Republic, Cambodia and Viet Nam will be engaged in sustainable rattan production and with 40 percent of the identified small and medium enterprises (SMEs) actively engaged in cleaner rattan production. This will support local economies and help conserve forests," says the WWF regional rattan programme manager.

WWF, with national stakeholders, is engaging with rattan traders and processors to develop more environmentally and economically viable processing practices with the aim of becoming more efficient, improving resource usage and reducing raw material wastage along the supply chain.

At the same time, WWF works with national, regional and international buyers to influence the demand for cleaner and more sustainable rattan at fairer prices. In doing this, they work with entrepreneurs or rattan processors and traders, who are the people that buy the raw material, add value by processing it and then link up with regional and international buyers such as IKEA.

Through this approach, WWF is confident that incentives will be in place for local communities to conserve forest ecosystems where rattan is available. (Contributed by: Thibault Ledecq, Chief Technical Advisor, WWF Greater Mekong Programme – Laos Country Programme, PO Box 7871, House 39, Unit 05, Ban Saylom, Vientiane, Lao People's Democratic Republic. E-mail: Thibault.ledecq@wwfgreatermekong.org or thibaledecq@gmail.com; www.panda.org/greatermekong

RATTAN

Villagers from Southeast Asia benefit from sustainable rattan harvesting

Can the sustainable use of rattan boost communities, businesses and the environment? Yes, that is the firm belief of the World Wide Fund for Nature (WWF), which piloted a community-based sustainable management and production model project that began in 2006 in the Lao People's Democratic Republic and Cambodia and is now engaging Viet Nam.

More than 90 percent of rattan processed in the Mekong subregion comes from natural forests, but rattan stocks are being depleted at an unsustainable rate, fears WWF.

Rattans are climbing palms belonging to the palm family, with tough stems, which can be used for food, shelter and furniture. A survey by WWF in 2008 showed that rattan is a major NTFP and one that makes a crucial contribution (more than 30 percent cash and non-cash value) to local livelihoods

In Sopphouan, a small village of approximately 400 inhabitants outside Lak Xao, in the province of Bolikhamxay, Lao People's Democratic Republic, the WWF rattan project has already brought positive results. "Last year our village earned 8 500 000 kip [approximately US\$1 000] in additional income from rattan seedlings and rattan cane. This is an important contribution to the livelihood of farmers who are otherwise wholly dependent on family-based rice production and other small-scale crops," says Phantone Keomany, 43 years.

To secure a long-term use of the resource, the villagers have started nurseries and plantations, which they proudly show to visitors. This bold initiative entails an entirely new way of thinking and requires careful long-term planning. Previously, rattan was only harvested in the wild state directly from the forest.

Since 2006, the project has been carried out in collaboration with forest researchers, other NGOs, government institutions and

Viet Nam: Nghe An exports rattan products for the first time

The central province of Nghe An, Viet Nam, will send its first consignment of rattan products under a recently signed contract between the Duc Phong company and the leading Swedish company IKEA.

The Duc Phong company, based in Nghe An, will export three models of rattan lamps, earning a minimum revenue of VND25 billion in the first year of the contract and tripling their revenue over the next five years. The company, which currently needs an additional 4 000 workers to complete the contract, is outsourcing much of the work to local households. It has conducted extensive research on different kinds of rattan products such as tables, lanterns and other interior decorations for markets such as Japan, the United States of America and Europe. As many as 80 percent of Duc Phong products have been designed by the company, with the rest coming from individual customers.

Duc Phong, which processes millions of tonnes of rattan per year, also takes the lead in growing rattan, reducing its dependence on outside sources. It has so far spent nearly VND100 billion planting 1 350 ha of rattan in four districts and the company adopts an approach that combines its own investment with the local labour force. Duc Phong is expected to produce 7 tonnes of rattan/ha over the next 30 years, ensuring the sustainability of its production. [Source: Voice of Vietnam News [Viet Nam], 9 March 2009.]

SAFFRON

Saffron cultivation in Afghanistan: a lucrative NWFP and a potential alternative to poppy

After the fall of the Taliban in Afghanistan, development organizations and multinational forces are making efforts to find an alternative crop to replace illicit poppy cultivation in the country. It is assumed that the dilemma of this war-devastated country has long been correlated with the production of poppy itself. Development workers are hoping that saffron could be a lucrative alternative to poppy.

Popularly known as *jafran* in the Middle East and Asia, saffron is the most valued and most luxurious spice in the world and

comes from the saffron plant (*Crocus sativus* L.). The flower of the plant contains three stigmas, which are collected and dried, becoming the saffron spice. The plant has a corm/rhizome that is about 3 cm in diameter and weighs up to a maximum of 8 g. Saffron has narrow leaves like grasses with a length of 6–10 cm and a width of 2–3 mm. Its flower is light purple, with red or white stripes.

The uses of saffron are many. The saffron stigma is rich in aroma and used as a spice, a condiment, an aphrodisiac and a colouring agent.

In dried or powdered forms, stigmas are commonly used as the following.

- A *therapeutic plant*, excellent for stomach ailments and as an antispasmodic; it helps digestion; and it heals a variety of diseases ranging from arthritis to impotence and infertility. It is also used for curing asthma, coughs and the common cold. Saffron anticancer effects have been studied.
- A *spice* used in cooking for colouring and as a flavouring agent. It is also used for making cheese products, in milk- or cream-based confectionery and in dairy products such as ice cream-flavoured milk.
- A *material* used in the pharmaceutical, cosmetics and perfume industries.
- A *dye* used extensively in textile production.

Saffron leaves are also used as animal feed.

SAFFRON (*CROCUS SATIVUS*)

Crocus sativus belongs to the family Iridaceae. The flowers of *Crocus sativus* have trifid orange-coloured stigmas. Saffron is the dried form of these stigmas. The name saffron is obtained from the Arabic words "sahafarn", meaning thread and "za'farān", meaning yellow.

The plant is native to southern Europe and is cultivated in Spain, France, Italy, Greece, Turkey, the Islamic Republic of Iran, India and China. Saffron grows well in cold regions. [Source: MFP News, (19)1, January–March 2009.]

Afghanistan has all the environmental criteria appropriate for the production of saffron. For best growth and production, saffron requires mild winters with heavy snowfall and hot summers. It grows well under temperate and dry climates; its vegetative growth coincides with cold weather and freezing conditions. It tolerates a maximum of +45 °C and a minimum of -18 °C. The annual rainfall requirement for saffron is about 300 mm. Maximum water requirement is in March and April of about 15–20 litres/m² per irrigation period. The plant can be grown in a wide range of soils, with moderate structure and good infiltration. But for best growth and production, the soil should be sandy loam, rich in calcium and with a high content of organic matter. The soil is prepared in autumn or winter and an application of 8–12 tonnes of well-decomposed animal manure/acre (0.4 ha) is recommended.

The flowering stage of saffron starts from October and continues for some three weeks. Each flower lives only for 48 hours, which is the reason why saffron has such a high value. The optimal harvest time is therefore early in the morning before full sun. A flower collector can collect as many as 3 000 flowers per hour. The saffron flowers should be stored at temperatures near 0 °C and the layer of fresh flowers should not exceed 10 cm. Under these conditions, saffron flowers can be kept for up to seven days.

Post-harvest processing gives the best saffron spice quality. During this processing, the stigmas are separated from the flowers. The stigmas are bright orange-red and are clearly visible among the lilac petals. It takes some 450 000 stigmas to make up 1 kg of saffron spice. Workers, therefore, must process 150 000–170 000 flowers to produce 1 kg. The deep red stigmas are attached to the flowers by pale filaments called styles. These, as well as the yellow stamens, are worthless as spice. Many merchants prefer to buy only pure saffron, requiring that the stigmas be separated from the styles, which has to be done by hand as long as the material is fresh. In Afghanistan, most saffron is air dried and packed in airtight and light-protected containers such as tin cans and dark glass.

Farmers cultivate saffron bulbs in late May to August and reap the purple flowers in mid-October. The average yield of saffron is 7 kg/ha and a maximum could be 24 kg/ha. The Afghan saffron markets are mostly within Afghanistan itself, the Islamic Republic of Iran, India, Dubai, Pakistan, the United States of America and Europe. Prices of saffron

HISTORY OF SAFFRON



The history of saffron is very ancient and esteemed. Historical accounts suggest that the cultivation of saffron was started in 1600 BC by the Minoans. But cultivation is probably older than that and is believed to have begun in Southwest Asia. The Minoans probably brought saffron as a traded item from the East as part of their network of sea and land traders who ranged throughout the Mediterranean at that time.

Native to Southeast Asia, the crocus species produces the valuable reddish-orange colour stamens cherished by cooks around the world to colour and flavour their dishes.

The Persians had spread cultivation of saffron corms throughout the Persian Empire along the Silk Road routes by 500 BC and cultivation in northern India and Kashmir was formally under way.

The Phoenicians dominated the Mediterranean trade of saffron spice during Greco-Roman times.

Subsequently, the Romans brought saffron with them to Europe. Saffron gradually spread to North America through the Anabaptists from Eastern and Central Europe, who set up profitable saffron trading from 1730 to 1740 with the Spanish settlers in the Caribbean. This trade continued until the 1812 war.

Historical accounts of saffron cultivation in India date back to 550 AD.

At present, the major saffron-producing countries in the world are Spain, the Islamic Republic of Iran and India.

range from US\$1 200 to 1 400/kg in local markets (December 2007) and US\$1 400 to 8 000/kg in the European and American markets (2006). It has been estimated that the net income/ha from saffron is \$2 716.

To eradicate opium production in the country, the Government of Afghanistan is being supported by international donor agencies in terms of technical and financial support but the results will only be visible when an alternative income source is in place. Considering the massive pressure from the government and other agencies, farmers tend to refrain from opium production rather than getting interested in saffron production for its high price in the domestic and international markets. Experts at the Ministry of Agriculture in Kabul have admitted that saffron is compatible with the climate and soil of the southern, eastern and western parts of the country and its cultivation does not require additional irrigation, which the country lacks.

Donors such as the United Kingdom's Department for International Development (DFID) have funded projects to promote saffron production in Afghanistan. A handful of entrepreneurs have also invested in the packaging, branding and export of Afghan-made saffron to regional and European markets. Afghanistan's western neighbour, the Islamic Republic of Iran, is a leading saffron exporter. However, insecurity and narcotics gangs have hindered government efforts to replace poppy with lawful crops since these groups earn large profits from illicit poppy cultivation and they oppose and impede saffron cultivation by forcing farmers to grow poppies.

Saffron quality tests show that Afghan saffron can be one of the best in the world in terms of quality. This is attributed to the climatic conditions of Afghanistan as suitable for growth and production. In the context of Afghanistan, saffron has a tremendous opportunity on the domestic and international market since demand is increasing every year. It is hoped that this spice will soon replace the poppy throughout the country for its high market value.

Meanwhile, farmers involved in opium cultivation should be assisted and promoted to cultivate saffron as their alternative livelihood. It is time for the United Nations, donor agencies and NGOs to work together in Afghanistan to explore the utilization and development of this valuable NWFP in the country. (Contributed by: Mohammad Muktadir Hossain, Sector Specialist [Forestry], Agriculture Development

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Saffron cultivation and use in India

In India, the cultivation of saffron is mostly carried out in Kashmir. However, Himachal Pradesh and the upper regions of Uttar Pradesh are favouring saffron cultivation.

Saffron is extensively used as a spice (especially in Kashmir). Saffron has also been used as a flavouring and colouring agent and in food, sweets, tobacco and the zarda industries. It is also used for improving skin complexions and is a valuable medicinal herb. The saffron pigment is used to stabilize light-sensitive insoluble drugs. A hair tonic with saffron extract is extremely effective at promoting hair growth. Saffron is also used in Ayurvedic and Unani medicine. (Source: MFP News, [19]1, January–March 2009.)



Sandalwood

SANDALWOOD

Sandalwood: a critical view of developments

The fact that some sandalwood species are under threat is an inconvenient truth ignored by many cosmetic companies and essential oil traders. Four *Santalum* (sandalwood) species are present in the IUCN Red List 2008, including the extinct *Santalum fernandezianum*. The more familiar *Santalum album* L. is one of the remaining three, assessed as vulnerable in 1998, but a more detailed breakdown of the ecostatus of individual *Santalum* species from various geographic locations, with ancillary notes, is available on the Cropwatch Web site (www.cropwatch.org).

The shortage of East Indian sandalwood oil has been caused by the ravages of spike

disease over many decades and, to a lesser extent, by fire, vandalism, animal damage and other factors, on the existing Indian sandalwood forests in Karnataka and Tamil Nadu, not to mention the ruthless overexploitation of this declining resource by illegal distillers, smugglers and corrupt officials. Arguably the overexploitation of sandalwood only came about because of the persistent market demand for sandalwood logs for incense, wood carving and furniture making, to continue the supply of sandalwood-based attars and, of course, the demand for sandalwood oil itself [which some have estimated at 250 tonnes/year], despite warnings of serious resource depletion from eco-aware groups.

A few years back, some aromatherapy profession officials and certain aromatherapy essential oil trading representatives belittled the threat to sandalwood, and inferred that if any blame was to be apportioned at all, it should be laid at the door of the major user, the fragrance industry. Even now, within the European Union, nationally run aromatherapy vocational courses still feature sandalwood oil for study. The incense trade has naturally ignored its obligations almost completely and, as far as we can tell, many sectors of the conventional perfumery trade have done the same.

Cropwatch is persuaded that with proper policies and investments, some sandalwood sources could be made truly sustainable, and we believe this may well be the case in Vanuatu. However, taking pure East Indian sandalwood oil as a benchmark, the odour profiles of sandalwood oils from other geographic locations and/or other species are usually different in character, lack fine notes and may be oversweet (as with East African sandalwood oil) or predominantly woody-camphoraceous (as with Chinese sandalwood oil), or just plain lacking in impact and character (as with Indonesian sandalwood oil). From here, the future looks difficult for sandalwood. (Extracted from: Cropwatch Newsletter, January 2009.)

Southeast Asia smuggling via Nepal in upward swing

Siliguri. According to the Sashastra Seema Bal (guards at the Indo-Nepal border) and Nepal security agencies, over 1 000 tonnes of red sandalwood have been seized during the last year from both sides of the border. Apparently the wood is in high demand because it is used to make the butts of guns.

While talking to *The Economic Times* about the possible buyers, a senior

intelligence official specializing in cross-border smuggling prevention said, "Due to less fragrance but equal curving capacity and strength, red sandalwood is preferred for making butts of firearms. China is one of the largest buyers. Now since all attention is focused on political developments in Kathmandu, the grey trade operatives are likely to increase their activities."

The consignments, generated largely as a result of illegal Indian felling in Karnataka, are first routed to Nepal through the porous Indo-Nepal border along Uttar Pradesh, Bihar or West Bengal. From there, they get into China through Tatopani on the Arniko Highway in North Nepal, the largest Sino-Nepal trading point.

"Arniko Highway has practically been taken over by red sandalwood smugglers," said Nepali exporters working in Tatopani. "The Governments of India, Nepal and China should jointly focus on the issue on common interest," they added. (Source: *The Economic Times* [India], 12 May 2009.)

SCLEROCARYA BIRREA

Sclerocarya birrea: a lesser-known NWFP of Africa

The contribution of forests and trees to food security in Africa is vast, diversified and highly valuable. It ranges from the direct production of food to the provision of jobs, income generation and support for the sustainability of farming systems. The foods from forests and trees are particularly essential to improve the nutritional status of the people by providing vitamins and other elements, which are not found in food produced by agriculture.

In spite of the importance and richness of food from forests and trees, progress has been very slow in considering measures and programmes to increase the contribution of wild plants and animals to food production and food security. A combination of initiatives aiming at improved knowledge of local and traditional practices, inventorying and managing resources, and further integrating trees in farming systems could have a significant impact on food security and income generation.

Sclerocarya birrea, which is a wild/semidomesticated tree, can be used as a case tree to reveal the potentials of lesser-known but valuable trees. The species is widely distributed, occurring in 29 different countries in Africa from north to south and east to west: Senegal, Guinea-Bissau, Côte



Sclerocarya birrea

d'Ivoire, Mauritania, Mali, Burkina Faso, Ghana, Togo, Benin, the Niger and Nigeria in western Africa; Chad and the Sudan in Central Africa; Eritrea, Ethiopia, Uganda, Kenya and the United Republic of Tanzania in eastern Africa; and Angola, southern Congo, Zambia, Malawi, Mozambique, Namibia, Botswana, Zimbabwe, South Africa, Lesotho and Swaziland in southern Africa. In addition, within the past 30 years the tree has been established in plantations in Israel and Oman.

Across Africa the tree has three subspecies, namely *S. birrea*, *S. multifoliolata* and *S. cafra*. The United Republic of Tanzania is the only country where all three subspecies occur, so is the most diverse ecoregion for *Sclerocarya*.

The tree provides fruits and many other locally used NTFPs. In a few countries, the fruits are processed into products that are traded internationally. The fruits are rich in vitamin C, about five times higher than that of citrus fruits. They are also used to make juice, jam, jellies and as a cosmetic agent. The fruit pulp is eaten fresh, boiled to a thick paste for sweetening porridge, or fermented to make alcoholic drinks of both local and commercial value.

The tree's leaves and bark have medicinal properties.

In famine years, the kernel is locally roasted and eaten. At 96 percent dry matter, the kernel is 57.3 percent fat, 28.3 percent protein, 6 percent total carbohydrates, 2.9 percent fibre and is rich in phosphorus, magnesium and potassium.

The fruits of *Sclerocarya birrea* are also used to brew the popular Amarula cream in South Africa. Amarula is almost exclusively

available in luxurious outlets and hotels, sold on average at US\$2-5/5 cc volume. This cream thus generates substantial amounts of income from local and international markets.

Empirical experiments are still needed to develop better ways of harnessing the potential of *Sclerocarya birrea*. The ultimate goal must be for local people to apply this knowledge to diversify their income and improve their livelihoods. (Source: Guardian in IPPMedia.com, 6 January 2009.)

SHEA BUTTER

Fair trade partnerships

Ottawa. Knowledge shared throughout the millennia by generations of African women meets the twenty-first century, during Fair Trade Month. Ten Thousand Villages, a North American fair trade dealer and Uniterra, one of Canada's leading international voluntary programmes, welcome their partners from Burkina Faso to celebrate Certified Fair Trade shea butter. Ms Kourtoumi Chalim Aschlet Niangao and Mr Abou Dradin Tagnan represent the Union of Producers of Shea Products of Sissili and Ziro in Burkina Faso, where shea is the third largest export.

Shea, dubbed "the gold of African women", is well known for its moisturizing and protective properties. Equitably traded organic shea turns those benefits into real gold for nearly 3 000 women, who have doubled their income as a result of this collective. Since earning fair trade certification in 2006, producers have poured much of their earnings back into community projects such as literacy groups for women, programmes for children orphaned by HIV and Aids, and the construction of a childcare centre. These are welcome developments in Burkina Faso, one of the poorest countries in Africa, ranked at 173 of 177 on the Human Development Index.

Despite the economic downturn, Canadian sales of fair trade shea products are on the rise. Ten new personal care products, prepared with certified fair trade shea, will be launched this month at Ten Thousand Villages' 47 stores throughout Canada, at festival sales and on its Web site. Shea Delapointe, a Quebec-based family business and a Ten Thousand Villages supplier, imported 9 tonnes of certified fair trade shea in 2008, expected to double in 2009, thanks to fair trade partnerships between Canadian entrepreneurs and African producers. (Source: marketwire.com [Canada], 7 May 2009.)

SILK

Nainital Research Centre, India, achieves world record in breeding silkworm eggs

Nainital-based Regional Oak Tasar

Research Centre has created a world record in the field of silkworm egg-laying. The scientists and other staff members of the research centre are very pleased by the way their project has shaped up.

The average number of eggs/moth at the research centre is in the range of 240 to 260 as compared with China's 160-200 eggs. The number of eggs/g is 108-110 in comparison with China's 120 eggs/g.

These yardsticks signify that the eggs at the research centre are healthy. The main reason for this success can be attributed to the innovative measures taken by scientists at the centre.

"We provide good feed to the silkworms due to which the silkworm gains more weight. When it converts into pupa, it becomes big and therefore the moth is also big, and when the moth is big, it will certainly produce more eggs," said Dr R.S. Yadav, a scientist at the Regional Oak Tasar Research Centre. The centre has also been taking special care to minimize egg losses.

SILK

Silk is produced by the silkworm, *Bombyx mori*.

Fed on mulberry leaves, it produces liquid silk that hardens into filaments to form its cocoon. The larva is then killed and heat is used to soften the hardened filaments so they can be unwound. Single filaments are combined with a slight twist into one strand, a process known as filature or "silk reeling".

A silk filament is a continuous thread of great tensile strength measuring from 500 to 1 500 m in length, with a diameter of 10-13 microns. In woven silk, the triangular structure of the fibre acts as a prism that refracts light, giving silk cloth its highly prized "natural shimmer". It has good absorbency, low conductivity and dyes easily.

Silk is produced in more than 20 countries. While the major producers are in Asia, sericulture industries have been established in Brazil, Bulgaria, Egypt and Madagascar. Sericulture is labour-intensive. About 1 million workers are employed in the silk sector in China. Sericulture provides income for 700 000 households in India and 20 000 weaving families in Thailand.

Uses. Silk's natural beauty and other properties – such as comfort in warm weather and warmth during colder months – mean that it is much sought after for use in high-fashion clothes, lingerie and underwear.



Silk is used in sewing thread for high-quality articles, particularly silk apparel, and in a range of household textiles, including upholstery, wall coverings and rugs and carpets.

It is also being used as a surgical suture – silk does not cause inflammatory reactions and is absorbed or degraded after wounds heal.

Other promising medical uses are as biodegradable microtubes for repair of blood vessels and as moulded inserts for bone, cartilage and teeth reconstruction.

Production and commerce. Global silk production rose from around 100 000 tonnes in 2 000 to 150 000 tonnes in 2006, thanks mainly to the growth of China's output. China produces about 70 percent of the world's silk, followed by Brazil, India, Thailand and Viet Nam, with minor production in Turkmenistan and Uzbekistan. India, Italy and Japan are the main importers of raw silk for processing. The unit price for raw silk is around 20 times that of raw cotton. (Source: International Year of Natural Fibres 2009 Web site, www.naturalfibres2009.org/)

For more information, please contact:
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(Please see page 66 for more information on the International Year of Natural Fibres.)

India is the second largest producer of silk after China and the largest consumer of silk in the world. (Source: Thaindian.com, 18 April 2009.)

Silkworm's chemical attraction to mulberry leaves discovered

Tokyo. Japanese scientists say they have isolated the jasmine-scented chemical that attracts silkworms to mulberry leaves – their primary food source. The findings could help silk producers fine-tune the diets of silkworms to get them to eat more and digest food more efficiently, a study published in *Current Biology* reported on Friday.

The chemical *cis*-jasmone emitted in small quantities by the leaves of the mulberry tree triggers a single, highly tuned olfactory receptor in the worms' antennae, said Kazushige Touhara, a professor at the University of Tokyo. *Cis*-jasmone is so powerful that just a tiny amount draws silkworms towards the source of the smell, he said. *Cis*-jasmone might be added to artificial diets to increase the efficiency of the worms' food intake. It could also be used to develop a safe form of pest control, attracting unwanted insects also drawn to the scent of *cis*-jasmone. (Source: United Press International, 8 May 2009.)

WILDLIFE AND BUSHMEAT

Primate hunting reaches crisis point in Latin America

Monkey numbers in Latin America have fallen dramatically in recent years as primate hunting reaches unsustainable levels. Most are used for food, but an increasing number of souvenirs are also produced using dead monkeys.

The authors of a report published this week by the British wildlife charity Care for the Wild International and the German organization Pro Wildlife claim that the number of primates hunted in Latin America could be as high as 10 million a year. In some parts of the Amazon basin, the numbers of medium- and large-size primates have dropped by a staggering 93.5 percent over the last 20 years.

The report concludes that primate populations in 16 of the 22 Latin American countries are under threat, particularly larger species such as woolly, spider, howler and capuchin monkeys. One of the

report's authors, Sandra Altherr of Pro Wildlife, said it appeared that the extent of primate hunting in Latin America was higher than in Africa or Asia.

"While the devastating effects of the bushmeat trade in Africa continues to hit the headlines, the largely uncontrolled hunting of primates in Central and South America has been all but ignored," Altherr told Spiegel Online. "At an international level there is almost no discussion about this problem. We need to change this because the situation is becoming worse."

The report also found that primate hunting in Latin America, once a subsistence-level activity, is becoming increasingly commercialized, with traditional hunting methods being replaced by modern weapons.

The report also claims that the hunting of primates for food rather than habitat loss poses the most serious threat to the survival of large primates in Latin America within the next two decades. As the rain forest is cleared away by loggers, new paths and roads into forest regions allow hunters increasingly easy access to primate breeding grounds.

Primate hunting is already illegal in most Latin American countries, but Altherr said that the authorities in many areas turned a blind eye to the problem. (Source: Spiegel Online International, 13 April 2009.)



The impact of hunting on the biological community

Hunters focus initially on large animals and continue to hunt them even when their numbers become low. Such species comprise the majority of the mammalian biomass in undisturbed forests and play keystone ecological roles. Reduction or loss of such species will have wider impacts on the forest community, as a result of the following factors.

- **Loss of pollinators.** Large fruit bats in particular are extremely important pollinators of many tropical forest trees.
- **Loss of seed predators** (e.g. pigs, peccaries, agoutis, large squirrels). With reduced seed predation, trees with large seeds are at a competitive advantage over trees with smaller seeds. In one study in Panama, such trees dominated forest patches after less than 75 years following the depletion of seed-eating animals.

- **Loss of seed dispersers** (e.g. primates, frugivorous bats, frugivorous birds, forest ungulates). Many large animals play a primary role in seed dispersal; seeds of up to 75 percent of plant species in African rain forests are dispersed by animals. Hunting can deplete complete guilds of seed dispersers by removing primates, large birds and bats. The exact balance between animal dispersed plants and vegetative propagation of rain forest plants is still unknown, but the loss of seed dispersers will undoubtedly affect forest composition, in ways that are difficult to predict.

- **Loss of predators** (e.g. large cats, raptors). This can cause unusual and uneven densities of different prey species. In turn, proliferation of certain prey species can lead to declines or local extinctions of their animal or plant food species, which changes forest composition and decreases overall biodiversity. In Barro Colorado Island, Panama, the absence of large predators led to an increase in mesopredators (coatis). The increased predation by the mesopredators on birds' eggs and fledglings caused declines and local extinctions of many low-nesting birds.

- **Loss of food for predators.** Hunting of ungulates and primates can reduce the populations of predators that depend on them for prey. In India, hunting can result in reductions of 90 percent of the prey eaten by tigers. This reduces tiger densities and also results in their hunting smaller prey, thereby causing further detrimental effects on the biological community. The loss of animals from forest ecosystems and the resultant disruption of ecological and ultimately evolutionary processes, changes in species composition and probable reduction in biological diversity are collectively known as the "empty forest syndrome".

(Source: R. Nasi, D. Brown, D. Wilkie, E. Bennett, C. Tutin, G. van Tol and

T. Christophersen. 2008. *Conservation and use of wildlife-based resources: the bushmeat crisis*. CBD Technical Series 33. 50 pp. Bogor, Indonesia, Secretariat of the Convention on Biological Diversity, Montreal, and Center for International Forestry Research [CIFOR].

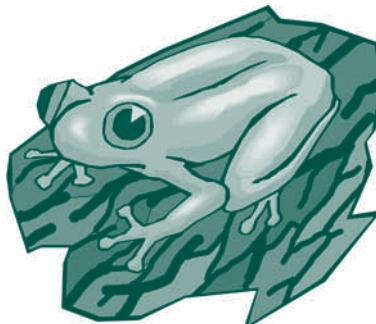
FOR MORE INFORMATION, PLEASE CONTACT:
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"FOOTBALL FOR THE FORESTS" BUSHMEAT AWARENESS MATCH WILL TAKE PLACE IN 2010

The antibushmeat charity football match scheduled for June 2009 in Yaoundé, Cameroon has been postponed to 2010.

Given that 2009 is the International Year of the Gorilla, the Great Apes Survival Project (GRASP) Secretariat announced that they are planning an antibushmeat charity football match to be held in Yaoundé between the national teams of Cameroon and Nigeria. It is hoped that the good example of the football heroes of Cameroon and Nigeria will have a significant behavioural impact on the illegal harvesting of bushmeat in the region. The aim is to broadcast the match throughout equatorial and southern Africa and use any revenue generated to support gorilla conservation projects in both countries. The "Football for the Forests" match will also serve as an awareness-raising pilot project to determine the possibility of future matches between great ape range states and to determine possible involvement in 2010's World Cup in South Africa. The GRASP Secretariat is provided jointly by UNEP and UNESCO. (Source: *Nature & Faune*, 23(2), 2008.)

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Frogs important food source

With its famous diversity of frog species, Madagascar has long been targeted by smugglers for the pet trade. While this threat is relatively well understood, less known is the domestic market for edible frogs. Writing in *Tropical Conservation Science*, researchers from the University of Aberdeen (United Kingdom) and institutions in Madagascar provide a glimpse into this activity.

Richard Jenkins and Malagasy colleagues conducted a five-month survey of collectors delivering frogs to a restaurant in eastern Madagascar. They found a thriving trade – 3 233 frogs were delivered to the restaurant during the period. Income for collectors selling edible frogs was only slightly lower per edible frog (US\$0.29) than it was for *Mantella milotympanum* (\$0.32), a critically endangered frog collected for the international pet trade, thus providing an importance source of income for frog hunters. The researchers are now working to determine the sustainability of the industry.

The authors conclude by noting that forest degradation – largely a result of conversion of agriculture – probably damages frog habitat, thereby potentially impacting collector livelihoods. (Source: Mongabay.com [Madagascar], 23 March 2009.)

The role of taste in determining the demand for wild meat

The role of taste and cultural preference in driving the demand for wild meat is unclear. It is commonly believed that people in tropical forest countries often prefer the taste of wild meat over that of domestic animals, and that wild meat consumption is a deeply rooted tradition that is highly resistant to change. These views are supported by the continuing demand for wild meat from formerly rural people now living in middle-class urban or even overseas environments, from Jakarta,

Libreville and Brazzaville to London and New York. In these cases, wild meat is consumed as a luxury item to maintain a link to a departed lifestyle and is not a staple source of animal protein.

Scientific data to determine how important a role taste and culture play in the overall demand for wild meat are scarce. Most studies of preference have often simply documented that consumers noted "meat hunger" when their diet is composed primarily of starches, or have focused solely on which species of wildlife consumers prefer. They have not established that consumers have clear taste preferences for wild meat relative to the meat of domesticated animals. In a recent study in Gabon, consumers were asked to select which of two plates of meat they preferred. Only poor rural people showed a measurable preference for bushmeat. And, of the 42 subjects who stated a preference for domestic poultry, 78 percent avoided bushmeat when given the choice of porcupine or chicken. Overall, results suggest that taste is not the primary determinant of consumer demand for wild meat. (Source: R. Nasi, D. Brown, D. Wilkie, E. Bennett, C. Tutin, G. van Tol and T. Christophersen. 2008. *Conservation and use of wildlife-based resources: the bushmeat crisis*. CBD Technical Series 33. 50 pp. Bogor, Indonesia, Secretariat of the Convention on Biological Diversity, Montreal, and Center for International Forestry Research [CIFOR].)

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United States of America imports 1 billion pet animals from the wild between 2000 and 2006

Poor regulation of the international wildlife trade has increased the vulnerability of the United States of America to outbreaks of disease and alien invasive species, report researchers writing in *Science*.

Analysing Law Enforcement Management Information System (LEMIS) data gathered by the United States Fish and Wildlife Service from 2000 through 2006, Katherine Smith of Brown University and colleagues found that of the more than 1.5 billion live wildlife animals legally imported to the United States of America

during the period, only 14 percent were classified to the level of species despite federal mandates for such labelling. The lack of accurate reporting makes it impossible to "accurately assess the diversity of wildlife imported or the risk they pose as invasive species or hosts of harmful pathogens", they write.

"If we don't know what animals are coming in, how do we know which are going to become invasive species or carry diseases that could affect livestock, wildlife or ourselves?" asked Peter Daszak, President of Wildlife Trust and a coauthor on the paper.

"The threat to public health is real. The majority of emerging diseases come from wildlife," added Smith, Assistant Research Professor in the Department of Ecology and Evolutionary Biology at Brown University and lead author on the paper. "Most of these imported animals originate in Southeast Asia – a region shown to be a hot spot for these emerging diseases."

The researchers found that 92 percent of imports were designated for commercial purposes, the majority of which were for the pet trade. Almost 80 percent of shipments contained animals from wild populations, "the majority of which have no mandatory testing for pathogens before or after shipment," they note.

The authors call for stronger regulation to improve monitoring of the live wildlife trade. They note that Congress is currently deliberating the Nonnative Wildlife Invasion Prevention Act (HR 669), which would tighten regulations on wildlife imports but say that the proposed legislation does not go far enough to control what they term "pathogen pollution".

The authors further urge education programmes to make individuals, importers, veterinarians and the pet industry aware of the "dangers of diseases transmitted from wildlife to humans and domesticated animals". They also call for captive-breeding initiatives to reduce pressure on wild populations and reduce the risk of disease introduction. (Source: Mongabay.com, 30 April 2009.)

Great hornbill at stake

Hornbills, especially great hornbills, are slowly and steadily vanishing from the still intact forests of Arunachal Pradesh, India. Hunting has proved to be a far greater threat than habitat loss from logging and shifting cultivation.

Great hornbill body parts, especially the

casque and feathers, are an important part of the traditional rituals and customs of many tribes. Hunting is deeply ingrained in the local culture across the state and perhaps across many a tribe in northeast India, making the curbing of hunting an exceptionally challenging task. The younger generation is slowly forgetting the rules of hunting that their ancestors revered. (Extracted from: CEPF E-News, January 2009.)

WILDLIFE SEIZURES AND PROSECUTIONS

- Investigators have seized about 300 wildlife items, including rhinoceros teeth, tortoise shells, snake skins and a crocodile (species not reported) from a collector in what is described as the biggest haul of illegal wild animal trophies in western Switzerland. The collector is said to have acquired approximately 600 trophies; about 200 items were apparently imported illegally and 350 were later sold over the Internet and by post.
- In July 2008, forest police of Manzhouli, Inner Mongolia, seized 190 bear (CITES I/II) paws and 14 moose *Alces alces* noses, which were to be sent to Harbin, Heilongjiang Province by train.
- In April 2008, two wildlife dealers were arrested in Douala, Littoral Province, after being found trying to sell leopard *Panthera pardus* (CITES I) skins and trophies derived from other species. The arrest was carried out by the Provincial Delegation of Forestry and Wildlife, in collaboration with the forces of law and order, the judiciary and the Last Great Ape Organization (LAGA), and was part of a nationwide programme launched in 2003 by the Government of Cameroon, with technical assistance from LAGA, which aims at the effective enforcement of the country's 1994 wildlife law. The enforcement programme targets wealthy dealers rather than villagers. (Source: TRAFFIC Bulletin, 22(1), October 2008.)

Tree iguanas targeted by hunters as source of traditional medicine in the Plurinational State of Bolivia

Harvesting of a Bolivian lizard for its purported healing powers is leading to its depletion, report researchers writing in *Tropical Conservation Science*.

Erika De la Galvez Murillo and Luis F. Pacheco of the Universidad Mayor de San Andrés found that collection of the Andean tree iguana or "Jararank'o" (*Liolemaus signifer*), a lizard found on Bolivia's dry altiplano for use in traditional medicine, reduced the population by nearly half relative to unharvested sites. They note that the species may suffer increased mortality when dens are destroyed during harvesting since mother lizards – targeted by collectors for their size – care for their young.

To improve the sustainability of the practice the authors suggest that hunters avoid collecting females and destroying dens. (Source: Mongabay.com [Bolivia], 23 March 2009.) ♣



Strength does not come from physical capacity. It comes from an indomitable will.

Mahatma Gandhi



ARMENIA

Armenia Tree Project works with Yale's Global Institute of Sustainable Forestry

The Armenia Tree Project (ATP) recently completed a two-year project to develop sustainable forestry training models for Armenia. Through a collaborative effort with Yale University's Global Institute of Sustainable Forestry, ATP conducted an analysis of the forests around the village of Margahovit.

"The degradation of forested areas in Armenia necessitates a new and bold approach to forestry practices," stated ATP Executive Director Jeff Masarjian. "With Yale's expertise, ATP has been able to collaborate with forestry officials to bring cutting-edge forestry training to Armenia. It is our hope that the project will literally reshape the nation's landscape and ensure a sustainable future for its population."

ATP presented a new *Sustainable Forestry Manual* to stakeholders in Armenia and developed a seminar training model to use as a guide. The manual is currently being published in eastern Armenia, and an English-language version is available on the ATP Web site.

In addition, ATP assisted the local community of Margahovit in identifying NTFPs, bringing environmental education into the local schools and through stakeholder meetings that outlined the benefits and challenges of community forestry. "An assessment was made of plants, herbs and other NTFPs that may be harvested for generating alternative income for residents living in proximity to the forests," explained Masarjian.

"The collaboration between ATP and Yale has been a great success," concluded Dr Oliver, Director of the Yale Global Institute of Sustainable Forestry. ATP is currently developing a plan to conduct sustainable forestry training seminars throughout Armenia. (Source: *The Armenian Reporter* [Armenia], 8 April 2009.)



BANGLADESH

Implications of livelihood dependence on NTFPs in Lawachara National Park

Nowadays it is indisputable that NTFPs play a significant and often critical role in the quality and even survival of life of very large numbers of rural poor households in most tropical developing countries such as Bangladesh. In fact, their role and importance are diverse, helping households achieve self-sufficiency, food security, income generation, accumulation of savings and risk minimization. It has also increasingly been recognized that the collection and use of NTFPs are ecologically less destructive than timber harvesting, and development and promotion of such products could provide a sounder basis for sustainable forest management and community upliftment. NTFPs play a role in the household economy of not only the poor, but also the rich.

The present study was conducted at Lawachara National Park (LNP), located in the division of Sylhet in northeastern Bangladesh. Approximately 167 plant species and 276 animal species are found within the park, which covers an area of 1 250 ha. There are 14 villages in and around LNP: two are located within the park and the rest in the area surrounding it. The study was conducted in LNP with the aim of investigating and comparing the role of NTFPs in the livelihoods of the communities of two villages: Magurchara Punji, within LNP and Baligaon, which is adjacent to the park. These villages were chosen because they are both easily accessible and depend heavily on forest resources from the park.

The study reveals that the villagers of Magurchara Punji and Baligaon collected 11 categories of NTFPs from LNP: betel leaves; bamboo; cane; fuelwood; mushrooms; wild vegetables, such as bamboo shoots, taro, thankuni (*Centella asiatica*); wild fruits such as chapalish (*Artocarpus chaplasha*), kau (*Garcinia cowal*), jackfruit, cane fruits, bananas, dewa (*Artocarpus lacucha*); different kinds of medicinal plants; birds, such as horikol (orange-breasted green pigeon) and jungle fowl; animals; and fish. The villagers' income from these NTFPs in LNP is given in the table.

The study illustrates that local people meet their fuelwood demands from the forest either by collecting it themselves, or by purchasing it from the market. The Khasia communities in the interior village depend highly on the park, since their only source of cash is betel leaf cultivation on forest lands. All households – except a few wealthy homes in the village located outside the park – collect bamboo, cane, wild vegetables and medicinal plants for their domestic consumption. For Khasia households in the interior village, the hunting of wild animals and birds is a part of their traditional culture.

These findings suggest that an understanding of the role of NTFPs in the livelihoods of local communities should be incorporated in the formulation of comanagement policies for all protected areas. (Contributed by: Md. Parvez Rana, Department of Forestry and Environmental Science, School of Agriculture and Mineral Sciences, Shahjalal University of Science and Technology, Sylhet 3114, Bangladesh. E-mail: parvez_200207@yahoo.com)

Local people's income from various NTFPs in the Lawachara National Park, Bangladesh

NTFPs	Respondents*	Income (US\$)
Betel leaves	40 (88.89)	857.14–928.57/first three months before winter 428.57–500/last three months after winter
Fuelwood	28 (62.22)	2.29–2.43/day
Cane	20 (44.44)	2.14–2.29/day
Bamboo	15 (33.33)	2–2.29/day
Mushrooms	12 (26.67)	28.57–35.71/month
Wild vegetables	10 (22.22)	171.43–214.29/year
Wild fruits	9 (20.00)	142.86–157.14/year
Medicinal plants	19 (42.22)	185.71–228.57/year
Birds	5 (11.11)	1.43–1.71/day
Animals	1 (2.22)	2.14–2.43/day
Fish	2 (4.44)	1.43–1.71/day

*Note: same respondent earned income from more than one product. Figures in parentheses indicate percentage of respondents.

A look at a parasitic plant: *Cuscuta reflexa* Roxb.

Cuscuta is a rootless parasitic plant with a thread-like herbaceous stem that twines on woody or herbaceous hosts from which it obtains nutrients by means of haustoria. Leaves are reduced to small functionless scales. The plant's English name is dodder; in Bangladesh it is known by a variety of names: swarnalata, sunno lata, tarulata, algusi, haldi, algusilata. It belongs to the family Cuscutaceae under the genus one *Cuscuta*, which is enriched with 170 species in the tropical and temperate zone. Its distribution is worldwide and includes six genera in Bangladesh: *C. reflexa*, *C. chittagongensis*, *C. hyalina*, *C. australis*, *C. campestris* and *C. chinensis*. Of these, *C. reflexa* is the most common and widely distributed in Bangladesh. It grows on trees, herbs and shrubs as a parasite. It flowers during January to February and fruits in February to March.

Cuscuta species have been found to grow on many host plants, such as *Ziziphus mauritania*, *Mikania scandens*, *Eupatorium odoratum*, *Ixora* sp., *Acacia auriculiformis*, *A. nilotica* and *Bougainvillea* sp. Like other vegetables, dodder is a source of various nutrient elements, such as carbohydrates, protein and vitamins. Cooking it makes it as tasty as other vegetables but, for medicinal purposes, it needs decoction and the addition of some other elements.

A test was made for its growth and usages.

C. reflexa was grown to spread over the host, *Ixora* sp., during 2007 to 2008 inside the Bangladesh Forest Research Institute campus. Its green weight was 500–600 g/m²; height of the host (*Ixora* sp.) was 81–90 cm, while in the control plot (without *C. reflexa*) it reached a height of 103–200 cm. The difference might have occurred through the parasitic effect of *C. reflexa*. Luxuriant growth (*C. reflexa*) vigour was observed during post-monsoon (mid-September to mid-October) when sampling was done. Its greenish-yellow colour changes to yellowish-green when it matures. The stalk colour was pale and the diameter reduced during the drought period (February to April). The diameter of *C. reflexa* was 3.1 mm on *Ixora* sp. and *Acacia auriculiformis*, but 3.3 mm on *Mikania scandens* during the optimum growth period in September. In the light, the growth vigour of *C. reflexa* was better than on the shaded site.

Dodder is rich in food value, even higher than many vegetables and fruits. Generally,

tribal people process *Cuscuta* by boiling it and adding some onion, chilli and salt. They then eat it with rice. It is used by various communities in Bangladesh.



Authors' recipe for a tasty meal using dodder

1 kg dodder stems
59–75 ml edible oil
50 g chopped onion
10–15 green chilli (according to taste)
5–10 cardamom seeds
10 g carminative cumin seeds (*Cuminum cyminum* – Jira-Bengali)
Turmeric (for colour)
Salt
Wash the collected thread-like herbaceous stems and cut into pieces of 1–3 in (2.5–7.6 cm). Boil for 4–5 minutes and then make a mould by pasting. Then fry the dodder mould in edible oil with the chopped onion and add chilli (if used), cardamom, cumin, turmeric and salt. Cook for 2–5 minutes. Allow to cool and serve.

Certain women were found to collect *Cuscuta* and were asked why they did it. Some replied that this information could not be disclosed to the male, but they told the female author that *Cuscuta* species were used for curing stomach aches, for energy and antifertility purposes. Some of the women used dodder extract on their heads, believing it would make the head cool and protect against hair loss. One scientist at the Bangladesh Forest Research Institute advised that his late father added a few drops of honey to the juice of *Cuscuta*, which he took against coughs and for the well-being of the stomach. The plant is also regarded as an alterative purgative and anthelmintic. In addition, the decoction of stems is useful in constipation, liver complaints and bilious affections; seeds are taken as a depurative; and the fruits are used to combat fever and coughs.

This species was also found to be used for ornamental purposes, as well as to provide

cool shade where neighbours rest and pass the time by chatting or sitting together for decision-making.

There is scope to look into the growth and yield of the plant, medicinal usages and processing as food. (Contributed by: ATM Emdad Hossain, Ph.D., Divisional Officer [Soil] and Shukla Rani Basak, Research Officer, Forest Botany [Taxonomy], Bangladesh Forest Research Institute [BFRI], PB 273, Chittagong, Bangladesh 1000. Fax: +880-031-681566; e-mail: bfri_ssdl@ctcpth.net sr.basak@yahoo.com



Première évaluation de la biodiversité des Odonates, des Cétoines et des Rhopalocères de la forêt marécageuse de Lokoli (Sud-Bénin)

La forêt marécageuse de Lokoli a été prospectée en 2006 pour établir un premier inventaire des *Odonata*, *Coleoptera cetonidae* et *Lepidoptera rhopalocera*: sur 24 espèces d'Odonates recensées, 13 sont nouvelles pour le Bénin, parmi lesquelles *Oxythemis phoenicosceles* Ris, espèce rare, et *Ceriagrion citrinum* Campion, classée comme vulnérable sur la liste rouge de l'IUCN et justifiant à elle seule la protection du site.

Douze espèces de Cétoines ont été recensées, pour la plupart typiquement forestières; *Cypralais aurata* (Westwood) se révèle une espèce typique des forêts inondées et *Grammopyga cincta* Kolbe n'est connue au Bénin que de Lokoli et de la vallée de l'Ouémé; sur 75 espèces de Rhopalocères, 28 sont nouvelles pour le Bénin et 9 seulement sont strictement inféodées à des milieux forestiers. *Eurema hapale* Mabille, *E. desjardinsii regularis* Butler et *Acraea encedana* Pierre, espèces peu communes, sont inféodées aux milieux humides. La forêt marécageuse de Lokoli, unique au Bénin sur le plan écologique et contribuant à la biodiversité régionale, devrait impérativement être élevée au statut de réserve naturelle.

(Source: extrait d'un article par Séverin Tchibozo, Henri-Pierre Aberlenc, Philippe Ryckewaert et Philippe Le Gall.)

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BHUTAN



Boost for bamboo-product makers

With a crash course in cane furniture making from Guwahati under his belt, Ap Sangay Wangdi from Thrimshing set out for Thimphu not long ago with two freshly built bamboo chairs and a table – hoping to sell them all. But he returned home, his furniture on the back of a bus, his demeanour anything but jaunty.

He never imagined it would turn out this way. For years, Ap Sangay, 64, had been selling Kangpar and Thrimshing bamboo products in Thimphu. He sold bangchungs, ara palangs, quivers, mats, hats, and dalas (bichap) to Thimphu residents. His was a modest business. Ap Sangay found out that cheaper and better furniture – made of wood – had broken into his market. It was not that he had not been aware of this in the past. But bamboo products still ruled the roost. Discovering that wooden ones had nudged him out of the market was, indeed, a bitter pill to swallow. Bamboo furniture making was his main source of income.

But he did not want to switch to wooden products. Moreover, Thrimshing Kangpar farmers, from whom he bought bamboo products, depended on his business doing well. For them too, bamboo meant money.

The solution was some interesting new designs, not to mention marketing skills. It was with this realization that 70 people jumped at the opportunity to participate in a ten-day bamboo-product development training, sponsored by the United Nations Development Programme (UNDP) and the Netherlands Development Organisation (SNV) recently. They were taught to make new designs by blending traditional weaving styles, but using treated material for longer product life.

When Kuensel visited their villages recently, Dorji Tshomo, 56, was hard at work on the new designs picked up at the

training. "It involves hard work. However, we have better tools," she said, displaying a set of tools provided free from the training programme. A Thrimshing farmer said, however, that they would still continue to produce traditional products besides the new ones, which include lampshades, hangers, ladles, tissue paper holders, trays and other utility products.

The Government has assured them of good marketing, at least in the beginning. Meanwhile, Ap Sangay has got back the spring in his step and can be seen in Thimphu's market vending his wares. (Source: Kuensel Online [Bhutan], 22 February 2009.)

Bamboo demise in Bhutan

Dying bamboo on the hills of Jarey gewog in Lhuentse, northeastern Bhutan, creates a resource crisis for the villagers who depend on bamboo for roofing and other domestic purposes.

Villagers have started penetrating deeper into the forests, but say there are not many bamboos around. "Whatever's available is very far and difficult to transport," said a villager. "We've started scaling the other side of Jarey hill in the hope of finding bamboos to reroof our houses before the monsoon sets in."

Elders in the village said that they have never faced such problems in the past. (Source: Kuensel Online [Bhutan], 10 April 2009.)

CountrySTAT-Bhutan

The recently launched CountrySTAT-Bhutan is a Web-based system for disseminating national food and agricultural statistical data together with metadata for analysis and policy-making.

Developed over the past 18 months with financial and technical support from the FAO-Netherlands Partnership Programme (FNPP), Country STAT-Bhutan aims to provide reliable information on key sectors of the country's agriculture-dependent economy to relevant stakeholders. The system contains statistical data on land use, agricultural production (crops, livestock and forests), export and import of agricultural products, agricultural inputs, commodity prices, farm machinery and development infrastructure.

CountrySTAT-Bhutan will complement and be compatible with FAO's FAOSTAT database. Data are classified as per national, dzongkhag and gewog levels, with national-level data shared with FAOSTAT.

"District- and gewog-level data are highly useful for national planning and policy-making purposes, as well as for researchers and rural development projects. Data on land suited for agricultural production are vital in a country where farming is limited by steep and rugged mountain terrain, altitude and the high priority given to forest cover," states the media release. "Forest-related data are needed to determine the quantity of wood being harvested for various purposes and the income generated by farmers from the sale of NWFPs." (Source: Kuensel Online [Bhutan], 16 March 2009.)

BOLIVIA (PLURINATIONAL STATE OF)

The importance of plant knowledge

How important is traditional plant knowledge in the Amazon? According to a recent study among the Tsimane' in the Amazonian Plurinational State of Bolivia, each standard deviation of maternal ethnobotanical knowledge increases the likelihood of good child health by more than 50 percent. And the study raises the question: What will be the cost – to the Tsimane' and other indigenous peoples – if such ethnobotanical knowledge is lost?

The Tsimane' number about 8 000 people who live in approximately 100 villages along the Maniqui River and the interior of the Pilon Lajas region of the Bolivian Amazon. Tsimane' villages are small, with an average of about 24 households linked by kinship and marriage. At the time of the study, no household had electricity or running water and half the villages were inaccessible by road. The Tsimane' have traditionally lived by slash-and-burn agriculture, gathering, hunting and fishing. However, since the 1970s, their territory has been encroached upon by colonist farmers, logging firms, cattle ranchers and oil companies. The Tsimane' now increasingly interact with the market economy through the sale of goods and wage labour, primarily on cattle ranches, logging camps and farms.

Such integration into the market economy brings about changes in occupation, preferences, social organization, and health and nutritional status. The Tsimane' are now starting to merge into a culture that places no value on their indigenous knowledge, especially their ethnobotanical knowledge. Under this

pressure, traditional knowledge of medicinal plants is starting to disappear, with little to take its place. Too often, as here, the global market holds out the offer of Western medicine without providing the means to gain access to it.

Thomas McDade and William Leonard from Northwestern University set out to learn what impact the loss of traditional plant knowledge might have on the health of children. To do this, they assessed the health of 330 Tsimane' children, aged from two to ten years old, and tested their mothers and fathers on both their knowledge of local plants and their skills at using them. Local ethnobotanical knowledge was quantified using five measures: agreement with local experts on plant uses; botanical knowledge; skills in using plants; total number of plants used; and diversity of plants used. Child health was measured using three variables: concentration of C-reactive protein, a marker of infectious burden; skinfold thickness, a measure of fat stores; and stature, used to calculate height-for-age scores, an indicator of nutritional and health status.

The results were striking. For each measure of health, mothers with higher levels of plant knowledge and use had healthier children, independent of potentially confounding variables related to education, market participation and acculturation.

The Tsimane' ethnomedical tradition may play a particularly important part in protecting health because effective commercial medicines are expensive and difficult for the Tsimane' to procure. If remedies derived from local plants are effective in preventing or treating illness, this would contribute not only to lower levels of inflammation but also to improved linear growth and body fat stores by reducing allocations of energy to fuelling immunity and fighting infection.

Strikingly, although the authors infer a direct association between maternal plant knowledge and child health, it may be that this association is mediated by the children themselves. Tsimane' children spend much of their time away from parental supervision, playing and foraging in small peer groups, and the authors report seeing older children use medicinal plants both for themselves and for younger children. It may be that plant knowledge – like so much other cultural knowledge – is passed, not from adults to children, but rather from

older children to younger children. In the preservation of plant knowledge lies the destiny of the people. (Source: RedBolivia Internacional [Bolivia], January 2009.)

BULGARIA

Bulgarian honey trade

According to the Bulgarian Bee Union, Bulgaria produces 8 000–11 000 tonnes of honey each year. The annual consumption of honey per person is 0.4–0.5 kg (average consumption for Europe is 1.5–2 kg per year).

Between 5 000 and 8 000 tonnes are sold within Bulgaria and 3 000–6 000 tonnes are exported. Every year in Europe 140 000–150 000 tonnes of honey are traded and therefore Bulgaria accounts for only 1 percent of the European honey trade. The major trade partner for Bulgaria is Germany, followed by France, Italy and Spain.

The Bee Union aims to popularize honey consumption in Bulgaria because it has been proved that the price on the local Bulgarian market is better than for export. (Source: *Bees for Development Journal*, 89, December 2008.)



CAMBODIA

Mondulkiri honey going wild

Indigenous Phnong (also referred to as Bunong) communities in Krang Thes and Pou Chrey communes are operating a honey enterprise project, a NTFP-based livelihood initiative that started in 2007 with support from WWF. The project currently covers 46 households, all honey collectors, and promotes a sustainable harvesting practice that respects biodiversity and maintains the intimate relationship and harmony with the forests.

During their harvest period of March to May 2008, the communities achieved a

honey collection of 1 000 litres. Of these, 400 litres were packaged following hygienic practices. In June 2008, the brand name "Mondulkiri Wild Honey" kicked off its first promotions in ten shops and NGO-based selling outlets in both Mondulkiri Province and Phnom Penh. Many environmental and commercial events were opportunities to introduce this new product.

"At the Third Cambodian Nationwide Trade Fair held in December last year, the community sold around US\$799 worth of honey during the four-day event annually organized to promote Khmer products. This was good exposure for the community's honey and a good opportunity to convey the message of linking forest conservation to the livelihoods of the community," said Amy Maling, Community Extension Technical Advisor with WWF's Eastern Plains Landscape Project (EPL).

Honey is one of the forest-based resources that has the potential to generate income among the Phnong indigenous communities in Mondulkiri. Proper handling and good honey harvesting practices not only result in higher production, but maintain the intimate relationship and harmony between people and the wilderness. Honey bees need the forest to survive and produce honey. They require large trees for nesting and are important agents of pollination for many plants in the forests.

Besides improving honey productivity, the development of the honey enterprise also brings change to the local honey trade situation. Traditionally, fresh wild honey is sold only to Mondulkiri's local buyers who offer a low and unstable price. In 2007, for example, honey was sold for 10 000 riel (around US\$2.5) per litre. But with the increased market in the province and capital of Phnom Penh, the Phnong collectors sold an average of 18 000 riel (around \$4.5)/litre in 2008.

According to Maling, the honey collectors are now collecting information about the number of honeybee nests, a crucial step for the management of this important NTFP resource. Trees where they collect honey are being tagged and mapping of the collection areas is being carried out.

To promote sustainable use of forest resources, EPL's community extension team conducts regular awareness-raising of the importance of forests among 16 local villages and encourages them to protect these natural resources, which can sustain their livelihood for generations to come.

The increased awareness of local people about the environment and their involvement in livelihood activities, conservation and natural resources management are a crucial contribution to preserving Cambodia's unique wilderness of dry forest Eastern Plains, which harbour a number of globally important wildlife. (Source: *Voices from the forest*, 16, March 2009.)

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Community forests signed over to Kampong Thom villagers

Thirty-two Community Forest Agreements were signed in Kampong Thom Province in late March, formally handing over the management of 15 000 ha of forest land to local communities. This is part of a 15-year social land concession that development officials say will reduce exposure to deforestation and offer residents a new source of income.

Development groups involved in the handover say forests in the hands of local communities have fared better than forests on public land or unregulated private land.

"[Villagers] have the most to gain and the most to lose from what happens to the forests they depend upon," said Yam Malla, Executive Director of the Regional Community Forestry Training Centre. "They are the most willing and most able to invest time, effort and their considerable human resources to ensure the forest is protected and well managed."

Ty Sokun, Director General of the Forestry Administration, said the Kampong Thom concession could be the beginning of

a much broader project. He promised a total of 2 million ha of Cambodian forest to community forestry, although he did not specify a timeline. Such a plan would put 20 percent of the country's forests into the hands of local communities; currently the figure stands at just 3 percent. (Source: *The Phnom Penh Post*, 31 March 2009.)

"Ecstasy oil" distilleries threaten rain forests

Authorities, working with conservationists, have raided and closed several "ecstasy oil" distilleries in Cambodia's Cardamom Mountains. The distilleries posed a threat to the region's rich biological diversity, reports Fauna & Flora International (FFI), the conservation group involved in the operation.

"The factories had been set up to distill 'sassafras oil', produced by boiling the roots and the trunk of the exceptionally rare Mreah Prew Phnom trees (*Cinnamomum parthenoxylon*) and exported to neighbouring countries," said FFI. "The oil is used in the production of cosmetics, but can also be used as a precursor chemical in the altogether more sinister process of producing MDMA – more commonly known as ecstasy."

The distillation process not only threatens Mreah Prew Phnom trees, but damages the surrounding forest ecosystem. Producing sassafras oil is illegal in Cambodia. (Source: Mongabay.com [Cambodia], 25 February 2009.)

CAMEROON

Cameroon raid nets key poachers and huge bushmeat haul

Prompted by concerns about poaching from WWF, the Cameroon Ministry of Forestry and Wildlife organized a major week-long antipoaching operation in the region in tandem with the national military. A combined unit of soldiers, police and game rangers uncovered more than 1 000 kg of bushmeat, the remains of which included several protected species: gorillas, elephants and chimpanzees. They also confiscated more than 30 guns from the suspected poachers.

WWF is now calling on the Ministry of Forestry and Wildlife to push for the swift prosecution of the 15 suspected poachers arrested to complete last week's spectacular antipoaching drive properly.

The operation was carried out in targeted villages with the help of local traditional rulers and the local population. The teams also carried out in-forest and maritime patrols during which two elephant tusks, three elephant tails and great ape parts were confiscated.

"It is critical for both government and other stakeholders to examine the alarming wildlife decimation in order to forestall what could turn out to be a regrettable carnage and irreversible loss of biodiversity," says Martin Tchamba, National Director for WWF Cameroon. "We need to urgently work out the causes of the present poaching upsurge and determine appropriate actions in order to safeguard key wildlife species in and around the parks." (Source: WWF Cameroon, 7 May 2009.)

L'impact du braconnage dans les forêts tropicales d'Afrique centrale et celles de l'Unité technique opérationnelle (UTO) de Deng Deng au Cameroun en particulier
 L'UTO de Deng Deng est située dans la région de l'Est-Cameroun. Les populations qui s'y trouvent sont inactives à d'autres activités indigènes; pourtant, il y a souvent une rareté des produits agricoles, situation rare au sein de telles collectivités rurales d'Afrique avec un sol fertile. Pour ces populations, le braconnage est la seule source de revenus: d'où la chasse non contrôlée des espèces fauniques; d'après mes enquêtes, les populations exerçant l'activité de braconnage déclarent qu'elles ont des revenus limités; la chasse serait donc leur seul moyen de survie. Notre objectif est d'assurer la gestion durable des ressources naturelles pour un développement socioéconomique au sein des collectivités villageoises. Dans ce cas précis, faut-il préserver les ressources tout en laissant les populations dans la pauvreté?

Cependant, l'ampleur du braconnage est devenue telle que certaines espèces sont désormais menacées d'extinction. La récolte actuelle de viande de brousse en Afrique centrale est d'environ un million de tonnes par an, soit une valeur de 4 millions de têtes de bétail. A ce rythme de braconnage, dans 50 ans, les forêts tropicales du bassin du Congo deviendront silencieuses, conséquence de la perte de la biodiversité et de la rupture des équilibres naturels. Parallèlement, les populations seront toujours dans la pauvreté.

Résoudre ce problème revient à réaliser dans de telles régions des projets de la préservation des ressources forestières tout en assurant le développement par la mise en

œuvre de façon durable des fonctions environnementales, économiques et sociales des forêts tropicales. (Contribution de: Gwomb Bi Hell Emmanuel, Président fondateur du GFCSD, B.P. 33939 Yaoundé, Cameroun. Courriel: dabereh@yahoo.fr)

Life around Ngovayang Forest

Environmental experts have started implementing field-level microprojects aimed at improving the livelihoods of people living in and around the Ngovayang Forest in the South Region. The initiative to conserve and manage sustainably the biodiversity of the Ngovayang Forest was officially launched in November 2008 at a workshop organized under the auspices of the Cameroon Biodiversity Conservation Society (CBCS), an affiliate of BirdLife International. The launching ceremony brought together representatives of relevant government ministries, community-based organizations and traditional institutions in the area.

The Ngovayang Forest constitutes an important source of livelihood for the local people, derived from the use of NTFPs. The management and sustainable harvest of these products necessitate a better understanding of the collection, processing and marketing of the products.

The indigenous people of the area are the Bagneli and Bakola, living alongside their Bantou neighbours, who often claim ownership of all natural resources in the region.

CBCS has long been carrying out research activities in the Ngovayang Forest area geared towards enhancing the living conditions of the indigenous people while conserving biodiversity in the region.

The microprojects designed to alleviate poverty, following research results in the area, touch on improvement of income-generating activities, sustainable harvesting of NTFPs, creation of community farms and enhancement skills in craft work. These projects are intended to link the livelihood improvement to biodiversity conservation by strengthening the capacity of the indigenous people.

CBCS is in the process of implementing a five-year development and conservation project on livelihood improvement in the area. For this initiative to have maximum impact and benefits for the indigenous people and the site support groups, collaboration among, and identification of, the various stakeholders become of paramount importance. (Source: Cameroon Tribune, 30 March 2009.)



Non-timber forest products get their own directory

Blueberry wine, fiddleheads, bird-watching tours, mushrooms, birds-eye wood sculptures and maple butter are just some of the items in a new NTFP directory in Atlantic Canada.

Called *From Our Atlantic Woods*, the new directory was put together by several forestry organizations in New Brunswick, Nova Scotia, Prince Edward Island, Newfoundland and Maine and contains more than 260 items.

The Atlantic team, led by INFOR Inc. in New Brunswick, has been working closely with the Buy BCwild team on developing an online and printed directory similar to that of Buy BCwild. "We are very happy to collaborate with the Royal Roads University's Centre for Non-Timber Resources team on this project, which makes it much easier for us to embark on this initiative and affords a certain consistency across borders," explains Janette Desharnais, Executive Director of INFOR Inc. "We are constantly discovering new and unique NTFPs throughout the region – and the producers are very happy to hop on board and promote their goods through our directory. It will be a great tool for people seeking local and natural products from the forest land base."

The directory is available at www.FromOurAtlanticWoods.com

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The agriculture and agrifood sector in British Columbia

The agriculture and agrifood sector in British Columbia is naturally diverse, producing over 350 products from our rich and varied land and aquatic resources. Non-timber forest resources (NTFRs) and wild products are part of the natural bounty that British Columbians enjoy. Since the early 1950s with the onset of use of woody florals harvested from the forest understorey, to the diversity of NTFRs that have appeared regularly in the marketplace, British Columbian First Nations, harvesters and producers are contributing at least \$600 million per year to the economy.

NTFR development can represent important economic opportunities for remote and rural communities, in particular those affected by mountain pine beetle, and other resource-dependent regions. First Nations communities have a long history with NTFRs and some have specifically targeted NTFRs as part of their economic development plans. Supporting community and cultural values is important to all British Columbians – thoughtful advances and partnerships in appropriate NTFR development can be part of sustaining healthy communities.

Providing some crossover with NTFRs, the British Columbian Ministry of Agriculture and Lands supports an agroforestry programme – an integrated systems approach that encompasses and balances economic, environmental and social values. The programme is driven by partnerships and identified gaps, needs and interests. Sustainable, ethical development of NTFRs and services is essential when capturing the value of the forest understorey – without compromising cultural or traditional rights, biodiversity and healthy ecosystems.

British Columbians value their environment and their diverse cultural heritage. Consumers everywhere are increasingly interested in the detailed story behind a product – who produces it, where it comes from and how it is produced are now part of the package. A local sustainability ethic is one of these key pieces. The Ministry of Agriculture and Lands is pleased to support the Centre for Non-Timber Resources in its work to provide key resources for sustainable, conscientious development in this emerging sector. (Source: Buy BCwild, 2008/2009.)

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Wild harvesting may come at a cost

The choice to buy something foraged from a Canadian forest instead of imported broccoli may seem good, but when wild foods hit the mainstream, the risks of overharvesting can threaten the species and large-scale industrial processing can diminish the qualities that attracted people in the first place.

A few years ago, wild leeks, also known as ramps (*Allium tricoccum*), were enjoyed only by foragers and gourmets who knew the woodland plant offered a delectable onion flavour with a hint of garlic. This year, the wild relative of the onion is everywhere. But all this attention is not good news for the leek, says Gérald Le Gal, President of the Quebec-based Association for the Commercialization of Forest Mushrooms and owner of Gourmet Sauvage, a company that sells prepared wild fruits and vegetables. Mr Le Gal does not think anyone should be selling ramps. "Don't touch the stuff. It's just too vulnerable," he says.

When you pick a ramp, you take the entire plant, including the bulb. Once the bulb is gone, there is nothing left of the plant; it will not grow back the next year. The Toronto and Region Conservation Authority considers it to be "a species of conservation concern". And eating a nice-sized bulb could be the equivalent of dining on an old-growth cedar. "It's a really, really, slow-growth plant. A bulb could be 18 to 20 years old," Mr Le Gal says.

In Quebec, the wild leek saw a similar surge in popularity in the early 1990s. At farmers' markets across the province, bottles of pickled wild leek were snapped up by the hundreds, pushing the species to the brink. Today, in Quebec, it is illegal to sell wild leeks. In an attempt to stop extinction by commercialization, the provincial government only allows people to harvest 50 bulbs a season for personal use. Chefs are not allowed to cook with them, and it is forbidden to import them from other provinces.

Wild leeks are not the only forest product growing in popularity. NorCliff Farms Inc., the country's largest supplier of fiddleheads (*Matteuccia spp.*), has seen a 20 percent rise in demand each year for its fresh and frozen

products over the past ten years, says Chief Executive Officer Nick Secord. This spring, the company opened a processing plant in Quebec where about 60 000 tonnes of fiddleheads roll off the conveyor belt every day. To satisfy demand, the company trucks in fiddleheads foraged from riverbanks and forests in Ontario, Quebec, New Brunswick and Nova Scotia, as well as the northeastern United States of America, Mr Secord says.

Unlike ramps, harvesting fiddleheads does not endanger the plant – as long as you do not take too many from the same patch, says Jonathan Forbes, owner of Forbes Wild Foods. He says pickers should only take three of the seven fronds of each plant or else risk its survival.

Experts say problems start when people do not respect these guidelines. "You've got people who are aware of how to harvest properly and others who just want to make a buck," says Tim Brigham of the Centre for Non-Timber Resources at Royal Roads University on Vancouver Island, a research centre dedicated to the sustainable use of forest products.

Mr Brigham believes that it is possible for Canadians to harvest wild foods commercially from nature in ways that preserve the ecosystem. He is part of a group trying to put together a national network of sustainable harvesters.

As long as harvesting is done sustainably, wild foods can help to protect nature, Mr Forbes says. "When people realize that the forests provide really good food, it gives it an ecological value it didn't have before. Then they may go easy on the environment." (Source: *The Globe and Mail* [Canada], 21 May 2009.)

Tapping trees for that classic Canadian flavour

It has been sweet success for a new breed of sapsuckers who introduced the maple syrup industry to Vancouver Island seven years ago.

A study of demand and supply of medicinal plants in India carried out by the Board during 2007-2008 highlighted alarming shortages of some of the plants used by the Ayurvedic industry.

Ladysmith's Gary Backlund and five others in the Master Woodland Manager programme at Vancouver Island University decided to create a West Coast maple syrup industry in 2002. More than 85 percent of the world's maple syrup is produced in Canada and is most commonly made in the eastern provinces of Quebec, Ontario, New Brunswick and Nova Scotia. In 2007, more than 40 600 tonnes of Canadian syrup,

valued at \$231 million, were sold to 45 different countries.

While the Vancouver Island production is a drop in the ocean compared with the eastern industry, Backlund and his fellow sapsuckers produced 3 000 litres of sap in their first season. Last year, more than 60 000 litres of sap were collected from bigleaf maples all over Vancouver Island. Backlund and his daughter Katherine do not measure their success in how much money they make from their maple syrup hobby.

Commercial success, however, was on the mind of Bram Lucieer of Campbell River, one of the original six island sap seekers. He did not make syrup. Instead, he produced a rare maple wine. Lucieer's ambition to sell his award-winning maple wine in the national and international market was corked when he ran into the arduous commercial regulations.

It is a huge disappointment since he is confident that he tapped into something that has the potential to make a large profit with hardly any overheads.

"The raw material is virtually free for the taking. The commercial profit would be huge. It's not like maple syrup where the reduction rate is about 40 (litres of sap) to one (litre of syrup). One litre of sap makes one litre of wine," said Lucieer.

Lucieer says he would be willing to share his trade secrets to help others take West Coast maple wine to the next level. A plantation of bigleaf maples would be the first step in making a profitable maple wine or maple syrup company. (Source: *Canada.com* [Canada], 23 February 2009.)



China introduces traditional medicines into basic health care programme

Beijing. China is trying to incorporate its centuries-old traditional medicine, mostly based on herbs, into the national basic health care programme.

The State Council, the country's Cabinet, pledged in a circular on Thursday to enable

every community and village health service centre to provide a traditional medicine service for citizens. "Traditional medicines have outstanding advantages. They cost much less than Western medicines. They will fit in with the health service in rural areas and communities," said Professor Ha Xiaoxian from Tianjin University of Traditional Chinese Medicine.

The State Council said that traditional medicine hospitals will be on the list of designated hospitals under the country's basic health insurance programmes for both rural and urban residents. In addition, the Government welcomes private investors to invest in hospitals or pharmacies of traditional medicine. It also encourages veteran doctors to open their own clinics and allows doctors to work at chemists' shops dispensing traditional medicines.

The circular admitted that the country sees many problems in passing on and renewing the ancient knowledge of traditional medicine. "A lot of valuable knowledge was not passed from the older generation to the younger and some important therapies were lost." The Government plans to register ancient medical books, develop a catalogue and set up a digital database for them. It will also support research and publishing of these books.

More resources will be spent on the education and training of doctors. The central government will support some key research institutes and colleges. It also encourages apprenticeships for training doctors as an alternative to medical schools, especially in rural areas. For thousands of years, doctors of traditional Chinese medicine passed on their knowledge through apprentices, especially from father to son. Even now many doctors prefer keeping effective and original prescriptions as "family secrets" and only telling them to people they trust. (Source: Xinhuanet.com [China], 7 May 2009.)

COLOMBIA

La recolección excesiva de productos forestales no madereros

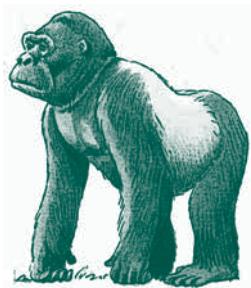
La demanda y el consumo de diversos productos del bosque están provocando su agotamiento a un ritmo alarmante, siendo una de las causas subyacentes de la pérdida de la biodiversidad.

En Colombia, la recolección excesiva, con fines comerciales y ornamentales, de varios grupos de plantas como orquídeas, zamias y palmas, ha supuesto que varias

especies se encuentren en alguna categoría de amenaza. La explotación de orquídeas de los géneros *Anguloa*, *Cattleya* y *Cycnoches*, es un factor que incide en las poblaciones naturales, llevándolas a diferentes niveles de amenazas. Casos similares se documentan para varias especies de zamias, principalmente *Z. encephalartoides* y *Z. wallisii*, de las cuales se ha realizado extracción ilegal de tubérculos y semillas con fines comerciales, y a nivel de palmas, las que presentan amenaza por sobreexplotación del recurso son la palma estera (*Astrocaryum malybo*) y las palmas de cera (*Ceroxylon sp.*), cuyas hojas se extraen para la elaboración de ramos para la Semana Santa.

Fuente: López Camachó, René. 2008. Productos forestales no maderables: importancia e impacto de su aprovechamiento. *Revista Colombia Forestal* Vol. 11 - diciembre 2008.

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(Please see page 20 for more information on palm fronds.)



GABON

Urban hunters do most harm to ape populations in Gabon

Commercial hunters from towns are exacting a much bigger toll on great apes than subsistence hunters from small villages, according to an analysis of ape nest density near human settlements.

The finding that numbers of gorillas and chimpanzees appear to have dwindled twice as much near towns in Gabon than near villages supports a focus on conservation efforts that tackle commercial hunting over those that aim to convince villagers to give up subsistence hunting, says Hjalmar Kühl at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, who conducted the study with colleagues. (Source: *New Scientist*, 3 March 2009.)

ETHIOPIA

EU grants €251 million to support development programmes

Addis Ababa. Ethiopia signed a multisectoral grant agreement on Thursday amounting to €251 million with the European Commission to assist its development endeavours in the road sector, productive safety net programmes and forest management, including technical assistance to support implementation of its development strategy.

Of this amount, €6 million will be used for the sustainable management of Ethiopia's forests in order to improve food security, strengthen the rural economy and reduce environmental degradation. It will also be used to improve forest conditions and forest-based livelihoods through building up the capacity of the Ministry of Agriculture and Rural Development and the community to scale up and mainstream participatory forest management and NTFP development. (Source: *The Africa Monitor* in AllAfrica.com [Ethiopia], 30 January 2009.)

GEORGIA

Breakthrough sustainable forest-use plan

A conservation group in Georgia has realized a milestone for the Caucasus hot spot with a landmark management plan balancing sustainability and development while opening the door for transboundary cooperation along the West Lesser Caucasus biodiversity conservation corridor.

With Critical Ecosystem Partnership Fund (CEPF) support and input from all stakeholders, the Association for Nature Protection and Sustainable Development (Mta-Bari) has developed the management blueprint for the buffer zone surrounding Mtirala National Park. Roughly 20 000 ha of mostly pristine mountain forest fall under the purview of the document, which identifies areas for intervention and lays the groundwork for careful land use.

"The plan contains needed guidelines for sustainable use of natural resources and generation of alternative livelihoods, such as beekeeping, grape cultivation and

small-scale tourism," explained Zurab Manvelidze, Project Coordinator and Mta-Bari chairman. "It is the first of its kind in the hot spot and should serve as an important template for work in other protected areas of the Caucasus."

Unique geology, terrain and climate have made the Caucasus among the most biologically diverse regions in the temperate world. A quarter of its 6 500 species of vascular plants are found nowhere else on Earth – the highest level of endemism in the temperate zone. However, unsustainable use of forests, poaching and overharvesting of decorative plants are major threats to the buffer zone and the park.

Beyond establishing a framework to counter these threats, the management plan, which has been approved by the Georgian Government, has also served as a launching pad for discussions on transboundary cooperation with Turkey. Its Jamili Biosphere Reserve is a short distance from the Mtirala buffer zone and borders a proposed protected area in Georgia's Machakhela region. Close cooperation between the countries would strengthen conservation in the region, while promoting tourism and other economic opportunities for communities. (Source: CEPF E-News, March 2009.)



Ghana to build shea butter processing plant with Brazilian help

The Produce Buying Company (PBC) of Ghana signed a memorandum of understanding (MOU) with Sysgate Ltd of Brazil to establish a shea nut processing plant in the country. The establishment of the plant, which is the brainchild of Vice-President John Mahama, would allow for the export of shea butter and help Ghana tap into a fast expanding global shea trade projected to gross US\$500 million/year within the next five years. The establishment of the plant would enable PBC to process between 40 and 100 000 tonnes of nuts annually.

Vice-President Mahama described the event as the "first conspicuous step" towards revamping the shea industry and making it a driving force in the development of the savannah area of Ghana. He reported that the shea trade is crucial in the socio-economic development of the northern parts of the country and

promotes improved rural livelihoods for women.

Brazilian Ambassador, Mr Luis Fernando Serra, tasked the two organizations to use the pact as a demonstration that it is through fair and free trade rather than aid that poverty can be significantly reduced. Mr Serra promised to work towards integrating the economies of the two countries through the promotion of trade.

Although the shea crop is widely available in the northern regions of Ghana, the difficulty in harvesting the wild crop and the lack of processing facilities has contributed towards the downturn of the industry. According to the PBC, Sysgate was chosen because of the company's expertise in providing a special technology to maximize yields from shea processing. (Source: Ghana home page – ghanaweb.com [Ghana], 27 March 2009.)



Karaya: an underutilized Indian tree for gum production in tribal areas

The karaya tree (*Sterculia urens*) yields gum karaya, which is an important NTFP in central Indian tribal areas. The tree was very common in the central Indian forests, but has now nearly disappeared from the states of Gujarat, Rajasthan, Madhya Pradesh and Maharashtra through overexploitation. The state of Andhra Pradesh is at present the major gum producer.

The karaya tree is native to tropical, dry, deciduous forests, preferring an unusual natural habitat, occupying hill tops, exposed ridges, rocky crevices, eroded slopes and similar hostile habitats. It is extremely resistant to drought and will grow on the poorest of dry stony soils. It is

THE BAIF STRATEGY FOR KARAYA DEVELOPMENT

BAIF (formerly known as the Bharatiya Agro Industries Foundation) is currently implementing integrated tribal development projects in tribal areas across India and has established the Resource Centre for Tribal Development (RCTD) to ensure strong technical support to the field programme. RCTD has recently launched a major initiative to promote tree farming of karaya, which is threatened with extinction in many of its natural habitats.

The tree, which was a major livelihood resource from natural forests in BAIF's operational areas, is now nearly extinct. BAIF's plan is to restore the lost glory of this resource and now to reestablish it consciously on privately held marginal lands to avoid any conflict over tenure of natural trees, and ensure long-term sustainable harvesting practices.

also not grazed by cattle. If incorporated into farming systems of drought-prone areas, it has great potential to leverage extra livelihood support for small and marginal farmers during crisis situations.

This medium-sized deciduous tree is leafless in winter and summer. It flowers in January to March and fruits ripen in April to May when seed collection is possible. Capsules need to be harvested before they are too dry otherwise they burst open while still on the plant and the seeds are scattered. The seeds are eaten by children and monkeys and, therefore, seed collection may be a problem.

To extract gum from the bark, it is necessary to damage it. The traditional practice of extracting gum from the bark by axe also harmed the inner wood. Accelerated gum extraction has led to a rapid decline in natural stands.

Some problems associated with karaya gum collection are:

- the supply of substandard quality gum karaya lowers prices at all levels;
- gum tapping of karaya requires a specialized skill and knowledge in order to access the best-quality gum while minimizing damage to the tree;

- since the gum is widely used in the food and pharmaceutical industries, both in domestic and foreign markets, maintaining high-quality standards is critical; and
- proper scientific processes are critical in tapping, processing, packing, storing and marketing gum karaya.

Gum karaya is extensively used in the food industries as an emulsifier, stabilizer and thickener. It is also used in the pharmaceutical industry, as a laxative and in denture adhesives, and in many other industries such as petroleum and gas, textiles, paper and pulp, leather and allied products, ammunition and explosives, electrical appliances, adhesives and cosmetics.

Estimated annual income from the karaya tree

- Gum yield from one tapping of one tree: 30–50 g
- No. of times a blaze (cut bark) is tapped/month: 12
- Gum yield/month from one tree: 360–600 g
- Gum yield/year from one tree: 4 320–7 200 kg
- Average rate of gum/kg: International Normalized Ratio (INR) 100
- Possible approximate income from one tree: INR 500.

Opportunities within the karaya gum value chain

- Other NTFPs are available for a limited period, while gum karaya can be harvested all year round.
- Multiple industrial and household applications ensure continuous and stable demand.
- There is potential for developing new value-added products.
- Gum karaya is a natural, non-toxic and biodegradable product and therefore services a growing industry.
- Trees are easy to regenerate through cuttings, are extremely drought tolerant, grow on poor-quality lands and are not browsed. There is great potential for increasing the natural resource through community forestry.
- Technical improvements in post-harvest management, such as introducing solar driers and quality control laboratories at the community level, will help increase value.
- The community can be organized into collective initiatives for alternative marketing mechanisms.

(Source: *Resource Centre for Tribal Development Fact Sheet*, 1, September 2008.)

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Ex situ conservation of giloe (*Tinospora cordifolia*) – a potential tropical mediclimber in India

Tinospora or heart-leaved moonseed (giloe or guduchi in Hindi, *Tinospora cordifolia* [Willd.] Miers ex Hook. F. & Thoms) is a widely used shrub in folk and Ayurvedic medicine systems. Conservation of this mediclimber species is of utmost importance because of its depleting natural wealth. Most tropical and subtropical forests are dominated by this woody climber hanging with its aerial roots.

The annual demand for giloe was 2 932.6 tonnes in 2004–05, which is increasing with an annual growth rate of 9.1 percent. The shrub is widely used in veterinary folk medicine/Ayurvedic medicine for its general tonic, antiperiodic, antispasmodic, anti-inflammatory, antiarthritic, antiallergic and antidiabetic properties.

Ex situ conservation of the species can best be achieved through preservation in botanical gardens, herbal gardens and through cultivation. A recent paper by Ankur Sharma and Manmohan J.R. Dobriyal discusses the cultivation aspect – for both its conservation and to ensure its sustained supply to the pharmaceutical industries.

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Ethnic groups crucial to biodiversity

With an estimated 10 percent of India's over 46 000 plant species being either extinct or in the endangered category owing to ruthless exploitation, scientists say that the key to conserving plant

diversity lies in the protection of ethnic communities, which have traditionally lived in the forests.

"The vast majority of important plants are still conserved by tribal communities residing in the remote forest areas of the different phytogeographic zones of India," says D.C. Saini, senior scientist and taxonomist at the Birbal Sahni Institute of Palaeobotany in Lucknow.

Living in close association with nature and natural resources, these indigenous tribes have managed and conserved the biodiversity of their localities. "This vast repository of knowledge related to plants has been cared for, nourished and conserved by the tribal communities as a common property for thousands of years by experience, trial and error and it is also being freely transmitted from generation to generation by means of oral communication," Saini says.

He explains that tribal people are not only familiar with thousands of commercial plant species in their ecosystems but they also have a good knowledge of the ecological interrelations of the various components of plant diversity. Moreover, many plants have been conserved in their natural habitats thanks to the people's deep knowledge of beliefs, faith and taboos. (Source: *The Deccan Herald* [India], 3 March 2009.)



Italian group defends honour of rare white truffle

The Alba white truffle association, based in the heart of Italy's truffle country, is campaigning to defend the image of the rare fungus as a dispute involving a restaurant bill heads for the courts.

The association is reacting to media reports that an unnamed top executive refused to pay a €4 000 (£3 530) bill after dining on white truffles with five guests at Milan's Michelin-starred Cracco Peck restaurant.

Chef Carlo Cracco – author of *White truffle utopia* – said that his restaurant refused to accept the anonymous businessman's offer to foot half the bill or that there was any confusion over the weight or price of the truffles before the diners began eating. Cracco said the party of six consumed about 300 g of truffle, which cost €10.90 per gram.

"They did not want to see the menus. They just said: 'We want the truffles,'" he said, adding that they picked two large ones and were duly informed of the weight. The diner said the truffle had not been weighed, newspapers reported, without giving details as to his identity.

The media attention comes at a time when the economic downturn threatens luxury spending and the purveyors of the expensive truffle are keen to keep their customers.

Located in Langhe, the hilly southern area of the Piedmont region, Alba is the main area for white truffles – the most prized variety of the underground fungus. The town, which has a population of 30 000, has held an annual truffle fair in autumn for nearly 80 years.

"We are comfortable with the price the restaurant charged," said Alberto Cirio, head of the Association for the International Fair of the Alba White Truffle, which organizes the annual event. "But we want to make sure we avoid misunderstandings in the future."

Mr Cirio said the association would encourage restaurants to agree on a set of rules to make sure truffles are weighed and grated on the dishes in front of the clients, with the price on display. (Source: *The Independent* [United Kingdom], 18 February 2009.)

KRYGYZSTAN

Increasingly forested but fruit and nut trees still endangered

A new map of Kyrgyzstan reveals that 7 percent of the country is woodland, slightly more than previously thought. However, experts are warning that 90 percent of Central Asia's fruit and nut trees have been lost during the past 50 years. According to the map produced by the Kyrgyz-Swiss Forestry Support Programme, 1.39 million ha of Kyrgyzstan are forested.

Flora & Fauna International (FFI), a conservation non-profit organization, is cautioning that 44 tree species in Kyrgyzstan, Kazakhstan, Uzbekistan, Turkmenistan and Tajikistan are facing extinction. Many of these trees are the wild ancestors of domesticated fruit and nut trees, including walnut, cherry and apricot.

Some 3 percent of the Kyrgyz state budget is earmarked for environmental protection. The lack of funding is widely acknowledged to "hamper" conservation

efforts, the CA-news.org news Web site reported on 13 May 2009.

Regionally, just 3.9 percent of Tajikistan is forested, Turkmenistan is 8.8 percent woodland and Uzbekistan is the most densely forested, with trees covering 10.1 percent of the country. (Source: EURASIANET.org, 15 May 2009.)



Walnut forests in rural Kyrgyzstan

Agroforestry is the predominant way of life in forested parts of southern Kyrgyzstan and walnut forests are a major part of the cultural landscape. Local farmers lease forest plots from the state and these provide a wide range of NTFPs.

NTFPs, including walnuts, wild apples, rosehips and mushrooms provide an important source of subsistence food; other useful products include firewood, hay and medicinal herbs. Collecting, processing and marketing NTFPs – mostly walnuts – are also sources of potentially high and much-needed cash income for local households.

The prime role of NTFPs from walnut forests is to contribute to local people's basic subsistence needs. However, because of the strong variations in yields, the role of these forests as a reliable source of income is limited. (Source: *id21 insights*, 77, May 2009.)

LIBERIA

Redefining a wildlife management strategy to stem imminent bushmeat crisis in Liberia

Bushmeat is a renewable natural resource that remains central to meeting the income and food security needs of resource-dependent households in the Central and West Africa region, as well as other regions in the developing world. In Liberia, as is variably true in the region, there are heightened concerns about the impending loss or reduction of this resource because of the harvesting methods used, the overcentralized strategies and policies governing wildlife use and management,

and the changing social and economic conditions that drive demand for bushmeat to a level where it now exceeds the rate at which hunted wildlife is replaced in the forest.

Finding ways to conserve and protect endangered and threatened wildlife species without compromising the health and welfare of the poor rural and urban families who are almost entirely dependent on this resource is a challenge that can be credibly met by effecting three proposed priorities: (i) shift demand to locally produced alternatives to bushmeat; (ii) revitalize existing traditional wildlife management practices; and (iii) recognize the multiple stakeholders with conflicting interests as leading social actors involved in bushmeat harvesting, processing and marketing.

These priorities are suggested as among the key elements of a wildlife management policy and strategy that should be designed so as to deal with the threatening bushmeat crisis in Liberia. (Source: *Nature and Faune*, 23(2), 2008.)

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MALAYSIA

Agarwood Research Centre in Melaka

Melaka. An agarwood research centre will be set up by the Melaka Biotechnology Corporation (PBM) to carry out research on the various uses and development of the fragrant wood in the country. PBM Chief Executive Officer Professor Dr Ramli Hitam said the research would be used to create a profile of agarwood and perfume and for marking the agarwood trees. "It is also to find the best technology to produce agarwood resin," he told Bernama here today.

Recently, Malaysian Agarwood Association President Datuk Seri Syed Razlan Jamalullail had suggested that an *Aquilaria* research centre be set up to carry out a study on agarwood, which is useful in the making of perfumery and cosmetic products, as well as medicine.

Dr Ramli Hitam said there were various species of agarwood and that the research would be useful to determine which of them could produce the most and highest-quality resin. He said that for research and development purposes, the corporation had planted agarwood in a 40-ha area in the state, adding that the Forestry Department also had its own agarwood farm. (Source: Bernama [Malaysia], 17 February 2009.)

MEXICO

Moringa oleifera: La Moringa – Experimentan con planta nutritiva

El árbol de moringa podría ser el alimento del futuro, ya que de esta planta se pueden elaborar diversos alimentos nutritivos, aseguró Leopoldo Martínez Velarde, presidente de la Red de Inventores Sinaloenses.

Informó que este árbol regularmente crece en los cementerios pero que con el apoyo del Instituto Sinaloense de Desarrollo Social se ha logrado tener un campo experimental de 400 de estos árboles, ubicado en la colonia Loma de Rodriguez. "Éste podría ser un complemento alimenticio que proporcione a las madres y a los lactantes todos los nutrientes básicos para un sano desarrollo, ya que es un nutriente de rápido aprovechamiento y sumamente económico".

La hoja verde de la moringa gramo por gramo contiene siete veces más nutrientes y más vitamina C que la naranja, así como más calcio que la leche y el queso, detalló. Martínez Velarde, quien también explicó



Moringa oleifera

que además con esta planta se puede producir aceite de calidad similar al aceite de oliva, así como a través del mismo aceite se puede producir biodiesel y hasta etanol.

«Esto no lo estamos inventando, si no que lo estamos redescubriendo, porque en el mundo el aceite de Moringa se comercializa, por eso digo que nosotros en Sinaloa, estamos comenzando a hacer lo que otros países ya han desarrollado con este árbol». (Fuente: Noroeste, México, 1 de febrero de 2009.)

Bamboo planting boosted

The Mexican Government and the United Nations have signed an agreement to boost bamboo planting in the country, its National Forestry Commission (CONAFOR) said.

Some US\$715 000 will be used to establish the Centre of Bamboo Technology Development in the east state of Veracruz as part of the country's productive reforestation strategy. The centre will be the fourth largest in the world, after China, India and Cuba, and bamboo produced there will be sent to the United States of America, Latin America, Europe and Asia through the Panama Canal.

The project will improve the livelihoods of rural people in the mountainous area of the Huatusco municipality in Veracruz and help them recover lost forest land. (Source: Xinhua [China], 5 January 2009.)

La envasadora y comercializadora de hongos silvestres en Los Pueblos Mancomunados de Oaxaca, México

En México, el conocimiento extenso sobre el uso culinario, las propiedades medicinales y el uso ritual de los hongos silvestres forman parte de la riqueza cultural de las poblaciones indígenas y rurales. Según los expertos, de las 140 000 especies presentes en el país, 200 son las que se consumen y 50 se consideran medicinales. Según las estadísticas oficiales, los hongos comercializados en el mercado nacional e internacional representan entre 450 000 y 850 000 USD por año, en beneficio de 3 000 hogares rurales.

En el estado de Oaxaca, los hongos silvestres representan un producto forestal no maderero (PFNM) ampliamente conocido por los indígenas que habitan en los bosques templados y en particular en la región de la Sierra Norte, y se colectan dentro de las áreas de uso común de los ejidos y las comunidades indígenas. En diferentes lugares de este estado (uno de los más pobres del país) se consumen y comercializan varias especies comestibles

de hongos, como el hongo de pan (*Boletus edulis*), el duraznillo (*Cantharellus cibarius*), el hongo de huevo (*Amanita caesarea*) y un hongo codiciado por los japoneses: el matsutake (*Tricholoma magnivelare*).

La organización comunitaria de segundo nivel Pueblos Mancomunados constituye un territorio agrario de 30 000 hectáreas ubicado en la Sierra Norte de Oaxaca entre 2100 y hasta 3300 msnm. Allí se encuentran ocho pequeñas comunidades que cuentan con una población de origen zapoteca de 3 500 habitantes. A finales de los años 70, las familias de los Pueblos Mancomunados iniciaron una lucha social con la finalidad de obtener los permisos del gobierno para realizar su propio manejo y aprovechamiento comercial de los bosques de pino y pino encino, en una superficie de 13 000 hectáreas. En la década de 1980, se logró anular la concesión proporcionada por el gobierno a empresas privadas y estatales que explotaban los bosques; la comunidad formó entonces su propia empresa forestal. En el 2002, con el apoyo de la ONG Methodus, Pueblos Mancomunados diversificó sus negocios con la creación de una unidad de deshidratado, empacado y comercialización de frutas y diferentes especies de hongos silvestres.

La recolección y comercialización en fresco del matsutake a Japón es una actividad que inició a mediados de los 90 con la llegada de los primeros compradores japoneses a la región. Debido a los altos precios pagados a los recolectores (8 a 30 USD/kg), la oferta de hongos matsutake ha perdurado a pesar de la reducción del número de compradores. Con la creación de la unidad de deshidratado de hongos, se abrió para los recolectores nuevas opciones de ingresos, a través del aprovechamiento de especies más abundantes en los bosques. El boletus, hongo de huevo, duraznillo y otras especies son deshidratados, empacados y distribuidos directamente por la empresa comunal a diferentes tiendas de productos gourmet ubicadas en varias ciudades del país.

Considerando que la demanda de hongos silvestres en el mercado interno y externo es aún insuficiente y que la operación de la empresa requiere procesar ciertos volúmenes para garantizar su rentabilidad, la envasadora y empacadora de Pueblos Mancomunados tiene cuatro retos principales: (i) lograr la máxima

valorización de los hongos en el mercado para poder ofrecer a los recolectores una remuneración atractiva por sus colectas; (ii) extender las áreas de aprovechamiento a través de asociarse con otras comunidades de la región y del estado; (iii) promover el buen manejo y la conservación de las áreas de producción; y (iv) establecer esquemas de comercialización que permitan valorizar la calidad y origen del producto.

Las empresas forestales comunitarias y las iniciativas privadas vinculadas han permitido generar empleos y favorecer la formación de recursos humanos dentro de los Pueblos Mancomunados.

En Oaxaca, los fenómenos migratorios no se han visto frenados con el desarrollo de empresas forestales; sin embargo, estos procesos, iniciados a finales de la década de 1980 en varias comunidades indígenas, están contribuyendo a generar empleos más atractivos para la población joven que opta por permanecer en sus comunidades. Para mantenerla en su región de origen, se requerirá mejorar la infraestructura social de las comunidades y desarrollar iniciativas de diferentes índoles (culturales, educativas o deportivas) que permitan competir con los ingresos que genera la migración a los Estados Unidos. De la permanencia de los jóvenes calificados en la comunidad dependerá sin duda el futuro de estas pequeñas empresas forestales, que tantos esfuerzos costaron a las generaciones anteriores. (Fuente: *Desarrollo de pequeñas y medianas empresas forestales para la reducción de la pobreza: oportunidades y desafíos en mercados globalizantes. Memorias de conferencia*. 2007. Centro Agronómico Tropical de Investigación y Enseñanza [CATIE], Turrialba, Costa Rica.)

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MOZAMBIQUE

Hidden forest

Using Google Earth to create an ecological map of the Mozambique highlands, conservationist Julian Bayliss accidentally discovered what is now thought to be the largest piece of mid-altitude rain forest in southern Africa.

The discovery of 7 000 ha of virgin rain forest in northern Mozambique has caused huge excitement in the scientific community. "It's extremely rare in this day and age to make such discoveries, especially in Africa, and to be the first biologist to enter such a huge area of untouched rain forest – well, it's a dream come true for a field-based conservationist such as myself, and to be the one who discovered it is incredible," says Bayliss.

The canopies of Mount Mabu have so far yielded five new species of butterfly and two species of snake. (Source: *The Guardian Weekly* [United Kingdom], 20 February 2009.)



NEPAL

Potential of managing wild mushroom in community forests for community benefit

A recent paper by A.K. Das *et al.* is based on a study conducted to assess the impacts of managing wild mushrooms in community forests. The study reveals that a small community forest area of Tibrikot, near Pokhara, alone contains 90 varieties of wild mushrooms, many of which are edible. The ethnic users are the main consumers of wild mushrooms; moreover, they are well acquainted with identifying characteristics, use values, collection, processing, trade and value addition.

There are more than 14 000 community forests in Nepal covering about one-third of the national forest area, benefiting more than a third of the population. This large resource base is important and vital for managing wild mushrooms for community benefit. The sustainability of community forests is very much linked with increasing income-generating activities associated with forests. (Source: *International Journal of Forest Usufructs Management*, 9(2), July–December 2008.)

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Economic potential of NTFPs in Nepal: myth or reality?

In a recent article in the *Journal of Forest and Livelihood*, Mani Ram Banjade and Naya Sharma Paudel discussed the worldwide shift in forest policies away from a narrow focus on timber towards an emphasis on NTFPs and problems in Nepal associated with this shift.

The reasons given for promoting NTFPs against timber are the following.

- 1) Although timber is found in surplus in many high altitude forests, it is inaccessible for the city markets because of a lack of road networks in many high mountain areas. In these places, transportation of and trading in high-value NTFPs, even in low volume, is more cost-effective compared with timber.
- 2) Harvesting of NTFPs, particularly those of herb and shrub origins and also parts of trees such as leaves, flowers, fruits and exudates, is ecologically less destructive as compared with the harvesting of trees themselves.
- 3) Timber production needs a relatively long time; it may take decades to get a harvest, whereas NTFPs take less time, i.e. they have a short gestation period. Generally, poor people who are dependent on forests cannot wait for long periods of time to receive returns from the management of their forests.
- 4) The poor have better access to NTFPs than to timber because while timber is sold, NTFPs may be collected free of charge in most of the community forests. Following the changing global focus, forest policies in Nepal for the last two decades have also highlighted NTFPs through various policy documents, public meetings, party manifestos and other documents. It is now time to examine their economic, social and environmental outcomes. The original rationales and promises need to be revisited, because a critical analysis of the current scale of production and management of NTFPs shows that a misplaced optimism regarding the economic potential of NTFPs prevails.

For the purpose of reflection and re-examination, the following questions are pertinent. What has been the role of various organizations in NTFP promotion? To what extent have the benefits of NTFPs been realized? To what extent have the rationales and promises of NTFP promotion been achieved? What are the

NTFP COLLECTIONS AND SALE IN SUSPA CFUG, DOLAKHA

The Suspa Community Forestry User Group (CFUG) is rich in NTFPs. Almost 50 percent of the households of the Suspa CFUG are engaged in NTFP collection, which provides more money each day than the daily wages they can earn in the village. The wage rate in the area is about Nrs50/day (approximately US\$0.75). From the collection of *lokta* (*Daphne bholuwa*), a person can earn from Nrs125–200/day (\$2–3). There are other NTFPs, such as machhino, nigalo, argeli and mushrooms, from which many of the middle- and richer class users are getting better returns. Surprisingly, none of the poorest households were involved in the collection of NTFPs. When asked why, one of the women said that she did not know whether it would fetch a lucrative return and did not even know when it is open to collect.

challenges so far? Are there any hidden objectives for NTFP promotion? Are there any trade-offs with timber management and trade?

NTFPs are rationalized as goods for linking conservation with livelihoods. Government and other agencies are providing programmes such as research, education (training and other awareness programmes), enterprise development and poverty reduction, with specific focus on NTFPs and not on timber. Since the Government is reluctant to promote timber management, other development agencies are only left with the option of supporting NTFP development rather than timber. However, because of the constraining regulations and bureaucratic hurdles surrounding NTFP trade, both development agencies and users are left without any commercial opportunities to harness NTFPs.

Records of formal trade in NTFPs show that the optimism in the discourse on NTFPs is not sufficiently grounded. Although the Government and other development agencies exaggerate NTFPs as a panacea for resource conservation and poverty reduction, this is largely a rhetoric that raises the expectations of the people. The reality, however, is that the initiatives taken by these



agencies are far from realizing the glorified potentials of NTFPs. The endeavours of these organizations are not yet putting adequate efforts into enforcement of policy and the regulatory frameworks are not yet harmonized with nor developed in line with policy.

In the field, while promoting discourse on NTFPs, timber management is receiving less attention. It would have been better if Community Forestry User Groups (CFUGs) could put their energy and resources in both timber and NWFP management. Furthermore, it would have been better had CFUGs accessed the market more aggressively. In other words, NTFPs should be understood, managed and traded as an additional product and opportunity from timber, rather than amplifying it as a substitute.

Although NTFPs have a comparative advantage in some hilly districts, in many mid-hill areas, and even more so in the Terai, timber management produces far more income than NTFPs. The need is to make concerted efforts in releasing the barriers of marketing and trade in forest products, and supporting and facilitating individuals and communities to harness benefits from forest products. It is not helpful to undermine the value and potential of NTFPs, but it is important to caution the agencies concerned to re-examine their perspectives and practices so as to get benefits from hidden treasures such as NTFPs, rather than romanticizing them through exaggerated discourse. NTFP management should be understood as complementary to timber management and not as a substitute for the potential of timber. [Source: *Journal of Forest and Livelihood*, 7(1), December 2008.]

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Socio-economic determinants of cultivation of NWFPs in southern Nigeria

In a recent article in *Biodiversity and Conservation*, N.A. Chukwuone examined determinants for the success of NWFP cultivation in Nigeria. NWFP cultivation, although a veritable means of ecosystem and biodiversity conservation and improved natural resource management, has not been sustained in southern Nigeria (Nigeria's major forest region), notwithstanding the unprecedented rate of depletion of the resource in the wild.

For example, efforts in the past to support cultivation of NWFPs in southern Nigeria under a US Agency for International Development (USAID)-funded Cross River State forestry project, especially through nursery establishment for some rural communities, were not sustained because the initiative was abandoned by the participants. Hence, to promote cultivation of NWFPs, this study ascertained socio-economic factors that influence their cultivation.

A multistage sampling technique was used in the selection of respondents (households) from two states in southern Nigeria: Cross River and Enugu. A sample size of 400 households was used for the study. The findings show that cultivation of NWFPs was positively determined by gender, farming occupation (especially of female farmers), distance to forests where NWFPs were collected, proportion of household food from NWFPs and medium wealth category. Age had a negative effect on cultivation until the age of 46, after which the effect became positive.

In addition, household size, gender and farming occupation of household heads positively influenced the cultivation of NWFPs in plantations as against home gardens, while gender and farming occupation had a positive effect on cultivation of some stands of NWFPs as against home gardens.

Incorporating the findings of this study in future intervention projects for NWFP cultivation will help sustain the initiative. [Source: *Biodiversity and Conservation*, 18: 339–353, 2009.]

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Desert encroaches on nation at 600 m per year

Current statistics from the Federal Ministry of Environment show that Nigeria loses about 600 m of its arable land mass yearly to desert encroachment. A statement issued yesterday by Special Assistant to the Minister of Environment, Mr Rotimi Ajayi, noted that the Minister, Mr John Odey, was worried by the state of things and charged the people to cultivate non-timber forest trees to combat desertification in the northern belt of Nigeria.

"He said that there was a need to change Nigerians' attitude towards the forest, which could only be done by integrating the needs of the masses into forest development plans. "We need to work towards a policy on alternative energy use by Nigerians. We need to emphasize NTFPs. This is the only way we can make our forest management sustainable." (Source: ForestPolicyResearch.org, 26 January 2009.)

PERU

NGOs, producers partner to ensure a sustainable Brazil nut industry

Commercially harvested in the Plurinational State of Bolivia, Brazil and Peru, the Brazil nut (*Bertholletia excelsa*) is an important part of the region's economy, producing a large number of jobs and a considerable source of income for rural communities. In Peru, Brazil nut production is mainly carried out through concessions and small businesses that extend throughout the entire production chain, from harvesting and processing the nut through selling the final product to international exporters.

As part of USAID's Initiative for Conservation in the Andean Amazon (ICAA), the Rainforest Alliance is working with forest concessionaires in Peru's Madre de

Dios department to provide training and technical support in sustainable forest management and to strengthen markets for NTFPs, such as the Brazil nut.

Brazil nut producers in Madre de Dios – an area known as the "biodiversity capital of Peru" for its rich and exuberant vegetation – are receiving support in how to conserve and use their natural resources sustainably while also earning a profit. The Rainforest Alliance and its local partner, Comercio Alternativo de Productos No Tradicionales y Desarrollo para Latino América Perú (Candela Perú), are working together to train more than 60 Brazil nut producers in how to meet the certification requirements of the Forest Stewardship Council (FSC) for their harvested nuts.

Candela Perú was founded in 1989 with the goal of finding forest resources that could provide the residents of Madre de Dios with a steady income while not damaging the biodiversity-rich environment, thus assuaging many of the social and economic problems in the area. The organization currently works with 280 Brazil nut producers to process and export the nuts to international markets, mainly the United States of America and Europe.

Candela Perú's organic production programme involves 171 Brazil nut producers, including members of the Grupo Recolectores Orgánicos de Nuez Amazónica de Perú (RONAP), based in Madre de Dios. Nearly 70 of RONAP's Brazil nut producers have achieved Fair Trade certification, making it easier for them to meet the requirements necessary to achieve FSC certification through the Rainforest Alliance's SmartWood certification programme – the world's leading (FSC) certifier of forest lands.

Daniel Navarro, a director at Candela Perú comments: "It is extremely important to us to be involved in the whole production process, but in particular with harvesters who are usually at a disadvantage when they try to access markets – they are our best partners and the true guardians of the forest in Madre de Dios." Candela is not only interested in developing the commercial side of Brazil nut production, but it also wants to find "alternatives that will ensure the conservation and long-term sustainability of this incredibly biodiverse region by improving the quality of life for local residents," he adds.

Navarro believes that certification is a key tool to improve the Brazil nut production process and maintain the high level of quality that is needed to obtain a niche position in

international markets and therefore increase the income of Brazil nut harvesters. He endorses SmartWood certification because of its comprehensive approach that takes into account social, environmental, economic and quality issues. Additionally, many of FSC's criteria are in line with the mission of Candela Perú. "Trees that are left standing generate the income needed to improve the quality of life of the harvesters in Madre de Dios," he states.

Katherine Pierront, manager of the Rainforest Alliance's Sustainable Forestry Division in South America, explains, "Our goal is to use this model and replicate the experience in other regions in Peru and with other products."

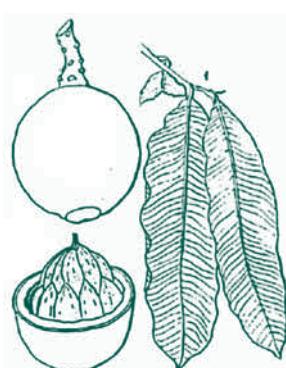
To date, the total of certified forests in Madre de Dios is 210 280 ha, of which 179 894 ha are Rainforest Alliance/FSC-certified. Through similar partnerships between the Rainforest Alliance and organizations such as Cesvi Perú and the Asociación para la Conservación de la Cuenca Amazónica, this number will continue to grow and help to ensure the conservation of Peru's "biodiversity capital". (Extracted from: Eco-Index [Peru], March 2009.)

Peru gets US\$120 million to protect 55 million ha of Amazon rain forest

The Japanese Government will loan Peru US\$120 million to protect 55 million ha of Amazon rain forest over the next ten years, reports El Comercio. The loan, to be distributed in three phases starting next year, has an interest rate of 0.10 percent, payable over 40 years.

Antonio Brack, Peru's Minister of the Environment, said the loan will be used to establish permanent forest reserves, including indigenous territories. Brack estimated the initiative would avoid emissions of 20 billion tonnes of carbon dioxide.

Peru – home to the fourth largest extent of tropical rain forests after Brazil, the Congo and Indonesia – has historically had one of the lowest annual deforestation rates in the Amazon basin, but forest loss has been increasing in recent years as a result of illegal logging, mining, agriculture and expansion of road networks, including the paving of a highway that provides access to a remote and biologically rich region in the southeastern part of the country. In 2005 – the most recent year for which data are available – at least 150 000 ha of forest were lost, while a similar area was degraded through logging and other activities. (Source: Mongabay.com, 13 May 2009.)



Dos millones de plantones de camu camu

La producción de más de diez millones de alevinos (larvas) de diversas especies de peces para consumo humano destinadas a ser la gran despensa alimentaria frente a los problemas del hambre que se avecinan en el futuro, así como también de dos millones de plantones de camu camu (*Myrciaria dubia*), son parte de los principales proyectos que se están ejecutando y que impulsan el desarrollo de la Amazonía en el Perú.

Así lo se reveló el doctor Luis Campos Baca, presidente del Instituto de Investigaciones de la Amazonía Peruana (IIAP), en el foro Nuevos Desafíos para el Desarrollo Sostenible de la Amazonía Peruana que se realizó en el Congreso de la República. La reunión fue organizada ante la preocupación sobre el futuro de esta vasta región del planeta que, según estudios científicos, se encuentra amenazada por el avance de la acción del hombre y por el irreversible calentamiento global.

A esa importante cita participaron representantes de instituciones científicas, expertos, autoridades regionales, todos ligados al desarrollo de esta región, y en ella no sólo se denunciaron los graves problemas de deforestación, invasiones, caza y pesca indiscriminada, etc. sino que también se plantearon propuestas y proyectos destinados a enfrentar estos problemas.

Campos Baca añadió que la producción de camu camu en la Amazonía, un fruto nativo y de extraordinarias propiedades alimenticias y medicinales, tiene un potencial de exportación que será concretado en un futuro próximo. (Fuente: *El Comercio* [Perú], 4 de febrero de 2009.)

REPUBLIC OF THE CONGO

Stratégie et plan d'action national pour le développement du secteur des PFNL

Les différents climats du Congo sont favorables au développement de la diversité biologique, plus particulièrement des ressources naturelles forestières importantes pour le bien-être des populations rurales et citadines. Parmi ces ressources, le bois d'œuvre n'est accessible qu'aux sociétés industrielles privées et, dans une certaine mesure, aux sociétés étatiques. Cependant les produits forestiers non ligneux (PFNL) sont les produits les plus accessibles aux populations.

Les PFNL sont multiples et variés en Afrique centrale en général et au Congo en particulier. La majorité de la population

congolaise, et plus particulièrement la population rurale, utilise ces ressources au quotidien pour satisfaire leurs besoins de subsistance et également comme source de revenus et d'emplois. Pour ces populations (rurale et citadine), les PFNL constituent une source importante de nourriture, de plantes médicinales, ornementales, d'énergie, de matériaux de construction, d'équipements de pêche, de biens et d'ustensiles. A ce titre, les PFNL contribuent tant à la sécurité alimentaire qu'à la réduction de la pauvreté.

Malgré l'importance socioéconomique des PFNL, ces produits sont encore très peu valorisés au Congo. Cette sous-valorisation est la conséquence d'un manque de connaissances appropriées du rôle que jouent ces produits dans l'économie du ménage et la sécurité alimentaire dans le pays. Par ailleurs, l'absence de stratégie de développement de ces produits empêche leur exploitation optimale par les différentes couches sociales concernées.

La gestion des PFNL relève de la Direction de la valorisation des ressources forestières (DVRF), notamment du service en charge des PFNL dans cette Direction qui ne contrôle que les stocks des PFNL généralement alimentaires qui rentrent dans les granges. Nombreux de ces PFNL échappent au contrôle de cette direction. Le cadre légal et institutionnel est peu développé. La politique pourrait valoriser les PFNL à travers des stratégies sous-régionales et nationales telles que le Plan de convergence de la COMIFAC, le PSFE, le PNSA et le DSRP.

Etant donné l'importance socioéconomique des PFNL, la FAO à travers le projet GCP/RAF/398/GER appuie l'élaboration de politiques et de stratégies nationales et sous régionales pour le développement du secteur PFNL en Afrique centrale. Dans ce contexte, le projet apporte un appui technique au Ministère en charge des forêts de la République du Congo afin de faciliter le développement d'une stratégie nationale/plan d'action pour le développement du secteur PFNL dans le pays.

Pour matérialiser la vision et la stratégie, le chronogramme de la réalisation des activités de chaque axe stratégique est proposé. Ce plan d'action a été élaboré dans un processus participatif par les représentants de tous les acteurs présents à l'Atelier national d'élaboration et d'adoption de la stratégie et du plan d'action pour le développement du secteur des produits. Il est conçu et proposé en vue de servir de pilier pour le développement du secteur des PFNL. Il doit déboucher sur un engagement de la

part de tous les partenaires pour conduire à court et moyen termes aux changements fondamentaux et répondre efficacement à toutes les attentes.

La présente stratégie de développement du secteur des PFNL constitue un cadre de mise en œuvre du Plan d'action à court et moyen termes. C'est une stratégie qui aboutit à un Plan d'action ambitieux qui, une fois mis en œuvre, favorisera le développement du secteur des PFNL par la création des PME et PMI. Les instruments de mise en œuvre du Plan d'action sont la Direction de la valorisation des ressources forestières (DVRF) du Ministère de l'économie forestière (MEF), les divers ministères représentés dans le Groupe de travail sur les PFNL et les programmes de politique économique du pays.

La réussite de la mise en œuvre de cette stratégie dépendra fortement de l'engagement politique de l'Etat et des bailleurs de fonds à consentir les efforts nécessaires dans le financement des dossiers de projets d'investissement. Les producteurs, les commerçants et tous les acteurs doivent œuvrer pour faire sortir ce secteur de sa situation informelle.

La réalisation des activités prévues dans les différents axes stratégiques contribuera à la sécurité alimentaire et à la réduction de la pauvreté. (Source: Stratégie et Plan d'action national pour le développement du secteur des produits forestiers non ligneux en République du Congo par Félix Koubouana. Août 2008. Projet GCP/RAF/398/GER *Renforcement de la sécurité alimentaire en Afrique Centrale à travers la gestion et l'utilisation durable des produits forestiers non ligneux.*)

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REPUBLIC OF KOREA

Gorosoe sap: prized elixir from the forests of the Republic of Korea

At this time of year, villagers climb the hills around Hadong, Republic of Korea, to collect a treasured elixir – sap from the maple tree known as gorosoe (*Acer truncatum*, also known as painted maple). Unlike North Americans, who collect maple sap to boil down into syrup, Korean villagers and their growing number of customers prefer the sap itself, which they credit with a wide range of health benefits.

In this they are not alone. Some people in Japan and northern China drink maple sap, and birch sap has its fans in the Russian Federation and other parts of northern Europe. But no one surpasses people in the Republic of Korea in their enthusiasm for sap, which they can consume in prodigious quantities. "The right way is to drink an entire mal [20 litres, or about 5 gallons] at once," said Yeo Man Yong, a 72-year-old farmer in Hadong. "That's what we do. And that's what gorosoe lovers from the outside do when they visit our village."

Drinking gorosoe has long been a springtime ritual for villagers in these rugged hills, for whom the rising of the sap in the maples is the first sign of the new season. Some villagers even use the sap, which tastes like vaguely sweet, weak green tea, in place of water in cooking.

In the past decade, thanks in part to the bottling industry and marketing campaigns by local governments, gorosoe sap has become popular with urban dwellers as well.

Gorosoe sap sells for about 2 500 won, or US\$1.60/litre. Hadong produces 1.2 million litres of sap a year from its wild maples. Although most sap harvesters here are tea or persimmon farmers who gather sap on the side for extra income, some enterprising villagers have begun planting thousands of maple trees as a primary business venture.

Promotional pamphlets advertise the sap's purported benefits: it is good, they say, for everything from stomach aches to high blood pressure and diabetes.

Most of these claims have yet to be substantiated, said Kang Ha Young, a researcher at the Korea Forest Research Institute. "But one thing we have found is that the sap is rich in minerals, such as calcium, and is good, for example, for people with osteoporosis," Kang said. "Somehow, our ancestors knew what they were doing when they named it 'tree good for the bones'."

Now that sap-gathering is becoming more commercial, some environmentalists have criticized tree tapping as "cruel". Kang says that careful tapping is harmless. To ensure this, the national forest authorities recently began requiring licences from sap collectors and regulating the number of holes they can bore into each tree.

Gorosoe farmers, who were doing a brisk business selling sap to visitors from makeshift stands, acknowledged the need for restraint. "The trees donate their blood to us," said Yang Heung Do, 51. "If you donate too much blood, you get weak. So we drill

only one to three holes per tree, depending on its size." (Source: *The International Herald Tribune* [United States of America], 24 February 2009.)

Use of forest resources

In a recent paper by Yeo-Chang Youn, the patterns of forest resource use in the Republic of Korea were overviewed together with the forest resource availability to forest users and in relation to the socio-economic conditions of local people. In the Republic of Korea, forest income comes more from NTFPs and forest ecosystem services than from timber. The relationship between the availability of forest resources and the income of residents in mountainous villages was addressed with a statistical analysis of results of household surveys conducted in Gangwon-do Province.

The result indicates that the mere existence of forest resources and related cultural heritages is not enough for local communities to obtain income from forest land. Proper arrangements for local communities in accessing forest resources and knowledge of making use of the resources are required to make the relationship constructive for people's livelihood. A joint management agreement between forest communities and the forest owner serves both parties for sustainable forest management in the Republic of Korea, as seen in the case of maple sap collection within Seoul National University forests. The traditional knowledge held by local residents is of value for income generation for forest-dependent communities and is considered an integral part of sustainable forest management, as seen in the case of native honey beekeeping near protected forest areas managed by the national forest authority. However, traditional cultural values may be positive or negative for ecologically sound forest management, as seen in the pest management policy of the Government of the Republic of Korea, which was formulated based on cultural values rather than on considerations of ecosystem health. (Source: *Forest Ecology and Management*, 257(10): 2027-2034, April 2009.)

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RUSSIAN FEDERATION

Russian governor says picking mushrooms and berries can beat crisis

Moscow. The Governor of the Sverdlovsk region in the Urals of the Russian Federation, Eduard Rossel, has called on residents to pick mushrooms and berries to get through the financial crisis. "We need to resume picking berries and mushrooms. One businessman picked 180 tonnes of mushrooms, processed them and sold them abroad. We can gather them and feed ourselves and others," Rossel said. "So we have three directions of work – the picking of wild berries and mushrooms, the development of the village and cleaning up," the Novy region Web site quoted Rossel as saying.

It is common in the Russian Federation to see people selling produce they have picked at the roadside or on the fringes of regular markets. (Source: *RIANOVOSTI*, 10 March 2009.)

SRI LANKA

Relief essential to cinnamon industry

The Export Development Board (EDB) has proposed a low-interest loan repayment scheme to support the cinnamon industry, which is facing a major crisis resulting from the global financial meltdown. EDB proposed a 12 percent interest scheme for smallholders, who comprise over 80 percent of the country's cinnamon industry, which is the fourth largest foreign income earner.

The Chairman of EDB said that the board will initially bear 90 percent of the cost of the machinery used for value addition for cinnamon and thereafter will bear 60 percent of the cost. Around 5 percent of the annual export income from the cinnamon industry will be allocated as an incentive for those who have been exporting cinnamon since last year.

Cinnamon producers said that they are unable to sell their produce because of the

sharp reduction in prices, which were around Rs800–900/kg for fine grades. Prices have gone down to around Rs350–400. Smallholders are finding it difficult to meet their daily expenses and pay the peelers and other workers. Buyers have cancelled or delayed orders until the world crisis eases.

Experts said that over 400 000 people depending on the cinnamon industry would lose their livelihoods if speedy measures are not taken to support the industry. The United Union of Cinnamon Producers said that if the Government fails to address the issue these people will have no alternative but to take to the streets.

The cinnamon industry has called upon the Government to commence a minimum price support scheme for producers, institute a low-interest repayment scheme, grant a subsidy for fertilizers and provide incentives for exporters.

Sri Lanka has been exporting cinnamon since the colonial era and the Ceylon cinnamon brand is known as the best all over the world. (Source: *The Sunday Observer*, 18 January 2009.)

Branding and marketing of cinnamon and other spices

The Export Development and International Trade Minister of Sri Lanka, Professor G.L. Peiris, met representatives of companies in the spice sector to discuss a wide range of issues related to strengthening their trade performance. One of the main issues discussed was the concept of branding and its usefulness in relation to the marketing of cinnamon and other products. Professor Peiris explained to industry representatives the measures that had been taken by his ministry in this area.

Cabinet approval has been granted to the Export Development Board to hold ownership of the Ceylon cinnamon brand. It has also been decided to appoint three committees regarding scientific identification, logo design and preparation of rules and regulations and certification procedure of a brand launching programme. (Source: *The Daily News* [Sri Lanka], 12 May 2009.)



Honey – a product of value in southern Sudan

Bees for Development has been working with Dr Jacob Mogga, an apiculturist from the Catholic Relief Services (CRS)

Agricultural Recovery Programme, to survey four counties in southern Sudan. The aim is to understand the importance of honey selling for rural communities and to analyse the potential for developing a successful honey industry in the region.

The survey revealed the importance of honey within the communities. Owning many hives is considered prestigious and reflects the fact that honey is highly valued for its social, cultural and economic benefits. Honey is used for marriage ceremonies, as gifts, for medicine and as payment for labour and in exchange for goods. The nutritional benefits of honey are appreciated and beekeepers reported that their families consume 10–25 percent of all honey harvested. Since the advent of the cash economy, honey is increasingly valued as a cash commodity and sold to traders and lorry drivers who know there is a large demand for honey beyond the immediate area.

During the survey, Dr Mogga visited four communities in four counties. In three of them, honey was considered the most important source of cash. In many societies, beekeeping is seen as a sideline activity and it is not always the case that beekeepers rank honey as their main source of income. This result is therefore significant.

Honey hunting is still common, but beekeeping is more important. In all the areas visited, beekeepers described leaving brood and unripe honeycombs, and they explained how they tried not to disturb the queen when harvesting. When beekeepers report yields of honey harvested, they tend to combine the volumes they harvest from beekeeping and honey hunting. The results show that honey is valued as a source of income and that beekeeping is an important farm activity.

One purpose of the study was to understand the potential for beekeeping as the basis of a successful industry. Therefore, Dr Mogga and the Bees for Development team considered the honey also from a commercial perspective. Local people appreciated that honey was a commodity with significant potential, citing the clear demand for Sudanese honey outside the local area. Lorry drivers from Kenya and Uganda are always quick to buy, and traders recognize the demand for honey also in northern Sudan. Transport costs are very high in the area because the war has devastated the road network, but honey is considered more cost-effective to transport than many other agricultural crops such as maize and sorghum, because of its high value per

volume. It is non-perishable and needs little further processing, thus increasing its marketability.

There are great challenges: no organized marketing channels exist and this means that during the honey harvest season, traders will bargain hard to pay low prices. This is a cause of frustration for beekeepers. The lack of adequate storage containers is a constraint for trade. A beekeeper who has filled all available jerry cans cannot harvest more until the honey is sold. Traders have the same limitations. Building a higher-value industry will require selling into markets with different quality expectations, and current harvesting and handling methods are not consistent with these markets.

Bees for Development plans to work further with Dr Mogga to address some of these problems. Our focus will be to help beekeepers overcome the constraints associated with storage and bulking, as well as training beekeepers in improved harvesting and handling processes. As development planners create a vision for a streamlined, commercial honey industry, it is important not to lose sight of the current benefits of beekeeping. Rural communities valued honey for its economic benefits long before supermarkets were invented. Bees have played an important role in preventing these war-torn communities from even greater depths of suffering, by providing food and a tradable commodity. The beekeepers from Bogori explained that a tribal fight in 2006 resulted in the loss of their cattle. Against this loss, the resilience of beekeeping emerged – it remains and continues to give benefits, much appreciated by the communities of southern Sudan.

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Biodiversity in the Sudan's forests: its impact on the diversity of NWFPs

Given below is the executive summary of a book by Talaat Dafalla Abdel Magid that was published in Arabic in 2001. This is the first time it has been translated into English. The book is intended to promote and encourage public education and raise awareness on the importance of the diversity of Sudanese flora. It will also satisfy the needs of different target groups working in the field of natural resources, as well as policy-makers.

The overall objective of the study was to analyse the literature, and authenticate and disseminate information related to the importance of the diversity of NWFPs and their contribution to food security, fodder, traditional medicine and the national economy. It is an attempt to enrich the existing knowledge on NWFPs in the Sudan and elsewhere in Africa.

The methodology adopted included an extensive survey of relevant literature from local government departments, NGOs, and regional and international agencies involved in forest biological diversity. This was supplemented by the author's experience and short field visits to some states. The study could not have been written without the great help of FAO's Wood and Non-Wood Products Utilization Branch.

The book is structured into nine chapters. *Chapter One*. Biodiversity, includes information on (a) the forest ecosystem; (b) the Sudan country study on biological diversity developed by the Higher Council of Environment and Natural Resources; (c) diversity of forest trees and shrubs in the Sudan; (d) plant studies in the Sudan, which include published and non-published studies on regional flora; and (e) the Sudan's current forest reserves, area and status of forests as well as the different types of forests.

Chapter Two. Forest foods, includes (a) mangrove forest ecosystems; (b) dom palm forests and their contribution to food security and as emergency food during famine periods; (c) forest food contribution to human and animal diets; and (d) the nutritive and food values of the following species:

Mangifera indica L., *Moringa oleifera* Lam., *Ziziphus mauritania* Lam., *Tamarindus indica* L., *Balanites aegyptiaca* L., *Adansonia digitata* L., *Boscia senegalensis* (Pers.) Lam. ex Poir., *Carica papaya* L., *Prosopis juliflora* (Swartz.) DC, *Vitellaria paradoxa* (Gaertn. F.) and *Phoenix dactylifera* L.

Chapter Three. The contribution of forests in traditional medicine, includes studies of medicinal values of trees and shrubs used by rural as well as urban dwellers. The following are examples of trees used by healers and villagers to treat a multitude of diseases:

Acacia nilotica (L.) Willd. ex Del., *Acacia tortilis* (Forsk.) Hayne, *Adansonia digitata*, *Azadirachta indica* A. Juss., *Balanites aegyptiaca*, *Bridelia micrantha*, *Calotropis procera* (Ait.), *Capparis decidua* (Forsk.), *Chlorophora excelsa*, *Entada abyssinica*, *Khaya senegalensis* (Desr.) A. Juss., *Kigelia africana* (Lam.) Benth., *Sclerocarya birrea* (A. Rich.) Hochst., *Eucalypts*, *Ziziphus spinosa*

christi (L.) Willd., *Salvadora persica* L., *Vitellaria paradoxa*, *Hyoscyamus muticus* L., *Grewia tenax* (Forsk.) Fiori and *Ficus sycomorus* L.

Chapter Four. Forests and wildlife, includes (a) the current status of wildlife in the Sudan; (b) the contribution of wildlife in the national economy; (c) ecological distribution of wildlife; and (d) the consumption of bushmeat in some African forests.

Chapter Five. Contribution of forest resources in animal diets, discusses the contribution of forests as grazing habitat for livestock. The study focuses on Rawashda and Wadakabu forests in eastern Sudan.

Chapter Six. Trees and bees, includes (a) the potential value of honey produced from forest areas and its impact in food security; (b) trees that produce good nectar in the Sudan; and (c) a review of studies and projects related to the development of beekeeping in the Sudan.

Chapter Seven. NWFPs of the Sudan's forests, includes (a) review of previous studies related to NWFPs in the Sudan; (b) international trade in NWFPs and trade restrictions; (c) gum arabic and other gums, including factors contributing to the decline of gum production and export; (d) production relationships of other gums and statistics of local trade in NWFPs; and (e) NWFPs in local, regional and international policies and regulation of forestry and the environment (68 conventions, protocols, laws and orders have been cited).

Chapter Eight. Human activities leading to deterioration of forests and biological diversity, provides an in-depth analysis of the factors contributing to the destruction of forest resources and biodiversity loss.

Chapter Nine. Conclusions and recommendations, includes (a) an overview on forest biodiversity and its contribution to food production and security in the Sudan and elsewhere in Africa; and (b) the important contribution of NWFPs and services provided by trees in different ecological zones of the Sudan and other African countries.

The study aims to bring to the attention of scientists and researchers the role of NWFPs and services provided by trees, which is often ignored or underestimated by policy-makers, finance authorities, planners and extension services, and offers a number of recommendations related to the conservation and sustainable use of forest resources. (Source: English summary of *Biodiversity in forests: its impact on the diversity of Non-Wood Forest Products* (published only in Arabic by the Forests National Corporation, 2001.)

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Jendouba region provides 90 percent of Tunisia's cork production

With some 70 000 quintals produced each year – about 90 percent of Tunisia's overall cork production – the Jendouba Governorate is the country's main provider of cork. The region (Kroumiria and Mogod heights), which is known for its vast expanses of cork oak forest (45 000 ha), also boasts one of the best ecosystem protection plans in the Mediterranean region.

The cork sector in Jendouba employs some 4 800 people and provides 150 000 workdays/year. Most of the harvested cork is processed at the Tabarka cork factory in northern Tunisia.

Ninety percent of Tunisia's cork production is exported to several European countries, especially Portugal.

It usually takes a cycle of ten years for a 35-year-old cork oak to regenerate its precious skin, hence the need to set up an effective conservation system.

Cork exports account for 50 percent of Tunisia's total forestry production; the rest is provided by wood, fodder and essential oils, as well as a wide variety of mushrooms.

(Source: allafrica.com/stories/200902230788.html [Tunisia], 21 February 2009.)



Wild harvest reaps big rewards in foraging rush

Wild harvesting has quietly become something of a green gold rush. In woods and forests across the United Kingdom, wild garlic is being harvested for soup makers, wood sorrel gathered for Michelin-starred

chefs and spruce needles picked to infuse handmade chocolates.

Harvesting "wild food" – the seasonal salad leaves, nuts, fruit and fungi that grow abundantly across the United Kingdom – has led to a new industry in professional foraging for restaurants and a sharp surge in public interest.

People are harvesting, for free, nearly 200 ingredients throughout the year, from common crops such as hazelnuts, brambles and wild strawberries to dozens of different fungi, through to specialist crops such as elm and lime leaves, or sweet cicely. Chefs are now paying up to £50/kg for wood sorrel, with its sharp lemony tang, and £40/kg for elusive morel mushrooms, hand-picked from the forest floor.

In Scotland alone, where the wild food movement is thought to be strongest, the Forestry Commission estimates that wild harvesting, including harvesting lichens and mosses for natural remedies and horticulture, is worth as much as £21 million/year. Roger Coppock, the Forestry Commission's Head of Business Policy Development, said one recent survey suggested that well over a million people in Scotland had foraged at least once in the past two years. The rapid growth of wild harvesting – by as much as 38 percent since 2001 – has led the Commission to launch a campaign to promote wild foods with a code of good practice, to ensure that the increasing number of foragers harvest carefully and, where needed, with the landowner's permission.

Wild harvesting is no longer a niche cottage industry. (Source: guardian.co.uk, 27 April 2009.)

UNITED REPUBLIC OF TANZANIA

Traditional practices contribute to conservation of medicinal plants

Traditional practices contribute to the conservation of medicinal plants in the West Usambara Mountains, United Republic of Tanzania, report Tuli S. Msuya and Jafari R. Kideghesho in the March issue of the open-access journal *Tropical Conservation Science*.

These practices include domestication; beliefs on sacredness of trees; beliefs on sacred forests; respect of cultural forests; protection of plants at burial sites; selective harvesting; secrecy; collection of dead wood for firewood; and use of energy-saving traditional stoves. But medicinal plants are

increasingly vanishing, not only because they are in high demand for primary health care, but also because they cater for several other purposes such as trade, food, timber, firewood and building poles. Land clearing (for agriculture, settlements and other developments) and accidental and deliberate fires also contribute to loss of these species.

Msuya and Kideghesho conclude by underscoring the role of traditional management practices in enhancing the conservation of biodiversity and as a tool for ensuring primary health care in rural communities. (Source: Mongabay.com [United Republic of Tanzania], 23 March 2009.)

Forests in the United Republic of Tanzania under threat

The United Republic of Tanzania is facing a serious threat from deforestation amid reports that the country is losing an average of 420 000 ha of forests annually through rampant tree felling.

The Minister for Natural Resources and Tourism, Ms Shamsa Mwangunga, said yesterday that the situation posed a serious threat to the country's economic development. Mwangunga made the revelations in Dar-es-Salaam while launching the National Forest Resources Monitoring and Assessment project.

On the same occasion, Finland's ambassador to the United Republic of Tanzania, Mr Juhani Toivonen, said the rate at which deforestation is taking place in the country was "alarming". He urged the Government to seek ways of protecting natural forests, adding that the launched project would provide a basis for intervention measures. "It [the project] will provide the necessary tools to identify the means to stop forest degradation at regional, district and village levels, and promote sustainable use of forest resources," he said.

FAO has been selected to coordinate the implementation of the project, working in collaboration with the Forest and Beekeeping Division of the Forestry Ministry.

Dr Louise Setshwaelo, FAO's country representative, said: "The project will provide valuable information on forest resources and how to improve their management. It symbolizes the key role that forest resource monitoring and assessment play in providing relevant and timely information," she added.

The new US\$3.07 million (TSh3.9 billion) project is being funded by the Government of Finland. (Source: *The Citizen Daily* [United Republic of Tanzania], 13 May 2009.)

UNITED STATES OF AMERICA

USDA issues final rule governing NTFPs

The United States Department of Agriculture (USDA) is issuing a final rule governing the disposal of special forest products and forest botanical products from National Forest System land. The final rule was published in the Federal Register on 29 December 2008; the directives will become effective 28 January 2009.

Special forest products are products collected from National Forest System lands and include, but are not limited to, mosses, fungi (including mushrooms), bryophytes, liverworts, roots, bulbs, berries, seeds, wildflowers, forbs, sedges, grasses, nuts, ferns, tree sap, boughs, bark cones, burls, transplants, pine straw, Christmas trees, firewood, posts and poles, shingle and shake bolts, mine props, rails, bow staves and fence material.

Forest botanical products are naturally occurring and a subset of special forest products but exclude timber products such as, but not limited to, Christmas trees, firewood and fence materials.

These regulations will allow the Forest Service to manage its special forest products programme better: (i) through commercial harvest and sale; (ii) through free use; and (iii) through implementing a pilot programme to charge, collect and retain fees for forest botanical products, pursuant to the pilot programme law under Public Law 108-108, Title III, Section 335, 117 Stat. 1312 (16 U.S.C. 528 Note).

The rule addresses fees, bidding, sustainability and other issues with commercial harvest and sale of special forest products and forest botanical products. The new rule reflects existing procedures and practices.

In the past, the Forest Service has used its timber sale regulations and certain parts of the *Forest Service Manual* and *Handbook* to sell special forest products. Public demand for both timber and non-timber special forest products has increased. Current regulations do not adequately address the selling of NTFPs. Given the growing demand and the need to ensure sustainability, the Forest Service feels that it is impractical to continue to rely on timber sale regulations for special forest products. Therefore, the agency has developed regulations that specifically apply to special forest products.

Historically, the Forest Service has granted limited free use of special forest products to

individuals and tribes with treaty and other reserved rights. In addition to honouring the treaty and reserved rights retained by tribes, the Forest Service is committed to meeting their trust responsibilities with tribes. This rule continues to recognize these rights and responsibilities. It allows for and encourages the use of memorandums of understanding and memorandums of agreement with regional and local Forest Service offices to maintain traditional cultural practices and culturally important places.

Traditional gatherers who may not be members of federally recognized tribes will have full access to special forest products as they have in the past. Permits will be required, however.

The rule establishes a pilot programme for disposing of forest botanical products from National Forest System lands. The Forest Service's treatment of forest botanical products and special forest products differs only in the segregation of fees and different "personal use" and "free use" practices. The pilot programme allows limited free use of forest botanical products and establishes a "personal use harvest level" for each product. If an individual's gathering is below the "personal harvest use level," he or she does not have to pay fees. (Source: USDA, 9 January 2009.)

Honey laundering

The international honey trade has become increasingly rife with crime and intrigue. In the United States of America, where bee colonies are dying off and demand for imported honey is soaring, honey traders are resorting to elaborate schemes to dodge tariffs and health safeguards in order to dump cheap honey on the market.

Large shipments of contaminated honey are frequently laundered in other countries – an illegal practice called "transhipping" – in order to avoid United States import fees, protective tariffs or taxes imposed on foreign products that are in place to prevent undercutting domestic prices. In a series of shipments in the past year, numerous tonnes of honey produced in China passed through the ports of Tacoma and Long Beach, California, after being fraudulently marked as a tariff-free product of the Russian Federation.

Viet Nam is now the No. 2 honey exporter to the United States of America, second only to Canada. But Vietnamese honey officials say that a great deal of Chinese honey is being transhipped through their country, citing 24 containers that arrived in Los Angeles earlier this month.

Falsifying records to get honey illegally into the United States of America is a common practice, said a former Shanghai honey shipper. "In Hai Phong [Viet Nam], the Chinese honey became Vietnamese and in Pusan [Republic of Korea] the papers were changed to say it came from the Russian Federation," said the former shipper, who asked not to be identified. (Source: Seattle PI [United States of America], 30 December 2008.)

VIET NAM

Nearly 4 000 new medicinal plants found

Ho Chi Minh City. Scientists have identified 3 948 species of plants and mushrooms in Viet Nam that have medicinal and nutritional value, a conference announced. The Ministry of Health and the Ministry of Science and Technology of Viet Nam held the conference in the northern Vinh Phuc Province last week to review the past 20 years of medicinal herbs research in Viet Nam. Of the total number of species, there are 52 species of seaweed, 22 mushrooms, four kinds of moss and 3 870 species of higher plants

In the past 20 years, research has mostly been carried out in botanical gardens, national parks and natural preservation zones. From 2009 to 2019, government agencies will focus on preserving rare plants that are at risk of extinction. (Source: Viet Nam News, 12, May 2009.)

ZAMBIA

Zambia plans to increase honey production

Over 20 000 bee farmers in Zambia are expected to double their annual production once the country's "Beekeeping and Honey Policy" is in place. Bee farmers earn slightly more than US\$3 000 for a tonne of honey or beeswax on the international market. The Center for International Forestry Research (CIFOR) is collaborating with African governments to come up with policies to guide the production, packaging and marketing of honey-related products. The Zambian Government believes that raising bees will help pull hundreds, if not thousands, out of poverty.

Honey and beeswax are among the country's major non-traditional products that are exported to the United Republic of Tanzania, South Africa, Germany, the Libyan Arab Jamahiriya, the United Kingdom, Botswana, Japan, Canada and the United States of America.

Dr Crispen Marunda is CIFOR's regional coordinator for eastern and southern Africa. He says the present-day beekeeping industry is loosely organized and that there are no legal or legislative structures to monitor or control it.

Marunda explains that monitoring mechanisms will help farmers and the Government to negotiate fair prices and markets for honey-related products. He says an official policy will have a meaningful effect on forest communities that raise bees and related products.

"By coming up with a beekeeping industry policy, the Government will have a structure in terms of how it can support the different institutions that are producing, exporting or buying honey. [The beekeeping policy] will also assist some communities into some kind of beekeeping communities. The communities can have an institution at a local level, they can market their honey as a group, they can lobby for better prices, they can export their honey as a group rather than them working as individuals," he says.

Another project supported by USAID is also trying to develop Zambia's honey sector. It involves support for the Zambia Agribusiness Technical Assistance Centre (ZATAC), which provides assistance to the Smallholder Export Organic Honey Project in Mwinilunga, 500 km from Lusaka.

A USAID report indicates that ZATAC's approach of providing marketing, technical and financial linkages between producers and agribusinesses is slowly paying off. Approximately 3 000 honey farmers have been trained to harvest, handle and package certified organic honey for export. The training is expected to help the farmers take advantage of new export opportunities under the United States-backed African Growth and Opportunity Act (AGOA) and new trade initiatives of the European Union.

There are reportedly about 20 000 beekeepers in Zambia, producing an average 600 tonnes of marketed honey annually. Seventy percent of Zambia's beekeepers – both women and men – are located in the northwest. (Source: VOA News [Zambia], 7 April 2009.) ♣

A man may fall many times but he won't be a failure until he says someone pushed him.

Elmer G. Letterman

AFRICA: MINISTER TASKS CONTINENT ON BIORESOURCES DEVELOPMENT

Lagos. The Nigerian Minister of Science and Technology, Dr Alhassan Zaku, has called on Africa to develop its bioresources to harness the continent's abundant natural products for economic development. Zaku, represented by Professor Peter Onwualu, the Director General of the Raw Materials Research and Development Council, made the call recently in Abuja at a three-day herbal and natural products exhibition tagged "HerbFest 2009". HerbFest was organized by the Nigeria Natural Medicine Development Agency (NNMDA) in collaboration with the International Centre for Ethnomedicine and the Drug Development and Bioresources Development and Conservation Programme.

The Minister urged participants at the exhibition to tap Africa's biodiversity to encourage the development of the continent. He said Africa had suffered economic losses through illegal and unauthorized collection and use of its

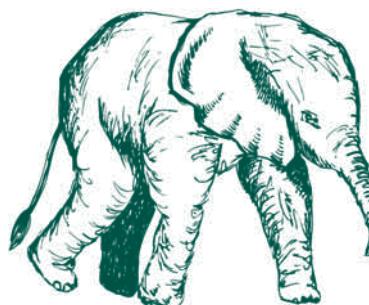
UNEP-WCMC LAUNCH NEW CARBON AND BIODIVERSITY ATLAS

The new *Carbon and Biodiversity Atlas* shows that areas high in both carbon and biodiversity do exist and can be identified by relatively simple mapping tools. Prioritizing such areas could give the double benefit of reducing emissions from land-use change while conserving biodiversity.

The atlas can be downloaded from the United Nations Environment Programme (UNEP) Web site as a screen-friendly version or as a printable version. It is also available as hard copy or as a CD-ROM upon request.

For more information, please contact:
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bioresources. The Minister also said that the loss of biodiversity was accompanied by the loss of indigenous knowledge as the elders, who were the custodians of indigenous knowledge, die without having passed their knowledge on to the younger generation. (*Source: The Daily Champion [Nigeria]*, 2 March 2009.)



FOREST ELEPHANTS AND THEIR ROLE IN "PLANTING" TREES IN THE CONGO

A new study finds that forest elephants may be responsible for planting more trees in the Congo than any other species or genus. Conducting a thorough survey of seed dispersal by forest elephants, Dr Stephen Blake, formerly of the Wildlife Conservation Society (WCS) and now of the Max Planck Institute for Ornithology, and his team found that forest elephants consume more than 96 species of plant seeds and can carry the seeds as far as 57 km from their parent tree. (*Source: Mongabay.com, 9 April 2009 in Nature and Faune, 23[2]*.)

FORESTS MOVE RAIN: STUDY REVOLUTIONIZES METEOROLOGY

A new paper in *Bioscience* by Douglas Sheil and Daniel Murdiyarso reintroduces a revolutionary theory that turns modern meteorology on its head. They posit that forests – and their capacity for condensation – are actually the main driver of winds rather than temperature. While this model has widespread implications for numerous sciences, none of them are larger than the importance of conserving forests, which are shown to be crucial to "pumping" precipitation from one place to another. The theory explains, among other mysteries, why deforestation around coastal regions tends to lead to drying in the interior.

According to Sheil and Murdiyarso's paper, conventional theories not only do not explain the connection between forests and rainfall, but they have yet to explain fully the actual production of rain across regions. If one employs only the conventional theory that "precipitation should decrease exponentially with distance from the oceans", all the continents would look like diminishing green spirals from space, with the landscape turning browner and drier closer to the centre.

The new theory claims that "areas able to maintain high levels of atmospheric condensation draw in air and moisture from elsewhere". What regions maintain high levels of atmospheric condensation? Quite simply the answer is forests, with rain forests maintaining greater quantities than temperate forests, but both are important. (*Source: Mongabay.com, 1 April 2009*.)

PLANT WORKSHOP WINDS UP WITH RESOLVE TO CREATE A REGIONAL NETWORK

Indigenous San and Nama plant specialists gathered at Dqae Qare San guest farm in the Central Kalahari Desert (4–9 March 2009) to share experiences and needs in relation to sustainable cultivation and conservation of precious plants.

The workshop focused on sharing information and experiences with sustaining both plant biodiversity and the intergenerational transmission of plant knowledge. All delegates expressed a grave concern that indigenous knowledge of plants is not being transmitted to young people, and that regional governments are not empowering local communities to conserve precious natural resources.

The workshop resolved to create a regional network to help educate indigenous people about policies, methods and practices to harvest and conserve plant biodiversity sustainably. Indigenous delegates recognized that they need to be speaking to their governments on a more regular basis in order to develop commitment to ecosystems approaches to governance and conservation. They also felt that there was a lot to learn in terms of access and benefit sharing, intellectual property rights and good harvesting practices. (*Source: IPACC [Africa], 10 March 2009*.)

TRANSBOUNDARY RAIN FOREST PARK IN WEST AFRICA: A SYMBOL OF PEACE AND STABILITY

The Presidents of Sierra Leone and Liberia today met in the Gola Forest, Sierra Leone, to announce the establishment of a new Transboundary Peace Park, to protect one of the largest remaining blocks of intact forest in the Upper Guinea area of West Africa. The Peace Park unites the Gola Forest Reserve in Sierra Leone (75 000 ha) and the Lofa and Foya Forest Reserves in Liberia (80 000 and 100 000 ha, respectively), with additional forest to provide corridors for the movement of wildlife between them.

The local communities in Sierra Leone, through their traditional chiefs and Members of Parliament, have expressed both their support for the conservation of the Gola Forest and its designation as a national park.

The Upper Guinea forest ecosystem, which extends from Guinea to Togo, is one of the world's most biodiversity-rich ecosystems. However, centuries of human activities have led to the loss of more than 70 percent of the overall forest cover, which was initially estimated at 420 000 km². The remaining forest is highly fragmented, restricting habitats to isolated patches and threatening the unique flora and fauna.

The forests provide very important ecological services locally, nationally and regionally, including wood and NTFPs, medicinal plants, continuous provision of water, protection against soil erosion, climatic conditions conducive to agricultural production and climate change mitigation. They are also internationally important for carbon sequestration. Both governments have expressed interest in carbon trading and in the REDD (Reducing Emissions from Deforestation and Forest Degradation in Developing Countries) process. The Peace Park will provide the potential to raise tens of millions of dollars over forthcoming decades, ensuring sustained funding for protected area management and community development.

The establishment of the Peace Park will ensure that the long-term conservation of the forests, their biodiversity and global carbon storage benefits are secured through national and international partnerships for improved forest governance across the Sierra Leone-Liberia border. (Source: BirdLife International, 15 May 2009.)

WILD FOOD BIODIVERSITY

Wild food biodiversity can reduce risk and mitigate impacts of natural disasters and long-term environmental change. Many adaptive responses to environmental change draw on the huge pool of biodiversity available. At the local level, food providers and their organizations harness diversity within and between species to adapt to environmental change in their fields, forests, wetlands, rangelands and landscapes. Many different types of agricultural biodiversity ("cultivated", "reared" or "wild") are used by different people at different times and in different places. The resilience of food systems depends on such creative use of biological diversity by local organizations of producers to minimize risk and realize new opportunities created by dynamic change.

For example, indigenous farming communities in the Andes have domesticated over 70 species of cultivated crops and generated a huge diversity of genetically distinct landraces within these crop species. Their *chacras* (fields marked off for cultivation) exist in an environment characterized by criteria used as indicators to decide which crop varieties to sow in different soil microenvironments in the risk-prone drylands.

Many other examples show that small-scale producers and their institutions continuously adapt to their dynamic environments by deploying a mosaic of plant and animal genetic diversity, both within microenvironments and across landscapes. Moreover, many rural people, regardless of their type of land use (pastoral, swidden or continuous cropping), deliberately incorporate wild resources into their livelihood strategies in order to adapt to environmental change.

In northeast Thailand, for example, 50 percent of all foods consumed are wild foods from paddy fields, including fish, snakes, insects, mushrooms, fruit and nutritious vegetables that are available in different seasons and diverse microenvironments. Up to 24 percent of the Scottish (United Kingdom) population collect NTFPs for household use on a regular basis. Some Aboriginal groups in central Australia and the James Bay Cree in Canada are foraging more for wild foods today than they did 20 years ago.

Much of the harvest of wild plants and animals significantly contributes to local

food and livelihood security in southern Africa where the value of day-to-day wild resource consumption is around US\$800 million per year, according to the recent Millennium Ecosystem Assessment. In Zimbabwe, some poor households rely on wild fruit species as an alternative to cultivated grain for a quarter of all dry season meals. In Botswana, the agropastoral Tswana use 126 plant species and 100 animal species as sources of food by adaptively responding to the availability of different types of wild foods across the landscape.

Diverse portfolios of activities based on the contributions of agricultural biodiversity (e.g. crop cultivation, harvest of wild plant species, herding, fishing, hunting, whole ecosystem management) help sustain rural livelihoods because they improve their long-term resilience in the face of environmental change, adverse trends or shocks. In general, increased diversity promotes more flexibility because it allows greater possibilities for substitution between opportunities that are in decline and those that are increasing. In this context, local organizations play a key role in coordinating such community-based adaptive responses to change. (Source: Michel Pimbert. 2009. *Towards food sovereignty: reclaiming autonomous food systems*. London, United Kingdom, IIED.)

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FORESTRY DEPARTMENT

Finland/FAO provide €14 million for data collection and management skills*

Finland and FAO signed a €14 million partnership agreement to improve forest data collection and analysis as well as management skills in selected developing countries for sustainable forest management.

The aim of the four-year programme is to help developing country governments protect their forest resources, build sustainable forest livelihoods and provide governments with the knowledge to mitigate and adapt to climate change.

The selection process for the three to six countries that will pilot the "Sustainable forest management in a changing climate" programme is under way and should be concluded in the coming weeks.

"FAO is very grateful to the Finnish Government for having the foresight to realize just how important this work is and for providing the financial, technical and political support to carry it out," said Jan Heino, Assistant Director-General of FAO's Forestry Department. "It is vital that we strengthen the

information base for sustainable forest management so that developing countries are able to manage their trees and forests based on timely and reliable information," he said. (Source: FAO Newsroom, 27 March 2009.)

Forests and the global economy: 10 million new jobs

Ten million new "green jobs" can be created by investing in sustainable forest management, according to FAO. "As more jobs are lost due to the current economic downturn, sustainable forest management could become a means of creating millions of green jobs, thus helping to reduce poverty and improve the environment," said Jan Heino, Assistant Director-General of FAO's Forestry Department. Since forests and trees are vital storehouses of carbon, such an investment could also make a major contribution to climate change mitigation and adaptation efforts, he added.

Increased investment in forestry could provide jobs in forest management, agroforestry and farm forestry, improved fire management, development and management of trails and recreation sites, expansion of urban green spaces, restoring degraded forests and planting new ones. Activities can be tailored to local circumstances, including



availability of labour, skill levels and local social, economic and ecological conditions.

A number of countries, for example the United States of America and the Republic of Korea, have included forestry in their economic stimulus plans. Similarly, afforestation is an important component of India's rural employment guarantee programme. According to FAO, the global potential is at least 10 million new jobs through national investments.

At the same time, improved forest management and new tree planting could significantly reduce the downward trend in forest cover reported by many countries. This would help to reduce carbon emissions from land-use change and could potentially have a larger positive impact on climate change than any other initiative currently being planned or considered by world leaders. (Source: FAO Newsroom, 10 March 2009.)

WORLD'S HUNGRY EXCEEDS THE ONE BILLION PEOPLE MARK

World hunger is projected to reach a historic high in 2009 with 1 020 million people going hungry every day, according to new estimates published by FAO.

The most recent increase in hunger is not the consequence of poor global harvests but is caused by the world economic crisis that has resulted in lower incomes and increased unemployment. This has reduced access to food by the poor, the United Nations agency said.

"A dangerous mix of the global economic slowdown combined with stubbornly high food prices in many countries has pushed some 100 million more people than last year into chronic hunger and poverty," said FAO Director-General Jacques Diouf. "The silent hunger crisis – affecting one sixth of all of humanity – poses a serious risk for

world peace and security. We urgently need to forge a broad consensus on the total and rapid eradication of hunger in the world and to take the necessary actions."

Hunger has been slowly but steadily on the rise for the past decade, and drawing on analysis by the United States Department of Agriculture, FAO projects that the number of hungry people last year (915 million) is expected to grow by about 11 percent this year. The number of hungry people increased between 1995-97 and 2004-06 in all regions except Latin America and the Caribbean.

Almost all of the world's undernourished live in developing countries. In Asia and the Pacific, an estimated 642 million people are suffering from chronic hunger; in sub-Saharan Africa 265 million; in Latin America and the Caribbean 53 million; in the Near East and North Africa 42 million; and in developed countries 15 million in total.

The urban poor will probably face the most severe problems in coping with the global recession, because lower export demand and reduced foreign direct investment are more likely to hit urban jobs harder. But rural areas will not be spared.

The economic crisis also comes on the heel of the food and fuel crisis of 2006-08. While food prices in world markets declined over the past months, domestic prices in developing countries came down more slowly. They remained on average 24 percent higher in real terms by the end of 2008 compared with 2006. For poor consumers, who spend up to 60 percent of their incomes on staple foods, this means a strong reduction in their effective purchasing power. It should also be noted that while they declined, international food commodity prices are still 24 percent higher than in 2006 and 33 percent higher than in 2005. (Source: FAO Newsroom, 19 June 2009.)

FAO IN THE FIELD

Nature & Faune

Nature & Faune is a peer-reviewed international bilingual (English and French) publication of the FAO Regional Office for Africa. Its aim is to disseminate information and promote the exchange of experiences on wildlife, protected area management and the sustainable use and conservation of natural resources in Africa.

The latest issue, 23(2), highlighted the "Success stories in management of wildlife and nature in Africa". The theme of the next issue will be "The relevance of mangrove forest to African fisheries, wildlife and water resources".

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FOREST CONSERVATION RECEIVES US\$200 000 FROM FAO

Kampala. Uganda has received a US\$200 000 (U Sh430 million) grant from FAO to implement forestry conservation activities between 2009 and 2012.

The grant will finance the second phase of the National Forest Programme Facility. Uganda is one of the 70 countries supported by the FAO National Forest Programme (NFP). Phase one covered Wakiso, Mukono, Mubende, Luwero, Hoima and Masindi districts. The programme is implemented through a partnership between the Uganda Forestry Working Group, the Government and a network of forest conservationists across the country. (Source: *The New Vision* [Uganda], 9 April 2009.)

EU-funded project GCP/RAF/408/EC

"Mobilization and capacity building for small- and medium-scale enterprises involved in the production and commercialization of non-wood forest products (NWFPs) in Central Africa"

On 11 June 2009, the Director of Forests of the Cameroonian Ministry of Forestry and Wildlife, Mr Samuel Ebia Ndongo, and the Director of Cooperation and Projects of ANAFOR (the National Agency for Forestry Support), Mr Schadreck Ondoua, and their teams, accepted the "National Management Plan for *Prunus africana*" presented by representatives of CIFOR, the German Agency for Technical Cooperation (GTZ) and TRAFFIC.

Prunus africana is a tree native to African montane tropical forests, occurring in 22 countries. The hard wood has multiple uses, particularly for the medicinal properties of its bark, which is the basis of pharmaceutical treatment for prostate problems, which affect between 5 and 15 percent of men aged over 65 in the United States of America and Europe.

Cameroon has been one of the major exporters of *Prunus africana* worldwide since the 1970s with 48 percent (on average 2 000 tonnes yearly) of gross exports since trade records commenced in 1995. A combination of growing demand and unsustainable harvesting has led to the species being included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES is an international agreement between governments that aims to ensure that international trade in wild animals and plants does not threaten their survival. All imports of *Prunus africana* to the European Union, the largest market for Cameroon, are currently suspended, until a national plan can be provided that shows how sustainable exploitation and trade can be managed and monitored. This has led to stocks held by pharmaceuticals companies that produce the drugs dropping to very low levels and a negative impact on the livelihood of small-scale harvesters, farmers and enterprises in Cameroon.

The plan has been the product of over two years of work conducted by CIFOR, FAO, the Netherlands Development Organisation (SNV) and the World Agroforestry Centre (ICRAF) as part of the EU-funded project GCP/RAF/408/EC: "Mobilisation et renforcement des capacités des petites et moyennes

entreprises impliquées dans les filières des produits forestiers non-ligneux en Afrique Centrale" and by GTZ as part of the ProPSFE (Programme d'appui au Programme sectoriel forêt et environnement). The Cameroonian Minister of Forestry and Wildlife made a specific request to FAO in October 2008 for the project to support the development of a management plan. FAO requested CIFOR to elaborate such a plan. The authorities accepting the plan, which included representatives of the Cameroonian CITES Management Authority (the Ministry of Forestry and Wildlife) and the Scientific Authority (the National Forestry Development Agency), indicated their intent to appropriate the plan and present it at the next CITES meeting in Geneva on 15 July, prior to its official adoption. The plan will also be presented at the First Pan-African Workshop on Access and Benefit Sharing (ABS) and Forests from 22 to 25 June 2009, in Nairobi, Kenya.

The plan presents a pragmatic approach to sustainable exploitation of *Prunus africana*, setting out the institutional, technical, legal and operational procedures for management and harvesting of *Prunus africana* in Cameroon in the short and long term. It was conceived and developed using a participatory approach to ensure a broad consensus of the many stakeholders, both national and international, involved in the *Prunus africana* chain. This included numerous meetings and consultations organized by SNV and CIFOR with the government, economic operators and the private sector, community forest institutions, nature and conservation organizations, development agencies and research and scientific institutions.

The plan combines published literature and unpublished data, indigenous knowledge, a market chain baseline study and inventory data on *Prunus africana* in Cameroon from CIFOR, a regulatory and policy study by GTZ, and a report on domestication and harvesting by ICRAF. (Contributed by: Verina Ingram, Scientist, Center for International Forestry Research (CIFOR), c/o IITA Humid Forest Ecoregional Centre, BP 2008, Yaoundé, Cameroon. E-mail: v.ingram@cgiar.org or verina_ingram@hotmail.com; www.cifor.cgiar.org)

FOR MORE INFORMATION, PLEASE SEE:
www.fao.org/forestry/43055/en/

THE XIII WORLD FORESTRY CONGRESS (WFC2009)

An update

The XIII World Forestry Congress, which will take place in Buenos Aires, Argentina, from 18 to 25 October 2009, will address the role of forests in a changing environment. Increasing pressure on forests, climate change, global deforestation and the challenge of ecological integrity, economic development and social equity need innovative thinking and strategies to conserve and manage forests at the local, regional and global levels. Renowned experts from all over the world, from various organizations and communities connected with forests, including academics, producers, environmentalists, indigenous and rural communities, forest managers, government experts and policy-makers, will be invited to discuss and seek solutions to keep forests in a vital balance.

The congress will encompass a week of presentations, discussions, round tables, parallel events and exhibitions, focusing on the following main issues: (a) Forests and biodiversity; (b) Production for development; (c) Forest in the service of people; (d) Caring for our forests;

(e) Developing opportunities; (f) Organizing sustainable forest management; and (g) People and forests in harmony.

A large Forestry Fair will be held in tandem with the congress. Various public organizations and private enterprises connected with forestry and related sectors will exhibit. In the two weeks following the congress, study and recreational tours will be offered to introduce participants to the country's varied forests and landscapes.

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WORKSHOP ON BUSHMEAT

The Convention on Biological Diversity (CBD) Secretariat, together with CIFOR, FAO and the International Council for Game and Wildlife Conservation (CIC) will organize a workshop on the sustainable use of bushmeat, from 15 to 17 October, in Buenos Aires, Argentina (www.cbd.int/ts). The meeting is organized in conjunction with the XIII World Forestry Congress (WFC) and workshop results will be presented at WFC plenary session 1.6. "Wildlife associated with forests".

The purpose of the meeting, pursuant to decision IX/5 of the Conference of the Parties at its ninth meeting, is to support Parties in their efforts to implement further the CBD programme of work on forest biodiversity. The unsustainable hunting and trade of bushmeat, and their impacts on non-target species, have been identified as issue to be addressed as a matter of priority.

The meeting will build on previous efforts of the CBD Liaison Group on Non-Timber Forest Products including bushmeat, which developed and published recommendations for the conservation and sustainable use of wildlife-based resources (UNEP/CBD/SBSTTA/13/INF/9 and CBD Technical Series 33, available in English and French at www.cbd.int/ts). Specifically, the meeting will focus on the situation of bushmeat hunting in tropical moist forests, with the aim of discussing and consolidating further the above-mentioned recommendations. The meeting will be held in English and participation is by invitation only.

For more information, please contact: **Caroline Belair, Secretariat of the Convention on Biological Diversity, World Trade Centre, 413 St Jacques, Suite 800, Montreal, Quebec, Canada H2Y 1N9. Fax: 1 (514) 288 6588; e-mail: secretariat@cbd.int or Caroline.Belair@cbd.int; www.cbd.int**

CENTER FOR INTERNATIONAL FORESTRY RESEARCH (CIFOR)

CIFOR's strategy 2008–2018. Making a difference for forests and people

CIFOR has a new strategy that focuses its resources on critical global issues influencing the world's tropical forests and the people who depend on them. "Forests are now receiving a level of attention that we haven't seen for many years, if ever, and there's no doubt that climate change is a major reason for this," said Andrew Bennett, Chair of CIFOR's Board of Trustees. "So, CIFOR must ensure it represents the best interests of tropical forests and the people who depend on them, and informs the global climate debate with relevant, thorough and up-to-date research."

The new strategy will see:

- governance, livelihoods and environmental services remain as CIFOR's key programme areas, but with a greater emphasis on interdisciplinary research;
- CIFOR continue to engage in diverse, collaborative partnerships, but with greater relevance and purpose; and
- CIFOR continue to communicate its research findings in a tailored and targeted manner, but with greater deployment of electronic and interactive channels.

At the end of the priority-setting process, six research domains were selected for inclusion in CIFOR's future research agenda: (1) Enhancing the role of forests in mitigating climate change; (2) Enhancing the role of forests in adapting to climate change; (3) Improving livelihoods through smallholder and community forestry; (4) Managing trade-offs between conservation and development on the landscape scale; (5) Managing the impacts of globalized trade and investment on forests and forest communities; and (6) Sustainably managing tropical production forests.

CIFOR will continue to base itself in Bogor, Indonesia, and to concentrate its research on the Amazon basin, the Congo basin, dryland Africa and Southeast Asia.

"Forests are being hailed as a potential solution to the global climate crisis," said Frances Seymour, CIFOR Director General. "Huge sums of money are being projected to conserve tropical forests – sums that could finally invert the political and economic priorities that drive deforestation. But carbon sequestration is not the only reason why forests are important. Forests harbour over

half of the world's terrestrial biodiversity; they sustain the livelihoods of over a billion people worldwide; and they provide a whole range of other ecosystem services, including water filtration, soil stabilization and the raw ingredients for much of the world's medicine," added Seymour.

"With this new strategy, we've tried to find the right balance. To respond to the opportunities presented by this unprecedented focus on forests, without losing sight of our core purpose, which is to advance human well-being, environmental conservation and equity."

FOR MORE INFORMATION, PLEASE CONTACT:
CIFOR headquarters, P.O. 0113 BOCBD,
Bogor 16000, Indonesia. E-mail: cifor@cgiar.org;
www.cgiar.org or www.cgiar.org/strategy

CIFOR's vision

We envision a world where:

- forests are high on the political agenda;
- people recognize the value of forests for maintaining livelihoods and ecosystems;
- decisions that influence forests and the people who depend on them are based on solid science and principles of good governance, and reflect the perspectives of developing countries and forest people.

The guest author for this issue of *Non-Wood News* is CIFOR scientist Ms Patricia Shanley. Her interesting article can be found on page 3.

CIFOR's landscape mosaics project

As more of the world's forests rapidly disappear and become increasingly fragmented, conservation efforts have focused on establishing protected areas to conserve these key ecosystems that support a diverse array of flora and fauna. More recently, conservationists and scientists have observed that protected areas are necessary but not sufficient for the conservation of biodiversity. In this context, the role of multifunctional landscape mosaics including and surrounding protected areas has become increasingly important for conservation.

These landscapes include everything from agricultural land, agroforests and settlements to patches of remaining forest dotting the terrain. What has shaped, and continues to shape, these mosaics are human activities, most commonly

communities that are driven by their needs to sustain their livelihoods often in the face of poverty. These landscapes are also affected by government laws and policies regarding land management and biodiversity conservation, which determine how and for what these lands can be used.

The evolution of these mosaics, therefore, needs to be understood from a dynamic point of view, considering all the elements that shape them in a certain length of time. This requires effective tools to monitor the changes in biodiversity and livelihoods in these mosaics, which are in or near to protected areas.

It is because of the need to develop an integrated strategy to address these complex and often conflicting ecological and social dynamics that CIFOR and the World Agroforestry Centre (ICRAF) launched the Biodiversity Platform in 2006. In June 2007, the Biodiversity Platform launched its inaugural project, "Integrating livelihoods and multiple biodiversity values in landscape mosaics", in five tropical countries with high levels of biodiversity: the United Republic of Tanzania, southwest Cameroon, Sumatra (Indonesia), the northern Lao People's Democratic Republic and eastern Madagascar.

The project focuses on informing and facilitating a negotiation process on land-use rights allocation. To support and inform this process, the project is conducting a series of research activities to collect and analyse socio-economic and biophysical data, and to investigate the potential for reward mechanisms for environmental services. (Source: CIFOR News, 46, November 2008.)

INTERNATIONAL YEAR OF NATURAL FIBRES (IYNF) 2009

An update

Fact sheets

A set of fact sheets in PDF for low-cost printing have been developed, which you are encouraged to print and distribute to any interested audience. Please note that all the PDF files of all our information products, in all languages, have now been unprotected, as some people have had problems adapting them to different printing formats.

These new versions are available for download from the IYNF-2009 Web site: English: www.naturalfibres2009.org/en/iynf/media.html

NATURAL FIBRES 2009 CONFERENCE

The Natural Fibres 2009 Conference, organized by the Institute of Materials, Minerals and Mining, will be held from 14 to 15 December 2009 in London, United Kingdom, to celebrate the International Year of Natural Fibres. This conference will focus predominantly on the industrial applications of natural fibres and includes presentations on fibre extraction, fibre processing, biocomposites, geotextiles, biomimetic materials, animal fibres, natural fibres for the developing world and more.

For more information, please contact:
Dawn Bonfield, Institute of Materials,
Minerals and Mining, 1 Carlton House
Terrace, London, SW1Y 5AG, United
Kingdom. E-mail: dawn.bonfield@iom3.org;
www.iom3.org/events/fibres

French: www.naturalfibres2009.org/fr/afn/ressources.html

Spanish: www.naturalfibres2009.org/es/afn/recursos.html

Poster

An IYNF-2009 poster (13.5 x 40 in [34.3 x 101.6 cm]) has been produced in English. The poster can be downloaded from the IYNF-2009 Web site at: www.naturalfibres2009.org/en/iynf/media.html

Newsletter

To subscribe to the IYNF-2009 newsletter, send an e-mail to mailserv@mailserv.fao.org, leave the subject line blank, and put the text subscribe IYNF-2009-L in the body of the message.

FOR MORE INFORMATION, PLEASE CONTACT:

Brian Moir, Trade and Markets Division, FAO,
Viale delle Terme di Caracalla, 00153 Rome,
Italy. E-mail: IYNF-2009@fao.org;
www.naturalfibres2009.org/

When is a fibre natural?

The International Year of Natural Fibres (IYNF) celebrates fibres produced by plants and animals. It does not include modern manufactured artificial and synthetic fibres such as rayon, nylon, acrylic and polyester. Tree fibres are not covered by IYNF, but will be one focus of the International Year of Forests in 2011. ♣

SHEA 2009: OPTIMIZING THE GLOBAL VALUE CHAIN – SECOND INTERNATIONAL SHEA CONFERENCE

OUAGADOUGOU, BURKINA FASO
25-27 MARCH 2009

Between 2004 and 2008 the shea industry has effectively doubled. How will we continue that growth while addressing key challenges? Firms from more than 12 African countries joined experts, international buyers and regional service providers to explore fundamental and cutting-edge issues in the shea industry.

FOR MORE INFORMATION, PLEASE CONTACT:
Vanessa Adams (Director) or Dr Peter Lovett (Shea Butter Technical Advisor), West Africa Trade Hub, 4th Street, Kuku Hill, Osu, Accra, Ghana. E-mail: plovett@watradehub.com; www.watradehub.com or www.globalshea.org/

FOREST TENURE, GOVERNANCE AND ENTERPRISE: NEW OPPORTUNITIES FOR LIVELIHOODS AND WEALTH IN CENTRAL AND WEST AFRICA

YAOUNDÉ, CAMEROON
25-29 MAY 2009

Organized by the International Tropical Timber Organization (ITTO), Rights and Resources Initiative (RRI), FAO and the Cameroon Ministry of Forests and Wildlife, this conference aimed to catalyse new and broader actions on securing tenure rights in Central and West Africa for implementation by governments, civil society organizations and local communities with the support of international institutions and funding agencies. This will involve establishing goals and developing agendas for new interventions and reforms.

Participants shared experiences in securing tenure rights, including the relationship between tenure reform and other goals such as improving livelihoods, securing investment, spurring on small-scale enterprises and addressing climate change. The new initiatives emanating from this conference will help strengthen the impact of other key efforts, particularly on forest law enforcement and governance and voluntary partnership agreements that are being launched in Africa, all of which

point to the necessity and urgency of clarifying rights.

Agenda items included: experience with extraction and management of NTFPs; the role and perspective of forest communities in the forest reform process; and a round-table discussion on the role of tenure and governance in climate change mitigation and adaptation.

FOR MORE INFORMATION, PLEASE CONTACT:
Eduardo Mansur (ITTO Reforestation and Forest Management [RFM]), International Tropical Timber Organization, International Organizations Centre, 5th Floor, Pacifico-Yokohama 1-1-1, Minato-Mirai, Nishi-ku, Yokohama, 220-0012 Japan. Fax: 81-45-223-1111; e-mail: mansur@itto.or.jp; www.itto.int/en/workshop_detail/id=44270000

LOCALIZING PRODUCTS: A SUSTAINABLE APPROACH FOR NATURAL AND CULTURAL DIVERSITY IN THE SOUTH?

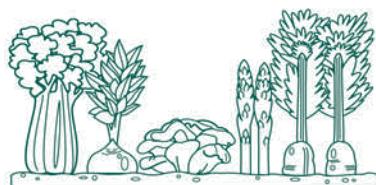
PARIS, FRANCE
9-11 JUNE 2009

This International Symposium was organized by UNESCO/Mab, IRD, CIRAD, MNHN, in collaboration with FRB, FFEM, AFD and IDDR to explore the links between biological and cultural diversity, and the processes designed to enhance the value of local specialities in South countries.

Many presentations on the agenda covered the marketing of NTFPs, including:

- constructing the identity of products (names, image, typicality, reputation);
- valuing local products in the frame of conservation politics;
- valuing local products and potential impacts on biodiversity; and
- social and territorial changes linked to the valorization of local products.

FOR MORE INFORMATION, PLEASE CONTACT:
Emmanuelle Gerard, Maison de l'UNESCO, 7 place de Fontenoy, 75007 Paris, France. E-mail: localiser-les-produits@mnhn.fr; www.mnhn.fr/colloque/localiserlesproduits/index_va.php or www.sfak.slu.se/ShowPage.cfm?OrgenhetSida_ID=10300



INDIGENOUS PLANT USE FORUM 2009 ANNUAL CONFERENCE

STELLENBOSCH, SOUTH AFRICA
6-9 JULY 2009

The 12th annual Indigenous Plant Use Forum (IPUF) conference had as its theme "Exploration and commercialization: opportunities and challenges".

As in the past, several short symposia were held, including: Fynbos plants; Conservation and cultivation; Indigenous knowledge; Ethnoveterinary medicine; Honeybush symposium; Biological activity; Indigenous foods; Natural products from Fynbos; Fibres and crafts; and South African standards and control.

FOR MORE INFORMATION, PLEASE CONTACT:

Bernard de Villiers, IPUF Secretariat, Department of Botany and Plant Biotechnology, University of Johannesburg, PO Box 524, Auckland Park, 2006 South Africa. Fax: +27 (0) 11 559 2411; e-mail: ipuf@uj.ac.za; www.uj.ac.za/ipuf/IPUAnnualconference/tabid/16318/Default.aspx



INTERNATIONAL TRAINING WORKSHOP ON NON-TIMBER-FOREST-PRODUCTS INDUSTRIAL AND COMMERCIAL DEVELOPMENT

ZHEJIANG PROVINCE, CHINA
27 AUGUST-16 SEPTEMBER 2009

China is well known for its long history of large-scale production and complete supply chains of NTFPs. For example, China now produces 70 percent of the world's edible fungi. The NTFP development of China is an organic combination of sustainable resource cultivation, highly efficient industrial processing, a smooth marketing network and a constructive institutional culture. NTFPs and their production have become one of the supporting poles of the economic development in China's forest areas.

The objectives of this training workshop are to share with participants the experiences and technologies of China in the development and utilization of non-timber forest resources, sustainable development, management of forests, and the production, utilization and marketing technologies of NTFPs.

Courses will include:

- sustainable management and development of NTFPs;
- NTFPs in China and their development, industrialization and commercialization;
- "company + farmers" – the best model for NTFP industrialization;
- the main experiences in the sustainable development of China's bamboo sector and bamboo-processing technologies;
- development of intangible resources in the forest;
- the development model of ecotourism and leisure industry in Lin'an and Anji, Zhejiang Province – a model that led local farmers towards wealth;
- the cultivation and processing technologies of wild medicinal plants and edible/medicinal fungi;
- the comprehensive development of forest biochemical products;
- the development of wild vegetables, fruits and nuts;
- the impact of NTFPs on poverty alleviation and rural sustainable development in the forest area;
- the role of governments in promoting NTFPs; and
- industrial cooperation and NGOs forming the links among companies, markets and farmers.

The workshop will give an introduction to the NTFP development experience of China, especially on the aspects of industrialization and commercialization. The field visit will provide opportunities to see the most developed and largest-scale bamboo industry in China in Anji county, and the largest bamboo shoot and hickory production base in Lin'an city.

Participants will also be able to see the development and utilization of local medicinal plants, the cultivation of edible and medicinal fungi, and China's biggest honey industry base in Tonglu. There will also be the chance to visit one of the most beautiful cities in China, Hangzhou, and China's most beautiful mountain, the Yellow Mountain, and its surrounding areas, which have developed various kinds of NTFPs.

FOR MORE INFORMATION, PLEASE CONTACT:
Zhu Zhaohua or Jin Wei, International Network for Bamboo and Rattan (INBAR), 8 Fu Tong Dong Da Jie, Wang Jing Area, Chao Yang District, Beijing 100102, China. E-mail: zhzhu@inbar.int or Wjin@inbar.int; www.inbar.int/show.asp?BoardID=171&NewsID=519

 **THE 41ST APIMONDIA CONGRESS: THE BEE, THE SENTINEL OF THE ENVIRONMENT**

MONTPELLIER, FRANCE
15-20 SEPTEMBER 2009

Beekeepers, technicians, scientists, suppliers and the media should actively participate in this congress. The high-quality scientific programme will concentrate on the work of international researchers, and includes activity areas and demonstrations in the heart of the ApiExpo exhibition.

Beyond the spectrum of knowledge about bees and their products, the biology of the bee, its farming, its role in the pollination of plants and as the sentinel of the environment, the 2009 edition will highlight a truly worrying phenomenon found everywhere in the world: bee mortality.

FOR MORE INFORMATION, PLEASE CONTACT:
Apimondia 2009, Sup Agro, 2 Place Pierre Viala, 34060 Montpellier Cedex 1, France.
Fax: +33 (0)4 99 61 29 68; e-mail: organisation@apimondia2009.com

 **VIII WORLD BAMBOO CONGRESS THAILAND 2009: BAMBOO, THE ENVIRONMENT AND CLIMATE CHANGE**

BANGKOK, THAILAND
16-18 SEPTEMBER 2009

The VIII World Bamboo Congress will focus on the role of bamboo in rural, economic, industrial and environmental development. The congress will include the following topics: architecture, engineering and social housing; protection and construction; community and economic development; industrial aspects; products – design and technologies; plantation development and management; resources, standards and policy; biological aspects; ecology and environmental concerns; and horticulture and landscape design.

FOR MORE INFORMATION, PLEASE CONTACT:
Mr Kamesh Salam, President WBO and Conference Secretary, Director, Cane and Bamboo Technology Centre, Zoo-Nargangi Road, Narikal Basti, Guwahati 781024, Assam, India. E-mail: kamesh@caneandbamboo.org; www.worldbamboocongress.org

 **2ND INTERNATIONAL CONFERENCE ON THATCHED BUILDINGS "PINOLERE 2009"**

TENERIFE, CANARY ISLANDS
2-5 OCTOBER 2009

FOR MORE INFORMATION, PLEASE CONTACT:
Rafael C. Gómez León, Coordinador del Congreso, Calle Germinal nº 36, Pinolere, La Orotava, Tenerife, Islas Canarias, Spain 38310. E-mail: directorelpajar@pinolere.org; www.congresoonconstruccionescubiertavegetal.org or www.pinolere.org

 **INBAR-UBFDB INTERNATIONAL TRAINING WORKSHOP ON "BAMBOO AS A MODERN CONSTRUCTION MATERIAL"**

DEHRA DUN, INDIA
5-14 OCTOBER 2009

The International Network for Bamboo and Rattan (INBAR) and the Uttaranchal Bamboo and Fibre Development Board (UBFDB) are jointly organizing this international training workshop.

Since time immemorial, bamboo has contributed to the construction of houses and various other structures all over the world. It has strength, flexibility and versatility and therefore it is a suitable material for every component of the house when treated and used properly. Bamboo is used preferentially to other materials for housing because of its intrinsic properties that have been traditionally utilized. A firm scientific and engineering foundation has been given to this traditional understanding, resulting in the qualification of bamboo as a sound structural and engineering material. Bamboo houses dot the rural landscape in many developing countries of Asia, Latin America and Africa and bamboo is intimately associated with the livelihoods and traditions of several million people. The properties of bamboo combined with its availability and ease of use make it an ideal candidate for housing the rural and urban poor. It is estimated that more than one billion people in the world live in bamboo houses.

Bamboo plays a significant role in the creation of employment and income-generation activities in an ecologically sustainable manner. Its use for housing not only meets safety-related needs essential in

seismically active zones, but also offers highly viable solutions for both rural and urban areas, using renewable resources. Furthermore, by deploying local resources in terms of labour and material, bamboo-based housing can help develop the local economy, provide employment and further environmental protection. The traditional skill capital of the local community is also utilized, resulting in the generation of employment and creation of income-generation opportunities in rural areas. As an excellent building material, bamboo is relatively inexpensive, easy to work with and readily available in most of the countries where it grows; its role in house construction has been substantial.

This workshop aims to impart knowledge and skill sets to those involved in the bamboo sector, in housing and other structural developments, with the objective of training people who are knowledgeable in the nuances of bamboo-based housing to become more expert in building bamboo houses. The workshop provides theoretical and practical training, in particular.

The topics covered in the training will include: species selection; foundations; roofs; walls; treatment methodologies; harvesting methods; bamboo connections; bamboo stitching with other construction material; and design and structural applications, including seismic considerations for bamboo houses.

Registration closes on 15 September 2009.

FOR MORE INFORMATION, PLEASE CONTACT:
Mr T.P. Subramony, Regional Coordinator (South Asia), INBAR, South Asia Regional Office, A-408, Defence Colony, New Delhi 110 024, India. Fax: +91-11-2433 4804; e-mail: subramony@inbar.int; www.uffdb.org

 **PLANT CONSERVATION FOR THE NEXT DECADE. A CELEBRATION OF KEW'S 250TH ANNIVERSARY**
KEW, RICHMOND, UNITED KINGDOM
12-16 OCTOBER 2009

The Royal Botanic Gardens, Kew, is hosting this celebratory scientific conference. The programme will include three days of scientific sessions, showcasing Kew's conservation research and inviting leading international research scientists to present papers in six sessions: Plant conservation: policies and politics; Plant conservation: management and restoration; Plant

conservation and human cultures; Plant conservation and agriculture; Frontiers of plant conservation technology; and Plant conservation: what can we afford to lose?

FOR MORE INFORMATION, PLEASE CONTACT:
Plant Conservation Conference, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB, United Kingdom. E-mail: sciconf@kew.org; www.kew.org/science/anniversary-conference

XIII WORLD FORESTRY CONGRESS

BUENOS AIRES, ARGENTINA
18-25 OCTOBER 2009

(Please see page 65 for full information on this event.)

DECENTRALIZATION, POWER AND TENURE RIGHTS OF FOREST-DEPENDENT PEOPLE

GUJARAT, INDIA
27-28 OCTOBER 2009

The aim of this symposium is to share recent research experiences and to review state-of-the-art approaches related to decentralization policies and local forest institutions; the power and political position of forest-dependent indigenous peoples, pastoralists and tribals; and the legislative recognition of forest tenure rights.

FOR MORE INFORMATION, PLEASE CONTACT:
Harnath Jagawat, Director, NM Sadguru Water and Development Foundation, PB 71, Dahod 389151, Gujarat, India.
E-mail: nmsadguru@yahoo.com; www.forestrynepal.org/event/4149

THE 11TH INTERNATIONAL SOCIETY FOR ETHNOPHARMACOLOGY CONGRESS AND 1ST SPANISH-PORTUGUESE SYMPOSIUM ON ETHNOBIOLOGY

LA MANCHA, ALBACETE, SPAIN
20-25 SEPTEMBER 2010

Several generations of ethnopharmacological researchers with diverse backgrounds and interests have shaped the field of ethnopharmacology and today it certainly is a diverse and flourishing area of academic and

applied research. While some decades ago the focus was on "traditional knowledge", there is now an increasing focus on the dynamics of knowledge. Additionally, a greater awareness has developed as to how crucial the protection and sustainable use of biodiversity are, and about the intrinsic link between biological and cultural diversity. Ideas taken from traditional knowledge systems continue to be an important source of inspiration in drug development and, at the same time, "new" food supplements and herbal remedies from "traditional societies" are entering the market at an ever-increasing rate.

The congress, themed "Continuity and change in ethnopharmacology: transdisciplinary science for our future", will address the above dynamics and will offer a unique opportunity to present ethnopharmacological work and to discuss the wider implications of the research being carried out in this field.

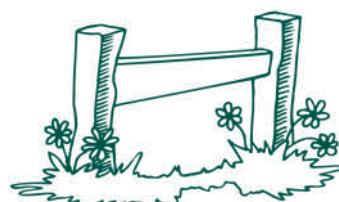
The congress includes the following topics:

- ethnopharmacology and biocultural diversity;
- circum-Mediterranean ethnopharmacology/ethnobotany and its exchange with the Americas;
- from traditional remedies to modern medicines – phytochemical, pharmacological and clinical studies;
- NGOs and their role in ethnopharmacology;
- the interface between history and ethnopharmacology;
- the interface of medicine and food plants.

The congress will be celebrated jointly with the first Spanish-Portuguese Symposium on Ethnobiology.

Both the congress and symposium are being coorganized by ISE (International Society of Ethnopharmacology) and the Universidad de Castilla-La Mancha.

FOR MORE INFORMATION, PLEASE CONTACT:
Professor Michael Heinrich, Resident, ISE (2008-2010), Centre for Pharmacognosy and Phytotherapy, School of Pharmacy, University of London, 29/32 Brunswick Square, London WC1N 1AX, United Kingdom. Fax: (+44) 20 77535844; e-mail: Michael.heinrich@pharmacy.ac.uk ♣





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Republic of). Following the publication of the first edition in June 2007, a number of entrepreneurs in Europe and the United States of America are working to import sustainable Amazon products mentioned in the book. The book contributes to the international marketing of sustainable products from the Amazon and thus to forest conservation, poverty alleviation and the growth of a sustainable forest economy in the region. It is a valuable source of information on sustainable forest management practised within the Amazon. Available in English, Portuguese, Spanish and Dutch through: www.amazonyourbusiness.nl

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exploited. For example, in 400 BC the Greek historian Xenophan related that 10 000 mercenaries were forced to retreat after eating unripe honeycomb produced from *Rhododendron ponticum* and *Azalea ponticum* nectar, containing toxins that caused them to suffer vomiting and diarrhoea and made them unable to stand. Other bee products are discussed in chapters that include "Beeswax, magical, malicious and medicinal" and "Pollen: bee food or chemical agent?" Jones' book is an entertaining source of many obscure and unusual anecdotes about bees and their products.

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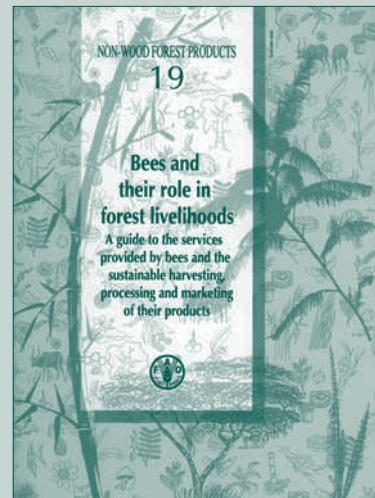
NEW PUBLICATIONS FROM FAO'S NON-WOOD FOREST PRODUCTS SERIES

NWFP Working Documents

FAO's NWFP Working Document series has a new volume – No. 7. *The role of CITES in controlling the international trade in forest products: implications for sustainable forest management*.

Forests, and forest products, are fundamental to the health and well-being of the vast majority of the world's human population. Technological innovations, and specifically improvements in the global transport infrastructure, combined with human migration have increased the use and availability of forest products even further. However, this use is not without a cost – the populations of many wild species have declined as a result of harvest for international trade, some to the point that entire species are threatened with extinction.

In order to address international trade threats to wild species, governments



Non-Wood Forest Products series

Bees and their role in forest livelihoods. A guide to the services provided by bees and the sustainable harvesting, processing and marketing of their products

This volume – no. 19 in our NWFP series – provides basic information about managing wild bees and on the use of their products. It identifies and describes major bee species and their importance for nature conservation and for sustaining the livelihoods of rural people. Bee products are considered at both subsistence and commercial levels, and particular attention is given to the potential for further development of managing wild bee species in developing countries. The role of bees for pollination of crops and the impact of managing bees on forestry and farming are presented. Wild beekeeping techniques, honey production and marketing, and the international trade in bee products are described with further references and sources of additional information given. Using this publication, readers will understand better the complexities and opportunities for developing apiculture by rural livelihoods.

Copies of this publication can be purchased from FAO's Sales and Marketing Group at: publications-sales@fao.org. An electronic version will shortly be available from FAO's NWFP home page: www.fao.org/forestry/site/6367/en

established the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). CITES entered into force in 1975 and has over 160 member governments (Parties). This report explores the role and impact of CITES on the trade in forest products and sustainable forest management throughout its 30-year history, with an emphasis on plant, and specifically timber, species.

An electronic version of this document will be available shortly from our NWFP home page. Hard copies are available free of charge from FAO's NWFP Programme at the address on the first page or by sending an e-mail to non-wood-news@fao.org.

OTHER RECENT PUBLICATIONS

State of the World's Forests 2009

What will be the impact on forests of future economic development, globalized trade and increases in the world's population? The 2009 edition of the biennial *State of the World's Forests* looks forward, with the theme "Society, forests and forestry: adapting for the future". Part 1 summarizes the outlook for forests and forestry in each region, based on FAO's periodic regional forest sector outlook studies. Past trends and projected demographic, economic, institutional and technological changes are examined to outline the scenario to 2030. Part 2 considers how forestry will have to adapt for the future, focusing on: the global outlook for wood products demand; mechanisms for meeting the demand for environmental services of forests; changes in forest sector institutions; and developments in science and technology. This volume will serve as a source of information to support forest-related policy and research. It is hoped that it will also stimulate creative thinking and debate to enhance the future of the world's forests.

FOR MORE INFORMATION, PLEASE CONTACT:
Ms Andrea Perlis, Forestry Department, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy.
E-mail: FO-PUBLICATIONS@fao.org; www.fao.org/ (Please also see pages 18-20 for more information.)

Non-farm income from non-wood forest products

The aim of this booklet is to raise awareness – among people and organizations that provide advisory business and technical support services to resource-poor small-scale

farmers and local communities in low- and middle-income countries – about rural livelihood opportunities resulting from NWFPs activities. It provides an overview of the uses of NWFPs (section 2); insight into the complementary contribution that they can make to sustainable livelihoods (section 3); an overview of NWFP trade (section 4); strategies for successful NWFP trade and livelihoods (section 5); and support and services that can help promote NWFPs as a livelihood source (section 6). It provides advice as to how the right support and services can help promote NWFPs as a successful livelihood option. Sources of additional information and technical support for any follow-up are identified at the end of the book

Marshall, E. & Chandrasekharan, C. 2009. *Non-farm income from non-wood forest products*. Diversification booklet 12. Rural Infrastructure and Agro-Industries Division. Rome, FAO.

FOR MORE INFORMATION, PLEASE CONTACT:
Rural Infrastructure and Agro-Industries Division, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy. E-mail: AGS-registry@fao.org (Please also see pages 30 and 73 for more information.)

Medicinas étnicas y tradicionales

¿Quién sabe que en Afganistán la medicina pashtún adopta todavía la cañafistula como laxante y la semilla de anís para curar las indigestiones? ¿Y qué los curanderos de la Amazonía usan, con óptimos resultados, la uña de gato, planta curandera, en contra de la artritis, las hemorroides y las lesiones cutáneas? ¿O qué la dieta espacial de los astronautas americanos comprende también la maca, la quínoa y la kiwicha, especies herbáceas y alimentos tradicionales del mundo andino? Todo esto podría llamarse *medicina alternativa* o *herboristería*, pero es más apropiado llamarlo *medicina popular*. Estas prácticas curativas en épocas y zonas diferentes han substituido o integrado la medicina moderna y convencional. Está reconocido que la técnica médica moderna no puede ignorar otras experiencias como estas, de las cuales – en todo caso – ella misma desciende directamente, bajo muchos aspectos.

Esto es lo que afirma Giorgio V. Brandolini, ingeniero agrónomo de Bergamo y divulgador cultural, quien ha viajado en unos de los rincones más remotos del mundo, también por cuenta de organizaciones internacionales, en particular en Suramérica y en el Oriente Medio, donde ha recogido de

los pueblos indígenas informaciones sobre las hierbas y remedios para curar las enfermedades. Algunas plantas son todavía utilizadas y parecen ser muy eficaces. Una gran cantidad de información ha sido reunida en el libro, *Medicine etniche e tradizionali* (Macro edizioni, 416 páginas, € 14.50), de útil consulta no sólo para los interesados en las curas alternativas, sino también para los curiosos de los hábitos y maneras de vivir de los pueblos que viven en zonas de las que poco se habla, y que guardan tradiciones y usos que vale la pena conocer. La catalogación de apasionado científico y botánico de las hierbas y plantas medicinales, con relativos nombres científicos y usos, y la detallada explicación de los usos medicinales, son acompañadas por curiosas narraciones históricas.

Por ejemplo, una de ellas se refiere a la medicina clásica de los árabes, origen de fundamentales escuelas médicas, con Avicena, quien escribió los cinco libros del Canon de la medicina, o Albucazis, el más grande cirujano árabe. Y el celebre Paracelso quien, bien que intensamente dedicado a la fármaco-química en pleno siglo XVI, estaba invadido por una visión panteísta de lo creado, que atribuía una dimensión espiritual a los fenómenos naturales, ejercitando la práctica de la *signatura*, filosofía que afirma que Dios habría puesto unos *signos* en las plantas, de los cuales derivan sus capacidades de curar las enfermedades. Al fin, descubrimos que la granadilla era usada como febrífrugo o para lenificar las úlceras, que en la Edad media se difundió desde Persia a todo el Mediterráneo, y que de ella deriva el nombre de la ciudad andaluza de Granada.

Brandolini, Giorgio V. 2008. *Medicine etniche e tradizionali*. Macro edizioni. 416 páginas. ISBN: 8-8750-7867-X; ISBN-13: 9788875078676

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It matters not how a man dies, but how he lives. The act of dying is not of importance, it lasts so short a time.

Samuel Johnson

FAO'S NWFP HOME PAGE	
<p>Please help us make our Web site a rich resource by continuing to send us (non-wood-news@fao.org) your NWFP Web sites and citations of any publications that we are missing, as well as any research that you would like to share.</p> <p>www.fao.org/forestry/site/6367/en</p>	

Agroforestería Ecológica: Temas de Actualización (2008 y 2009)
www.agroforesteriaecologica.com

Amazon Centre for Environmental Education and Research (ACEER)
www.wcupa.edu/aceer/

Crops for the Future
www.cropsforthefuture.org/

Databases

New interactive database on indicators of sustainable forest management in Europe
The Timber and Forestry Programme of the United Nations Economic Commission for Europe (UNECE) and FAO have released a new Web-based resource tool designed by the international community to enable researchers, policy-makers, practitioners and the general public to access data on Europe's forests. The database is a comprehensive research tool based on the report *State of Europe's Forests 2007*, and includes data that have not been published to date.

These data are presented alongside other statistical data from different parts of the UNECE work programme. The UNECE/FAO Timber Section encourages the international community to take advantage of this resource and to make suggestions for further improvement.

<http://w3.unece.org/pxweb/Dialog/>

Threatened aromatic plants
www.cropwatch.org/Threatened%20Aromatic%20Species%20v1.09.pdf

Forum UNESCO University and Heritage Web site
<http://universityandheritage.net/eng/index.html>

Newsletters/e-zines

British Columbia's Buy BCwild Initiative e-zine

British Columbia's "Buy BCwild Initiative" has recently launched the Buy BCwild e-Newsletter: "A future *beneath* the trees". The newsletter is a triannual publication and is released in April, August and December. The first issue is available online.

<http://buybcwild.com/newsletter-a-future-beneath-trees>

Coleopterists online newsletter

A new online newsletter for coleopterists has just been published as a pdf document. The first issue contains an article on the orange ladybird in Cheshire, United Kingdom. The newsletter can be downloaded from the following site:

<http://www.record-lrc.co.uk/forum/viewforum.php?f=8>

First forest carbon newsletter

http://ecosystemmarketplace.com/pages/newsletter/fc_02.12.09.html

The National NTFP Network of Canada e-zine

The NTFP Network of Canada has recently launched an electronic NTFP newsletter. This quarterly publication is available online and features news, events, research and other NTFP-related activities from across Canada. It contains articles written in both French and English.

www.ntfpnetwork.ca/en/node/89

NWFP Directory for Atlantic Canada and Maine

www.FromOurAtlanticWoods.com

Photovoices: empowering people through photography

www.photovoicesinternational.org/index.html

Platform for agrobiodiversity research

www.agrobiodiversityplatform.org/wp_main/

Portals

Forest carbon portal, ecosystem marketplace's newest service
www.forestcarbonportal.com/n

Information portal: negotiations related to the International Regime on Access and Benefit Sharing
www.cbd.int/abs/ir/

Sustainable Development ListServe

SD-L is a free and moderated community communications tool for knowledge-sharing on sustainable development. It is a grassroots, peer to peer service meant to advance understanding and application of the SD framework by allowing subscribers to post announcements related to contributions and activities with a strong focus on sustainable development. SD-L is an excellent way to circulate cutting-edge information on meetings, policy developments, publications and new initiatives, as well as keep abreast of the latest sustainable development-related issues and events. SD-L offers users a chance to publicize and coordinate their efforts better through virtual knowledge exchange.

**FOR ASSISTANCE OR FURTHER INFORMATION,
PLEASE CONTACT:**
kimo@iisd.org; www.iisd.ca/SD-L

Research and Media Network
<http://researchandmedia.ning.com/>

Traditional Knowledge Digital Library
www.tkdl.res.in/tkdl/langdefault/common/home.asp?GL=Eng

NWFP-DIGEST-L

The Digest is a free monthly e-bulletin produced by FAO's NWFP Programme and covers all aspects of non-wood forest products. Past issues can be found on FAO's NWFP home page at

www.fao.org/forestry/site/12980/en

You can take part in contributing to the continued success of this newsletter by sharing with the NWFP community any news that you may have regarding research, events, publications and projects. Kindly send such information to NWFP-Digest-L@mailserv.fao.org.

To subscribe: send an e-mail to: mailserv@mailserv.fao.org, with the message: subscribe NWFP-Digest-L; or through the NWFP Programme's home page at

www.fao.org/forestry/site/12980/en ♠

CONTRIBUTIONS TO *NON-WOOD NEWS*

Subscription to *Non-Wood News* is free of charge. Please send an e-mail to [\[non-wood-news@fao.org\]](mailto:[non-wood-news@fao.org]) if you would like to receive a copy and be added to our mailing list.

A strong characteristic of *Non-Wood News* is that it is open to contributions from readers. Should you have any interesting material on any aspect of NWFPs that could be of benefit to all our readers, please do not hesitate to submit it. Articles are welcomed in English, French and Spanish and should be between 200–500 words.

The deadline for contributions for *Non-Wood News* 20 is 31 October 2009.

For more information, please contact: Tina Etherington at the address on the front page or by e-mail to non-wood-news@fao.org

**COMMENTS FROM AN INTERN**

"Think global, act local," this is the omnipresent motto in my hometown (Eugene, Oregon, USA). As a result Eugene always buzzes with the activity of new local initiatives, from urban farming to restoring traditional NWFP harvesting. However, we can easily overlook the benefits local communities receive when people act globally. *Non-Wood News* is one such example of global action resulting in direct benefits for local communities all over the world.

By contributing to and reading *Non-Wood News* and the NWFP-Digest, people can learn from and share

Comments received***Reader from the Philippines***

Non-Wood News is of great help and a valuable source of information to our researchers and staff. (Forest Products Research and Development Institute, Philippines)

Reader from the United Kingdom

In these days of information overload, I find myself looking at things arriving via e-mail or in the post and thinking "I just don't have the time to look at this". But NOT when *Non-Wood News* arrives! I received it this morning, and will look forward to settling down for a proper read. Once again, thanks for providing this excellent service.

Reader from the Lao People's Democratic Republic

I have received the last NWFP newsletter and it's a really great work you are doing.

Reader from Indonesia

I read the latest issue of *Non-Wood News* from cover to cover with great interest. It is an invaluable service you offer by gathering so much diverse, relevant and fascinating information together on NWFPs.

Contributions to this issue – a special thank you

I would like to thank all of you who have contributed to this issue – whether by sending me your articles, books and newsletters; by providing me with links; by

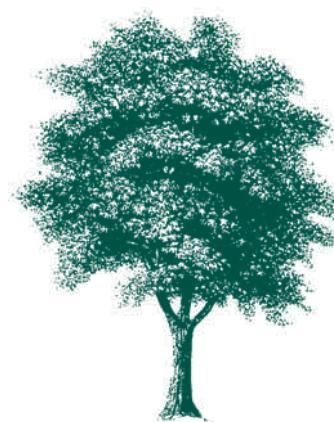
experiences, knowledge and support. This builds solidarity and enhances the potential for local initiatives to be successful. Acting locally is critical, but without a global community exchanging knowledge and experience, local action will never become what it could be. *Non-Wood News* provides a platform for this global exchange, enabling productive local initiatives. It has been my pleasure to be part of this community, locally and globally. (Adam DeHeer)

Adam DeHeer has been working as an intern with FAO's NWFP Programme since late February 2009. His assignment with us finishes in August.

putting me in contact with people who could benefit from receiving *Non-Wood News*; or by going to great lengths to send me the photos for the back cover. This issue is particularly rich, with contributions on your research/activities coming from all around the world – from Afghanistan to the Sudan, from Hungary to Peru, and many more in between.

It is truly a great pleasure to be the editor of *Non-Wood News* – and a great privilege to correspond with so many of you. Thank you for your continued support.

(Tina Etherington, non-wood-news@fao.org) ♣



To be a success, I must contribute to the welfare of others; to put in another way, to be all I can be, I need to help you be all you can be.

John Maxwell

Bushmeat: a source of protein and trade

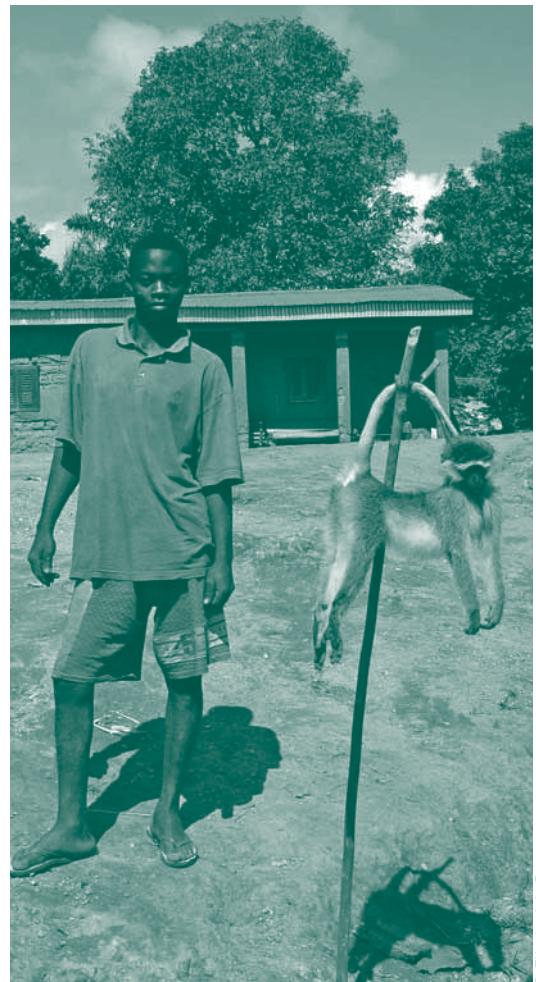
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Bushmeat is a major source of protein for forest-dependent communities. It is also an important source of income through trade in local, national and international markets. However, the illegal bushmeat trade has led to wildlife being hunted in an unsustainable manner. This has resulted in the "bushmeat crisis", with many species becoming endangered.