An information bulletin on Non-Wood Forest Products

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# non-wood news

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## EDITORIAL

*A* new *year, a* new *look! Mr Jan Heino, the new Assistant-Director General of the Forestry Department has written the editorial of the restyled* Non-Wood News.

I am fully aware of the social, cultural and economic importance of non-wood forest products (NWFPs) in the lives of many people – both in my own country, Finland, and worldwide. Over the years, I have been impressed by how *Non-Wood News* has managed to capture this importance, as well as the diversity of NWFP actors, in its many articles, features and reader contributions.

I also fully recognize the need for further protection and promotion of traditional forest related knowledge (TFRK), which is closely linked with the cultural and intellectual heritage of indigenous people and other forest dwellers. Their practices can form a significant part of sustainable forest management. It is imperative to ensure that they receive benefits from the use of this knowledge and that technologies drawing from traditional forest-related knowledge clearly acknowledge the origins of this knowledge. Many recommendations on this topic exist internationally, but their implementation has remained inadequate. Promotion of TFRK needs to be better incorporated in national forest programmes as well as in forest management planning at the local level.

This restyled *Non-Wood News* is one of the outcomes of the auto-evaluation exercise that took place in 2005 and is a direct response to the readers who commented on its format and legibility. We hope that you like it and would welcome your comments on this "face-lift".

In another response, which requested more information more often, we are also increasing the frequency of *Non-Wood News* to every six months.

Yet another outcome of reader participation is that we now have a regular section covering non-profit and non-governmental organizations. We invite NGOs and non-profit organizations that are involved with any aspect of NWFPs (including indigenous knowledge, biodiversity, environment and gender issues) to submit information on their organization and the NWFP activities/projects they implement.

However, we would like to stress that behind the new-look *Non-Wood News* is the usual wealth of information from the world of NWFPs. The Special Features section covers two different aspects of NWFPs: a specific product (bamboo) and a developing market (cosmetics and beauty care). As you will see from the articles, bamboo is versatile: it can be transformed, for example, into textiles, charcoal, vinegar, green plastic or paper and can also be used as a food source, a deodorant, an innovative building material and to fuel power stations.

Reports indicate that natural cosmetics and beauty care are a huge global market, with forecasts indicating an annual growth of 9 percent through 2008. The Special Feature on "Forest cosmetics: NWFP use in the beauty industry" builds on

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***NON-WOOD NEWS***

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***Non-Wood News* is open to contributions by readers. Contributions are welcomed in English, French and Spanish and may be edited to fit the appropriate size and focus of the bulletin.**
**If you have any material that could be included in the next issue of *Non-Wood News* for the benefit of other readers, kindly send it, before 31 March 2007, to:**
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**FAO home page: www.fao.org**

this and includes information industry interest and marketing strategies (consumers are being drawn to natural products and thus their content is emphasized). Usually considered a predominantly female market, it is now also increasingly becoming an important market for men too. However, as can be seen from the articles on shea butter in Africa and thanakha in Myanmar, many societies have always used and benefited from natural cosmetics. In this issue you will find other examples of traditional knowledge, such as using the secretions of a poisonous tree frog in Brazil and the use by the traditional healers in India of allelopathic knowledge.

*Non-Wood News* readers are indeed very active and participatory and, as the new head of the Forestry Department, it is very gratifying to learn that so many e-mails and letters are received from you. As we have shown with the new look, increased frequency and greater coverage of traditional knowledge and NGOs, we genuinely take your opinions into consideration and try to act upon them.

I would particularly like to thank the many people who have contributed to this issue; we greatly appreciate your interest and views. I believe that this very active reader participation provides a unique networking opportunity and is a great strength of *Non-Wood News*.



**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 includes small wood and fuelwood. However, these two terms are used synonymously throughout this bulletin. Other terms, such as "minor", "secondary" or "speciality" forest products, are sometimes used to keep original names and/or titles.**

## THE VERSATILE BAMBOO

**Improved biological bamboo charcoal for wastewater treatment**

Five biological bamboo charcoal dams were built on a 120-m-long offshoot and the high-density household wastewater flowing through them was purified into much cleaner water. After sampling and examination, the purified water satisfied all wastewater draining criteria. A year later, this demonstration site for purifying wastewater with improved biological bamboo charcoal dams is still functioning well.

Improved biological bamboo charcoal has a very strong absorption capacity. Experiments showed that when the surface temperature of bamboo charcoal reaches 700°C, it has a pore structure and its specific surface area is maximized: the specific surface area of 1 of bamboo charcoal equals that of a football field. This characteristic makes the charcoal an excellent absorbing material.

Because of its outstanding absorption capacity, experiments have been carried out on the filtering function of bamboo charcoal in purifying wastewater. However, a vital shortcoming has been discovered: as a result of the special interior space structure of the charcoal, the various pollutants fill up the spaces over time;

consequently its absorbing ability, which is its function in purifying water, is gradually lost.

According to the total daily amount of wastewater to be treated, up to US$2 million will be needed to establish a wastewater treatment factory with a capacity of 10 000 tonnes/day and with a matching control system on rainwater and wastewater. The plant will occupy a large area of land and running costs will be heavy. In contrast, the establishment of an improved biological bamboo charcoal wastewater treatment system with the same daily treatment capacity of 10 000 tonnes would only cost $50 000. Furthermore, it would cost merely $5 000 to run the system for one year, with all the water treated meeting national criteria.

This technology is extremely suitable for application on rivers in both cities and rural areas.

Since most farmers in rural areas are relatively dispersed, the bamboo charcoal facility should be set up at the end of rivers and canals, so that it does not affect water use and transportation.

Daily production of wastewater in rural areas is 4 000–6 000 tonnes/day and therefore the bamboo charcoal water treatment system for this capacity could cost less than $20 000, with yearly maintenance and running costs of less than $3 000. Only one person, who could even work part time, is needed to manage the system.

The treatment system is extremely durable as shown by the demonstration system which was set up to last for about one year and still works well, with all treated water meeting national standards. The system will last even longer in rural areas since wastewater there is less polluted.

The improved biological bamboo charcoal needs to be changed every two years, at a cost of about $10 000, which should be acceptable for rural areas.

Villages can also charge farms that benefit from the system on a yearly basis. After solving the problems of site selection, establishment and maintenance costs, this technology can be extended throughout rural areas. For some areas with better conditions, a wetland can be added to the end of the system to improve the quality of the purified water still further. (*Contributed by:* Fu Jinhe Ph.D., Programme Officer and Coordinator of IUFRO 5th November 2005 Bamboo and Rattan, International Network for Bamboo and Rattan (INBAR), 8 Fu Tong Dong Da Jie, Wang Jing Area, Chao Yang District, Beijing 100102-86, China. Fax: +86-10-6470 2166; e-mail: jfu@inbar.int; http://www.inbar.int)

### EXPERIMENTS ON IMPROVED BIOLOGICAL BAMBOO CHARCOAL

Combine ten genera (more than 80 species) of three main fungus groups: photosynthetic bacterium, lactobacillus and microzyme loaded into the pore carrier of special bamboo charcoal, hybrid the oxygen and anti-oxygen microbe through fermentation; different microbes live on the pollutant as "food", so as to maintain the metabolism. In this way, the improved biological bamboo charcoal functions together with the various microbes during the water purification process to decompose the pollutant into water and $CO_2$ through complicated absorbing and biological processes. Based on this theory, the water purification treatment through improved biological bamboo charcoal technology was invented.

### OTHER USES OF BAMBOO CHARCOAL

**As a deodorant and preservative**

Refrigerators are used to store almost all kinds of food. Yet, although well designed, they are not able to exclude various odours because of the circulation of cold air. If bamboo charcoal or its modified product is used in a refrigerator, these odours can be excluded through absorption action. At the same time, because of bamboo charcoal's ability to adjust humidity, the preservative period of vegetables and fruit can be extended. Bamboo charcoal can also be reused once it has been washed and dried.

**In adjusting humidity**

Because bamboo charcoal is activated under conditions of very little oxygen and high temperature, it contains almost no water and has many pores, which makes it highly effective in adjusting humidity. When the surrounding humidity overtakes that of bamboo charcoal, the charcoal can absorb the moisture from the air. Moreover, when the surrounding humidity becomes lower than that of bamboo charcoal, the charcoal can emit moisture to maintain a dynamic equilibrium. Consequently, bamboo charcoal is also used in manufacturing different health care products to regulate people's microsurroundings. It is often laid under indoor flooring or placed behind wallboards.

**Bamboo leading the way in textile innovations**

Value-added performance fabrics are the latest trend in textiles. Jonäno™, a division of Sami Designs LLC, is concentrating on one particular area of study in high-technology fabrics: a new generation of antimicrobial and antibacterial textiles. This technology incorporates built-in abilities to fight harmful microbes that cause odour and can lead to infection.

The natural antibacterial properties of bamboo fabric come from an inherent quality of bamboo commonly called "bamboo kun". Bamboo does not require the use of pesticides because of this natural antifungal antibacterial agent. It is rarely attacked by pests or infected by pathogens. The same natural substance that protects bamboo growing in the field functions in the spun bamboo fibres.

Bamboo fibres are processed using a patented manufacturing technology of hydroalkalization. Processed without the addition of caustic additives, according to ISO 9000 and ISO 14000 principles, bamboo hypoallergenic fibres are the ideal alternative for individuals with sensitive skin.

A quantitative antibacterial capability test was performed by the China Industrial Testing Centre from 7 to11 July 2003. One hundred percent bamboo fabric was tested over a 24–hour incubation period with bacterial strain type *Staphylococcus aureus*. After the 24–hour period the numbers of live bacteria were counted in each sample. The results showed that 100 percent bamboo fabric exhibits a 99.8 percent antibacterial kill rate. (*Source:* PR.Com, 12 September 2006.)

**Bamboo linen**

Fast-growing bamboo makes unlikely but soft colourful linens and towels and manufacturers have discovered that bamboo cloth mixed with a dash of cotton is silky to the touch.

Bamboo is mature enough to harvest in three to five years and can be grown without fertilizers or pesticides. Manufacturers are almost as excited about the ecological benefits as they are about the soft sheets: finding a fibre as easily renewable as bamboo is a nice fit.

Towels and sheets have been made with a mix of either 70 percent bamboo, 30 percent cotton material or 65 percent bamboo to 35 percent cotton. One manufacturer praised the linen since "it really holds on to the colour", while another noticed that it "absorbs faster than cotton". (*Source: The Columbus Dispatch*, 5 March 2006.)

**Bamboo fashion fabrics**

Bamboo fashion fabrics have many exceptional qualities. They stay two degrees cooler than other fabrics and so provide cool comfort. They also have a natural wicking ability: they wick moisture away from the skin. The soft, breathable, knit fabrics also offer an antibacterial function, acting as a natural deodorant. Bamboo fabrics have been featured in several of Canadian fashion icon Linda Lundstrom's spring 2007 collection. (*Source:* Fibre2fashion.com, 19 August 2006.)

**Bamboo power station**

A northeastern Indian state, Mizoram, is set to make an environment-friendly power station that will run on bamboo. The state, it is claimed, will possibly be the first in the world to use bamboo for producing power.

The project coordinator said that this unique power station will use bamboo to generate electricity and that it would not only be cost-effective but also highly ecofriendly. He said the power generation formula from bamboo is simple: the harvested bamboo is dried and processed for feedstock to produce gas. (*Source:* All Headline News [United States], 29 July 2006.)

**Bamboo shoots and paper mills**

Bamboo shoots are becoming too costly to dish up in Bangladesh. In fact, bamboo, a valuable forest resource, is diminishing in the Chittagong Hill Tracts (CHT) through indiscriminate cutting of shoots and extraction on a massive scale (mainly in the rainy season despite a ban on extraction from June to September) for use as a vegetable. Bamboo shoots are a traditional favourite not only among the indigenous people but now also among Bangalees in the hills. Large quantities of the shoots are finding their way to hotels and restaurants in big cities such as Dhaka and Chittagong.

According to Agriculture Extension Department (AED) officials, during the monsoons at least Tk1.5 crore bamboo shoots are extracted from forests in the CHT, which could produce Tk15 crore bamboos if full grown.

The shoots are sold as vegetables in all the 230 markets in 25 *upazilas* (division districts) in the CHT. In Khagrachhari alone, there are over 100 of these markets where at least 10 000 kg bamboo shoots are sold each day at Tk10–12/kg.

According to the Khagrachhari AED Deputy Director, bamboo worth over Tk50 crore could be produced if the shoots were not used as vegetables. Consumption is increasing daily with the rise in population and some day, he said, the Karnaphuli paper mill will face a serious crisis in bamboo, its main raw material. (*Source: The Daily Star* [Bangladesh], 17 July 2006.)

Bamboo can grow 1.21 m in 24 hours and up to 30 m in two to three months. (*Source:* INBAR.)

**Building with bamboo – design competition**

Bamboo Technologies of Maui has launched the first International Design Competition for Structural Bamboo Buildings. Bamboo is the next green building evolution; the giant grass is a renewable, restorative and versatile building material. Structural bamboo has been certified for international building codes, the first time it has ever been code certified.

The 2006/2007 International Competition encourages architects to apply their creativity to the design of new buildings using this ancient building material. The winners will be announced in March 2007. (*Source: Canadian Architect*, 10 August 2006.)

**FOR MORE INFORMATION, PLEASE VISIT: www.bamboocompetition.com *or* e-mail info@bamboocompetition.com**

**Bamboo planting can slow deforestation**

Scientists may have found a way to slow deforestation. Fast-growing bamboo can quickly help replenish a forest stripped of timber.

Chin Ong, at the International Centre for Research in Agroforestry (ICRAF) in Nairobi, Kenya says that one promising substitute for wood is bamboo, a grass with a tree-like appearance. Some varieties grow more than 25 m tall and 20 cm thick.

Ong points out that bamboo can be grown all over the world and has advantages over timber. One advantage is

its speedy growth: bamboo can be harvested after three or four years and then every subsequent year because it is a grass, whereas a eucalyptus tree needs five to ten years before it can be harvested again. Another advantage is that bamboo has a very high water-use efficiency, which is double that of any tree species.

The plants could be an additional cash crop in areas where sugar cane and coffee are already established. Ong estimates that in the Lake Victoria region of Kenya, United Republic of Tanzania and Uganda, as many as 150 million people could benefit economically.

Plant biologist David Midmore of the Central Queensland University in Australia also points to bamboo's environmental benefits. "In Taiwan Province of China, bamboo is grown on the hillsides along the edge of the mountains and it is sustainably harvested for its shoots and for its timber. It is an environmentally friendly species because it is also preventing any erosion."

In addition to providing lumber and food, bamboo plants can clean the environment. Chin Ong is studying how bamboo groves could remove toxins from dirty waters. (*Source:* Voice of America, 29 August 2006.)

**Vietnamese bamboo fences to enter Europe**

A Vietnamese and a Danish company have joined forces to produce Danish-designed bamboo fences in Viet Nam to serve the significantly growing demand in northern Europe.

The Vietnamese partner, the Bac Ninh Company, makes handicrafts for foreign markets whereas Prodex, the Danish partner, develops, manufactures and markets a range of garden products in Europe. The cooperation, supported by the Danish Business-to-Business Programme, combines Bac Ninh's access to abundant bamboo raw materials and production facilities in northern Viet Nam with Prodex's design of durable bamboo fences, technical skills and access to the European market.

The strategic cooperation between the two partners will focus on quality, customization and an ability to make products from Vietnamese raw materials. (*Source:* ScandAsia.com, 30 May 2006.)

**Bamboo plastic**

Mitsubishi Motors Corp. announced that it has developed, with the Aichi Industrial Technology Institute, a new material to be used in the interior of its future vehicles. The material, which uses plant-based resins and bamboo fibres, is called "green plastic" and, because of its components, produces fewer $CO_2$ emissions and "volatile organic compounds".

Mitsubishi also points out that the use of bamboo, which grows much more quickly than timber, will lower the risk of depleting raw resources when mass-producing green plastic. (*Source:* Autoblog, 28 February 2006.)

**Bamboo vinegar**

Bamboo vinegar is a by-product of bamboo carbonization. It contains 80 percent water. When dehydrated, the vinegar consists of 80–200 components, or approximately 32 percent organic acid, 40 percent phenolic compound, 3 percent aldehyde, 5 percent alkone compound, 5 percent alcohol compound, and 4 percent ester compound among others.

Bamboo vinegar can be used as a soil fungicide, plant root growth promoter and deodorizer, or in the beauty industry (in soaps, cosmetics, bath lotions) and in health drinks, medicines, etc.

**FOR MORE INFORMATION, PLEASE CONTACT:**
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**Bamboo paper: centuries-old papermaking handwork faces extinction**

A centuries-old tradition of making delicate rice paper for use in imperial courts is seeking state support amid climbing costs and declining production. "Unless the situation is remedied, our descendants will only be able to recall the past glory in museums," said Zhou Jiehua, head of the Cultural Heritage Bureau in Jiajiang County, southwest China's Sichuan Province.

The "glory" he refers to is a 1 000-year-old tradition of making handmade paper native to his county. Bamboo is used as the raw material to make fine grain paper that was once used during imperial examinations and is now used by 60 percent of China's painters and calligraphers.

Zhou said that the traditional technique involves a 72-step process. "Only five of the 1 000 paper mills in the county are still strictly following these manual procedures – all the others have simplified the production process to cut costs and time."

Today, the industry employs some 7 500 people in Jiajiang County, about 60 percent of the local population, but a sharp decline compared with the 40 000 workers employed in the 1930s, said Zhou. The county has applied to include the technology in China's first group of intangible cultural heritage. (*Source:* People's Daily Online [China], 6 June 2006.)

## FOREST COSMETICS: NWFP USE IN THE BEAUTY INDUSTRY

**Scientists: man's vanity dates back to prehistoric times**

Men are vain by nature. At least that is what scientists in Dublin, Ireland have ascertained after examining prehistoric bodies found in the peat bogs of the country. One of the bodies had Mohawk-style hair held in place by a gel substance. Further research found that the gel was made of plant oil and pine resin imported from southern France or Spain. This provides further proof that ancient Ireland traded with southern Europe even during prehistoric times. (*Source:* Komfie Manalo, All Headline News, 2 August 2006.)

**Aboriginal knowledge and the beauty industry**

The health and beauty industry is now beginning to harness the rich heritage of Aboriginal knowledge of native plants and healing. For more than 40 000 years, Aboriginal Australians have continued a shared tradition of cultural and sacred knowledge, known as the Dreamtime.

In recent years, elements of this indigenous culture – the rituals and use of native ingredients – have been used in the mainstream health and well-being sector.

Indigenous ingredients have found their way into skin care formulations, the first of which was the men's grooming range, VitaMan. The VitaMan founders, Glenn Kiddell and Clare Matthews, spent two years researching indigenous Australian ingredients. They wanted to adopt previously unused, unique Australian plant, herb and fruit extracts which had a history of

application by indigenous Australians. All the ingredients selected for use in VitaMan's formulations had to have scientific validation, as well as proven effectiveness in treating skin and hair problems. One such ingredient is grass lily extract.

Kiddell explains: "The Aborigines crushed the plant and rubbed the juice on sores, cuts, insect bites and sunburn, as it promoted rapid healing. Scientific studies show this extract increases rapid cell multiplication, hence quickening the skin's healing process."

Another star performer is quandong, or native peach, which features in VitaMan's new hair care range. The Aborigines used to crush up the seeds, mix them into a paste and then apply the paste to the hair to prevent damage caused by the harsh climate in the Australian outback. The oil from the seeds is high in essential fatty acids and provides the hair with high-quality protein both to nourish and strengthen it. (*Source:* Joanna Hall, *The Sunday Telegraph* [in news.com.au, 27 August 2006.]) (*Please also see under Australia in Country Compass, p. 36.*)

**Thanakha, Myanmar's natural cosmetic**

Women in Myanmar have used thanakha for centuries as a natural skin conditioner and facial cosmetic, which they believe keeps their complexions soft, well-textured and youthful. Despite the growing number of modern cosmetics on the market, thanakha continues to be used by large numbers of people who prefer traditional ways.

The cosmetic thanakha comes from the bark of the thanakha tree (*Limonia acidissima*), which grows in the dry zone of central and upper Myanmar, particularly in Mandalay and Magway divisions. However, one well-known variety of thanakha, called *shan khauk* by locals, is grown in the small southern Shan state town of Mauk Mei. Thanakha trees are perennials, and a tree must be at least 35 years old before it is considered mature enough to yield good-quality cuttings. Thanakha in its natural state is sold as small logs individually or in bundles but nowadays also as a paste or in powder form.

The traditional way of making thanakha is to grind the bark on a wet, circular stone, which forms a paste that can be applied to the skin as a sunscreen and cosmetic. The creamy paste is applied to the face in attractive designs, the most common form being a circular patch on each cheek, sometimes made stripey with the fingers, known as *thanaka bè gya*, or patterned in the shape of a leaf. It may also be applied from head to toe (*thanaka chi zoun gaung zoun*).

There are more than 20 companies that package thanakha in solid, liquid, paste and powder varieties. Of these, paste is the best-selling form. Taunggyi Mauk Mei thanakha paste, introduced on the market in 1991, is produced by the Libra Company Ltd. The paste, which is made from 97.2 percent pure natural bark of the thanakha plant bark from Mauk Mei, is sold in bottles or wrapped in thick paper. The other ingredients are glycerine (a beautifying oil), preservatives, lemon scent and citric elements. Unlike other thanakha products on the market, Libra adds a traditional herbal medicine with healing qualities for pimples and freckles.

The factory's high production and quality control standards have been approved by the Food and Drug Administration and the Standards, Productivity and Innovation Board of Singapore.

The thanakha manufacturing process involves selecting the bark, then washing and steaming it to kill fungi, mould and bacteria. Machines are used to grind the bark, sand and other impurities are filtered out and excess water is removed. At the final stage, extra ingredients, such as scents and preservatives, are added to the paste.

The Yangon market for Taunggyi Mauk Mei thanakha is as big as the market in the rest of the country combined. This is because many young girls believe that packaged products contain chemicals that will harm their skin. Instead they prefer to use thanakha that they grind themselves.

Libra produces about 5 000 bottles a day in the summer peak season and about 3 500 at other times of the year. Although Taunggyi Mauk Mei has not been exported, the products are well known in China, Thailand and Malaysia through merchants who travel to these countries. (*Source: The Myanmar Times*, 12(221) and others.)

**New beauty products contain sea buckthorn oil**

Skin Revolution has launched a new line of skin care products containing sea buckthorn (*Hippophae rhamnoides*) oil, a natural anti-ageing ingredient. Historically proven to be an effective natural skin care remedy, sea buckthorn oil promotes tissue regeneration and also works as an antioxidant. Biological studies suggest that the restorative action of sea buckthorn oil may be a result of its high content of essential fatty acids, carotenes, vitamin E, flavonoids and phytosterols – all of which are important for the maintenance of healthy skin.

As people age, and particularly when they are stressed, these essential compounds are depleted. By applying products with sea buckthorn oil, the skin receives nutrients it may be missing. Tissue regeneration enhances the growth of healthy cells while the antioxidant properties help reverse the damaging effects of the sun. (*Source:* ClickPress, 20 June 2006.)

**SEA BUCKTHORN OIL (*HIPPOPHAE RHAMNOIDES*)**

The oil of the sea buckthorn berry has long been used in Asia for treating various skin conditions. Its effectiveness is based on a combination of lipophilic compounds, working synergistically to protect and regenerate stressed skin cells and other protecting organs. All these beneficial compounds are derived from the berry of the sea buckthorn bush, which originally grew in the harsh climate of the Himalayas but has now spread all over the world. (*Source:* Beauty-on-line [Italy].)

**The scent of battle in Provence**

In July, the beauty giant L'Oréal wrapped up its £652 million (US$1.2 billion), purchase of L'Occitane's longtime British rival, The Body Shop. The takeover has provoked shudders in the quirky market for natural cosmetics. Both L'Occitane and The Body Shop are 1970s-vintage companies. For years, they cultivated a market niche faced only by sedate competition.

But bigger players such as L'Oréal, the top-ranked cosmetics giant, have recognized the market's potential as demand for natural products increases, lifted by health concerns, according to the London-based market research group Euromonitor International. It forecast that the $3.9 billion global market for natural cosmetics would grow annually by 9 percent through 2008 to $5.8 billion, compared with a growth rate of 1 percent for conventional cosmetics and personal care.

In the shifting landscape of natural cosmetics, L'Occitane still occupies the higher ground, with its best-selling shea butter hand cream selling for €17.50 for 5 oz

(142 g). But its competitors, The Body Shop in Europe and Bath & Body Works are both trying to move upmarket by developing premium products for customers willing to pay more for little luxuries (a recent Body Shop product is made with wild babassu palms). The battle is not so much over price but quality.

**IT FORECAST THAT THE $3.9 BILLION GLOBAL MARKET FOR NATURAL COSMETICS WOULD GROW ANNUALLY BY 9 PERCENT THROUGH 2008 TO $5.8 BILLION**

For its part, L'Occitane, based in Provence (France), is going back to its roots, offering new lavender products that carry certification of natural and organic ingredients. But its top-selling product is not made from local home-grown ingredients, but rather from the nuts of the West African karite tree that yield a fat called shea butter. (*Source: International Herald Tribune*, 28 July 2006.)

**Hunting for that fresh aroma**

The Middle Eastern fragrance market has shown remarkable fortitude. Arabic perfumes incorporate natural floral and resin scents discovered thousands of years ago, and were a major part of the US$590 million in Gulf Cooperation Council (GCC) sales of perfume last year, according to International Cosmetic News-Middle East.

Last year the GCC fragrance market grew by 17 percent, led by sales in the United Arab Emirates and Saudi Arabia. Not one to be left behind, the Ajmal Perfumes company has begun creating new fragrances that straddle the worlds of East and West as tastes change. Ajmal's latest fragrances, Shadow (a man's classic cologne with a spicy Arabic enhancement) and Teyf (which includes the age-old Arabic ingredient, oudh) have been outstanding successes.

Originating from only five nations worldwide, oudh is oil produced by the agarwood tree after a parasitic fungus attacks it. The tree is harvested and boiled down to extract the precious oil, which can sell for up to Dh3 000 a tolla (11.3 g). Ajmal has patented the process of inoculating agarwood trees with the fungus, ensuring a safe and sustainable supply of oudh.

At the Ajmal factory, one room contains tanks holding priceless amounts of oudh coming from different sources: Indonesia, Assam – the region in India where the Ajmal family originated – and others.

**THE MARKETING OF NATURAL PRODUCTS**

*The following quotes are taken from the promotional material of a variety of natural beauty products. It is interesting to see how the NWFP content is emphasized in the marketing of these products.*

- "Products contain generous doses of cocoa butter and shea butter. Essential oils are also key" (bath products)
- "It is made up mostly of natural ingredients including purified water, beeswax, shea butter, evening primrose oil and algae extract" (sunscreen)
- "Medicinal plant extracts from eyebright, black tea leaves and neem soothe the area around the eyes. Natural rose and jojoba waxes protect lashes" (mascara)
- "products combine modern plant-derived ingredients with traditional botanical extracts, vitamins and pure essential oils" and "pure organic jojoba, shea butter and coconut oil" (hair care)
- "contains herbs collected from the forest" (cosmetics)
- "contains super moisturizing shea butter, soothing aloe oil, healing vitamin E and kukui nut oil" and "we have embraced the natural elements of the tropics by using sea salts, exotic oils and select plant extracts in our carefully formulated products" (body care)
- "made of a blend of jasmine sambuc oil, sandalwood and tuberose" and "comes from aloe vera extract and contains essential oils" (face care)
- "made with shea butter to help soothe cracked lips" (lip balm)
- "along with other plant extracts such as aloe vera, ginkgo biloba, shea butter" (beauty products)
- "containing plenty of natural ingredients like willow bark extract and shea butter" (men's skin care products)
- "utilizing natural sea buckthorn oil to nourish, revitalize and restore damaged or ageing skin" (skin care)
- "contains moringa seed" (night cream)
- "a blend of topaz crystals, shea butter, tea tree, bergamot and lemon oils" (foot care)

Ajmal has nearly 100 retail outlets and earned revenues of $125 million in 2005. (*Source: Gulf News* [United Arab Emirates], 2 September 2006.)

**European sales of natural cosmetics surge**

According to *The European Market for Natural Cosmetics*, a 2006 publication by Organic Monitor, natural cosmetic sales in Europe are increasing at a fast rate with revenues doubling every few years; the German and French natural cosmetics markets are the fastest growing in Europe. The report indicates that the market share is highest in countries such as Germany and Austria where natural cosmetics comprise about 4 percent of total cosmetic sales. However, the market share is approximately 2 percent in most other European countries. (*Source: The European Market for Natural Cosmetics*, Organic Monitor.)

**L'Oréal buys organic cosmetics company Sanoflore**

French cosmetic giants seem to have the conviction that natural and organic cosmetics will be an important source of growth and profits in the future. A few days after Clarins announced its agreement with Kibio for the joint development of a line of natural organic cosmetics, L'Oréal has announced its acquisition of Laboratoire Sanoflore, which pioneered the design, manufacture and marketing of certified organic cosmetics products 20 years ago in southeastern France.

Sanoflore handles all the stages in the aromatic and medicinal plant chain, from cultivation with partner farmers to the finished product. All Sanoflore cosmetics products are certified by ECOCERT and labelled as organic products. (*Source:* Beauty-on-line [Italy], 24 October 2006.)

**More men now buying cosmetics**

The marketplace now offers men their own beauty products and, according to a new *Glamour* magazine poll, men are using them.

Men account for 10 percent of cosmetic sales, according to the magazine's August issue, which also reports that 63 percent of 1 529 women polled said that their man buys and uses skin and hair products. (*Source:* Associated Press, 3 August 2006.)

**Mushroom cosmetic line developed**

The world's first mushroom cosmetic line has been developed at the Koltsovo Scientific Centre, Russian Federation. It took specialists from the Trinity Research and

Production Company several years of research to develop the line.

By stepping into the mushroom kingdom, scientists found a full spectrum of biologically active substances that the skin needs: proteins, carbohydrates, lipids, minerals, organic acids and a rich collection of vitamins, biotin and folic acid. (*Source:* Financial Information Service [Russian Federation], 14 February 2006.)

**Shea butter's role in the cosmetic industry**

African shea butter is fast becoming an essential ingredient in the American cosmetics industry since it is both rich in vitamin and a natural moisturizer and emollient. The United States imports more than 500 tonnes of shea butter annually from Africa for the cosmetic industry alone.

Shea butter is found in lip balms, shampoo, antiwrinkle creams and other products. Many large cosmetic companies include it in their product lines. It is processed from shea nuts grown and harvested in managed parklands in about 16 countries in sub-Saharan Africa, from Senegal to Uganda in East Africa. Shea nuts are a natural resource coming only from these regions.

The butter is obtained by processing the shea nuts using one of the following methods: *traditional*, which involves roasting, grinding, kneading, boiling and stirring (this method is highly labour intensive and is the one used by rural women producers); or *mechanical*, which involves mechanization and is more efficient and labour saving. It also uses chemicals such as hexane to give a better yield. The shea nuts, when well processed, yield 38–45 percent butter, depending on the production method.

Shea butter has a high percentage of unsaponifiables, which include chemicals with known bioactive healing properties, including a number of antioxidants such as tocopherols (vitamin E) and carotenoids (precursors to vitamin A). It has a healing fraction of 3–12 percent as compared with 1–3 percent in cocoa butter.

**SHEA BUTTER**

Natural shea butter is extracted from the nut of a fruit that grows only on the magnifolia tree in central and western Africa. The nuts are boiled and then sun dried for three to five days before they are roasted to complete dehydration. Afterwards, the shea butter is extracted by hand from the nuts. This long, arduous process provides what is commonly called "the most beneficial all-natural skin product today".

Shea butter is fast becoming one of the best-selling and most highly recommended ingredients used in skin care products. Dermatologists are starting to recommend it to their patients and many cosmetic companies in France and the United States are using it in their products.

**Healing properties.** Shea butter has a vast number of proven healing properties deriving from its physical makeup of vitamin E, vitamin A, cinnamic acid and other elements. These ingredients speed up the healing of wounds and improve scars. Shea butter is commonly used in the treatment of eczema, rashes, burns and severely dry skin.

**Skin protection.** Shea butter gives natural ultraviolet sun protection. Daily use on the face and body drastically reduces exposure to the sun, which in turn slows down the rate of ageing caused by external factors.

**Skin moisturization.** Shea butter leaves the skin smooth, supple and soft. It is rapidly becoming the top moisturizing agent used today. (*Source*: Wayne Kiltz, Market-Day.net [United States], 19 September 2006.)
(*Please also see pp. 40 and 55 for information on shea butter.*)

Shea butter has a wide array of commercial uses in cosmetic soaps, pharmaceuticals and tanning, to mention just a few, and its commercial importance has increased dramatically over the past six years. Traditionally, across West-East Africa, it has been used as an emollient and moisturizer to treat dry cracked skin, as a massage oil for colds and sore muscles, and for a host of minor skin problems.

Internationally, shea butter has become important for its therapeutic properties: it can act as a mild ultraviolet barrier, protecting skin from the sun; has regenerative and antiwrinkle properties; and can be used in bath, beauty and body care products such as soaps, creams and lotions. It also has a wide application in the pharmaceutical industry, such as in suppositories.

The growth rate of shea butter use in the United States market alone has been estimated at over 25 percent per year and continues to increase.

Its potential could parallel cocoa and any other cash produce in export earnings, especially in Ghana – hence the name "liquid gold" in some circles. (*Source: Daily Graphic* [Ghana], 5 July 2006.)

*"Riches of the forest: for health, life and spirit in Africa"*

**UmMemezi bark: cosmetic use threatens native tree**

The endangered UmMemezi tree grows wild in a small area of South Africa's Eastern Cape Province, where poor village women in particular harvest its bark to supply a growing national market. Young Xhosa women mix the powdered bark with a little water to make a pale, reddish-brown paste, which they apply to their faces to conceal blemishes, improve their complexion and lighten their skin. Xhosa people consider a lighter skin tone to be more attractive and have used various products as lightening agents.

The growing trade in traditional preparations based on plants such as UmMemezi (*Cassipourea flanaganii*) and a closely related species (*C. gerardii*), has seen the bark become available in herbal street markets and *amayeza* stores (chemists) throughout South Africa. However, the desire to be light-skinned is posing a threat to these species because of overharvesting to supply the urban demand. (*Source: Riches of the forest: for health, life and spirit in Africa*, eds C. Lopez and P. Shanley, 2004.)
(*Please also see* Non-Wood News *13 for more information on forest cosmetics.*) ♣

"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)

## AYURVASTRA TEXTILES

Experiments to test the clinical effectiveness of Ayurvastra textiles – dyed in medicinal herb concoctions – were inaugurated by the Indian Health Minister at the government Ayurvedic College in Thiruvananthapuram on 22 August 2006.

Ayurvastra is a new initiative aimed at establishing a niche for the ecofriendly handloom fabric and is a result of experiments carried out by the Balaramapuram-based Handloom Weavers' Development Society. Handloom fabrics dyed in herbal medicines can actually be used as part of Ayurvedic treatment.

For the handloom industry, this could be the opportunity to regain its glory. Apart from the medicinal benefits of the Ayurvastra fabric, its inclusion in the United States Pharmacopeia (USP) as an ecofriendly product could also help the handloom industry to enter the global market. Many countries have been enforcing a ban on textiles coloured with chemical dyes, which has proved a blow to the industry. At the same time, textiles dyed with natural vegetable dyes, especially medicinal plants, have been commanding a huge market.

The Handloom Weavers' Development Society had initiated certain experiments in this direction and the novel idea of Ayurvedic clothes as a project was proposed. Implementation was entrusted to the state department of handlooms and textiles, with assistance for research and development. It was as part of this project that the Dravyaguna Department of the Ayurvedic College started work on creating Ayurvastra.

In an earlier similar project, Ayurvedic dyes were developed to add colour to coir products. The Society also had a role in this venture. A Chirayinkeezh-based coir matting company had manufactured coir mats using the medicated coir fibres developed by the Society. The Dravyaguna Department used these coir mats to create an "Ayurvedic environment", which various trials found can help those suffering from skin diseases, arthritis and blood pressure.

Ayurvastra technology, backed by marketing, could save traditional industries such as those of coir and handlooms. (*Source: The Hindu*, 24 August 2006.)

*Nothofagus solandri*

## BEECH FOREST "HONEYDEW"

Associated with beech (*Nothofagus* spp.) forests in Canterbury, New Zealand, is an indigenous coccid insect (*Ultracoelostoma assimile*) that infests the bark of the trees. During the intermediate stage of its life cycle, the insect exudes excess carbohydrate from the tree cell sap. This is known as honeydew and provides an important food source for various birds, the brush-tailed possum and the insects that inhabit the beech forests. Honey bees use the carbohydrate as an alternative to flower nectar and produce beech honeydew honey, which is similar to maple syrup in texture and properties.

"Honeydew production varies from year to year in response to weather conditions, but is generally sufficient in Woodside Forest to support 300 beehives. We limit the number of beehives so there is sufficient surplus honeydew for the resident nectivorous indigenous bird population," explained the manager of the beech honeydew honey operation at Woodside Forest.

Current production of beech honeydew honey from the property is about 15 000 kg/year, or 170–180 kg/ha/year. This is exported mostly to Germany. (*Source:* extracted from "Woodside Forest: learning and adapting" by J. Novis, I. Platt and A. Griffiths [in *In search of excellence: exemplary forest management in Asia and the Pacific*, ed. P.B. Durst *et al.*].)

## BIOJEWELS

Biojewels are made from products of the forest and are sold in both internal and external markets. With talent and creativity, artisans in Brazil transform seeds, shells and nuts, rustic raw materials of the Amazon forest, into finely finished jewels. These jewels have a high added value since they combine the art of indigenous handicrafts with the precision of that of jewellery. Artisans do business with buyers in Switzerland, the United States and the United Kingdom.

In partnership with the Brazilian Micro and Small Business Support Service (Sebrae) in the state of Amazonas, these artisans released a new collection of biojewels during the III Amazon International Fair (Fiam 2006), with prices varying from R$20 to R$150 (about US$9 to $70).

The main components in the production of biojewels are the seeds of jarina, the ivory nut palm, known as vegetable ivory. Coconut shells, Brazil nuts, tucumã (*Astrocaryum aculeatum*) and calabash are also used but the ivory nut palm is preferred because, apart from necklaces and bracelets, it is possible to transform it into miniatures of manatees, toads and the pink river dolphin, among other animals.

Currently there are no statistics on the number of artisans working with the product. (*Source:* Fibre2fashion.com [India], 2 September 2006.)

## BIOPROSPECTING OR BIOPIRACY?

**Banking on bioprospecting in Costa Rica**
Researchers at Costa Rica's flagship biodiversity institute are hoping that an ambitious new project will ease its financial worries.

The five-year project of the National Biodiversity Institute (INBio) aims to find chemicals in wild species that could form the basis of new drugs. INBio's previous efforts at "bioprospecting" failed to yield major moneymaking products and the institute hit financial problems when several grants ended in 2005. This time around INBio is looking for compounds that can be easily isolated and duplicated from sources such as fungi, leaves or bacteria, instead of focusing on insects as it did previously.

The findings will eventually be entered into a free access database for researchers around the world to investigate. Profits from successful findings will be ploughed back into INBio in the form of licence fees.

Costa Rica – and in turn INBio – is among the few developing nations currently receiving licence fees from natural products. Diversa, a San Diego-based biotechnology company, is currently paying Costa Rica nearly US$6 000 a year for two products developed from the country's resources, while INBio's knowledge of plants helped a Costa Rican firm, Lisanatura, develop a treatment for hangovers or indigestion — Hombre Grande — from a plant called amargo (*Quassia amara*). (*Source: Nature*, 441: 567–569 [in SciDev.Net Weekly Update].)

**Brazilian Government issues list of Brazilian plant species to prevent biopiracy**
In commemoration of World Biodiversity Day, the Brazilian Government released a list containing the scientific names of around 3 000 species of Brazilian flora, such as cupuaçu, kiwi, carambola (starfruit), pequí (souari nut), babosa (aloe) and catuaba. The purpose of the list, which represents an unprecedented move by a country, is to prevent foreign companies from registering the names popularly used in Brazil to refer to these plants. "We are acting preventively," affirmed the Minister of the Environment, Marina Silva.

The list of Brazilian species is open to constant update. The document will be widely circulated and delivered via diplomatic channels to foreign patent offices and international organizations, such as the World Intellectual Property Organization (WIPO), that deal with these matters. (*Source:* Agência Brasil, 23 May 2006.)

**Chile no cuenta con una legislación contra la biopiratería**
Pese a que el 80 por ciento de todas las plantas que existen en Chile son nativas, el país no cuenta con una legislación que las proteja de las bioprospecciones privadas que buscan lucrar mediante el cobro de patentes, informó Renzo Dinami, del diario *La Nación Domingo*.

Según el diputado Jaime Quintana, habría más de 700 especies en Chile que han sido patentadas por particulares «sin ningún tipo de retorno económico a sus comunidades de origen».

Quintana afirmó que Chile no cuenta con una legislación como la que tienen las naciones del Pacto Andino, inclusive Argentina y Brasil, tienen medios par proteger las investigaciones biogenéticas que se realizan. «Hoy, en Chile, cualquier particular o institución puede intervenir donde existan organismos y elementos que puedan ser inscritos y patentados en el extranjero». (*Fuente: La Nación Domingo*, 30 de julio 2006.)

**FTA paves way for biopiracy**
Indigenous communities and environmentalists call it biopiracy; international pharmaceutical companies and academic researchers call it bioprospecting. Whatever one chooses to call it, the Central America Free Trade Agreement between the United States and Central America and the Dominican Republic (CAFTA-DR) has opened the door to foreign ownership of the right to exploit the region's abundant and diverse tropical flora.

Under the intellectual property provisions of CAFTA-DR, the United States has forced legislation in member countries that potentially legalizes patenting the biological resources of the region to the benefit of pharmaceutical and agro-industrial companies.

These companies can now seek plants with properties previously unknown to them, and then legally claim ownership of the subsequent processes in which they are employed. Such rights completely ignore the prior use of and even dependence on these plants by local and indigenous communities, which may have been using them for centuries and consider them part of their heritage.

Both the researchers and the companies arrogate the biodiversity of underdeveloped countries and knowledge of its use – a trend that has come to be called biopiracy.

This arrangement puts those vulnerable to dispossession of their ancestral knowledge at a distinct disadvantage when it comes to protecting their rights. The Director of the Technical Biodiversity Office of the National Council of Protected Areas in Guatemala, Fernando García Barrios, explained that "the governments of Central America do not create the administrative and legal mechanisms for their genetic resources and associated traditional knowledge". What is needed, he says, is a "common, coordinated regional regimen that supports regional and national initiatives" on questions of intellectual property and access to these resources and knowledge bases. (*Source: Latinamerica Press*, 15 August 2006.)

*"Steps to sustainable and community-based NTFP management"*

**Indian Government moves to check foreign patents threat**
After losing nearly 18 000 patents of medicinal plants to the West because of government reluctance to share traditional knowledge, India has decided to allow International Patent Offices (IPOs) to access its Traditional Knowledge Digital Library (TKDL) for examining patent claims.

The library, which will be ready by December 2007 at a cost of Rs10 crore, has codified the medicinal information of 75 000 Ayurvedic, 50 000 Unani and 15 000 Siddha formulations as well as 1 500 yoga postures in patent application formats in five international languages – English, French, Spanish, German and Japanese.

The non-disclosure agreement with IPOs will be negotiated on the principle that the latter will not use the TKDL for any other purpose except for examination of patent applications or to prevent misappropriation of traditional knowledge. The agreement will also disallow IPOs and their examiners

to make any third party disclosure of the TKDL other than what is necessary and essential for the purposes of patent search and examination.

Health Minister A. Ramadoss said: "We want to thwart anyone who tries to profit from our traditional knowledge, from yoga to 150 000 ancient medical remedies.

The progress of the TKDL project has been remarkable – 13 million pages of information already created, with 18 million pages being targeted by the end of 2006.

**For more information, please contact: B.C. Kashyap, National Institute of Science Communication and Information Resources, Council of Scientific and Industrial Research, 14 Satsang Vihar Marg, New Delhi 110 067, India. E-mail: coa@niscair.res.in; www.niscair.res.in**

The library will prevent those living abroad from claiming patents for existing formulations. IPOs from 11 countries, including the United States and the United Kingdom, which have signed an agreement with India, will have access to the database." (*Source: Times of India*, 30 June 2006.) (*Please also see* Non-Wood News *13, News and Notes, for more information on the TKDL*.)

## BOREAL FORESTS

Although boreal forests may be valued primarily as timber resources, they also provide a wealth of tourism and recreational opportunities, cultural and spiritual uses and NTFPs.

People living in the boreal region have a long tradition of using its rich natural resources in a non-destructive way. One example is the traditional collection of various NTFPs for home consumption and trade. NTFPs provide a vital contribution to the daily subsistence of forest-dependent communities of the boreal region. Some examples of NTFPs include wildlife, berries, mushrooms, honey, spices and medicinal plants.

One of the most famous boreal medicinal plants is the perennial herb Siberian ginseng (*Eleutherococcus senticosus*). Siberian ginseng has been used for centuries in Russian folk medicine to improve resistance to colds and mild infections; to restore concentration, memory and cognition; and as a remedy for stress, depression and fatigue. (*Source: Trouble in the Taig*a, Taiga Rescue Network.)

## BOTANIC GARDENS: USING PLANT DIVERSITY FOR HUMAN WELL-BEING

Botanic Gardens Conservation International (BGCI), the world's largest network for plant conservation, released a major new report (*Botanic gardens: using biodiversity to improve human well-being*) in April 2006 highlighting how botanic gardens across the world are involved with projects to improve human well-being.

In the past, botanic gardens have not often been associated with practical improvements to people's lives, although they are well known for their importance to plant science and their significant role in conserving plant diversity. However, the issues of conservation and development are inextricably linked, and BGCI believes that it is an ethical and practical imperative for botanic gardens to link biodiversity conservation with poverty reduction. The new report is based upon an extensive literature review and multilingual survey of BGCI's botanic garden members. Its many case studies highlight the fact that botanic gardens can link plant resources with contributions to four main aspects of human well-being: i) improving nutrition; ii) improving healthcare; iii) alleviating financial poverty; and iv) providing community and social benefits.

For example, Aburi Botanic Garden in Ghana has been improving local access to medicinal plants by empowering local communities to set up home gardens. It established a model home garden; gave various lectures, seminars, workshops and demonstrations; distributed manuals; and provided seedlings to enable communities to set up their own nurseries and first-aid gardens.

There are many other ways that botanic gardens work for well-being, from developing and hosting horticultural therapy programmes, to educating children about healthy eating and training disadvantaged minorities in useful skills, such as the production of handicrafts. In South Africa, Natal National Botanic Garden is part of a consortium tackling the problem of HIV/AIDS, by supplying a local health care clinic with plants and information that allow patients to self-treat some symptoms by growing and using plants such as *Bulbine* and *Carpobrotus*.

BGCI's report also illustrates how various activities, such as education and research, underpin the ability of botanic gardens to improve well-being. For example, many gardens put strong emphasis on research relevant to the development of useful plants in agriculture and health care. A typical example is the Fundación Xochitla Botanic Garden in Mexico, which focused on developing plants to be cultivated locally for use in the ornamentals market.

Although certain aspects of well-being are more relevant to some areas than others, botanic gardens can act across all parts of the world. For example, in less developed countries significant contributions to basic health care can be made by projects to encourage the cultivation of medicinal plants, while in developed countries urban greening projects can make a significant contribution to improving the neighbourhood environment and community relations. Botanic gardens in developed countries can also partner with gardens in less affluent regions, to address their local needs. Similarly, the issue is relevant to botanic gardens in both urban and rural areas. For example, in Colombia, a project to encourage home vegetable gardens is tackling the prevalent problem of urban poverty. Sometimes projects involve collaboration between gardens. In many cases it is important that the unique role of botanic gardens is complemented by partnerships and collaboration with non-botanic garden institutions, such as local health care clinics.

Botanic gardens are much more than just "pretty places". This new report suggests that the unique expertise and resources of botanic gardens must be better recognized and utilized if plant resources are to be used efficiently and effectively to meet human needs. The report is available to download free of charge from: ww.bgci.org/wellbeing/report (*Contributed by:* Kerry Waylen, Coordinator of Well-being Review, Botanic Gardens Conservation International (BGCI), 199 Kew Road, Richmond, Surrey TW9 3BW, United Kingdom. Fax: +44 2083 325956; e-mail: wellbeing@bgci.org)

# CADRE LÉGAL ET RÉGLEMENTAIRE RÉGISSANT LE SECTEUR «PRODUITS FORESTIERS NON LIGNEUX» EN AFRIQUE CENTRALE

Le secteur «Produits forestiers non ligneux» (PFNL) est l'un des domaines les plus importants pour le monde rural en Afrique centrale car il fournit aux populations des produits de subsistance et contribue à la génération de revenus. Les PFNL importants incluent les produits comestibles, les plantes médicinales et les matériels de construction.

Vu l'importance du cadre légal pour la valorisation du plein potentiel socioéconomique et écologique du secteur PFNL, le 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») analyse ce cadre aux niveaux national et sous-régional. Outre des études spécifiques commanditées par le projet, un atelier sous-régional a été organisé en juin/juillet 2006 par la COMIFAC, la FAO et la Coopération technique allemande (GTZ) pour développer les grandes lignes d'une stratégie sous-régionale pour la mise en œuvre d'un cadre légal approprié favorisant le développement du secteur PFNL et l'intégration sous-régionale en Afrique centrale.

**Terminologie**

En Afrique centrale, les codes forestiers font souvent la distinction entre produits forestiers végétaux et animaux. Dans la plupart des pays, les PFNL sont considérés comme produits végétaux bien que le terme «PFNL» soit peu appliqué dans la législation forestière de la sous-région. Les termes utilisés sont «produits forestiers spéciaux» (Cameroun), «produits de cueillette ou fruits» et «produits de la forêt naturelle» (République centrafricaine, RCA), «*productos forestales non maderables*» (Guinée équatoriale), «produits forestiers autres que le bois» (Gabon), PFNL (République démocratique du Congo, RDC) et «produits forestiers accessoires» (République du Congo).

Les définitions de PFNL fournies par les différents codes forestiers restent floues et se contentent généralement d'une énumération des produits selon les termes utilisés. Une classification harmonisée des différents produits ou catégories de produit est inexistante en Afrique centrale.

**Cadre légal**

Dans les différentes législations en vigueur dans les pays de la sous-région, les différents textes régissant la gestion des PFNL sont tous construits sur le modèle classique de l'aménagement forestier et l'utilisation durable des ressources naturelles, celui-ci étant axé sur l'exploitation du bois d'œuvre. Les codes font référence aux PFNL d'une façon aléatoire et isolée. Des stratégies nationales ou sous-régionales définissant les priorités politiques pour une valorisation efficace de ces produits sont inexistantes.

*Droit d'usage*

En Afrique centrale, la propriété et la gestion des ressources forestières sont du ressort de l'Etat. La loi forestière accorde aux populations riveraines des forêts le droit d'usage des PFNL pour satisfaire leurs besoins domestiques. La commercialisation des PFNL est exclue du droit d'usage dans la plupart des pays. En RDC, la commercialisation est autorisée pour quelques fruits listés par les autorités provinciales.

Dans plusieurs pays, on observe un dualisme entre le droit coutumier et le droit écrit, ce qui rend difficile l'application du cadre légal.

*Commercialisation*

La commercialisation des PFNL nécessite l'obtention d'une autorisation pour la récolte, le transport et la vente des produits forestiers. Très souvent, les commerçants des PFNL devraient être agréés par l'autorité en charge avant de déposer la demande d'obtention d'une autorisation.

Ces procédures sont similaires au secteur bois et souvent difficiles à suivre par les commerçants des PFNL. Par conséquent, la plupart des personnes impliquées dans le commerce des PFNL n'ont aucun titre légal et exercent leurs activités dans l'illégalité ou l'informalité.

*Fiscalité*

La fiscalité relative aux PFNL commercialisés inclut le régime fiscal de l'accès à ces ressources, le régime de la vente des produits (par exemple taxe d'impôt libératoire, droit de marché) et de leur l'exportation (par exemple certificat d'origine et certificat phytosanitaire). La fiscalité des PFNL est peu développée. Cet état provoque des tracasseries extensives sur les prélèvements fiscaux, qui risquent d'empêcher le développement du secteur privé.

Vu la provenance des PFNL des terres forestières et agricoles (par exemple dans les systèmes agroforestiers), l'application du régime fiscal forestier ou agricole reste souvent à être clarifié.

**Cadre institutionnel**

Le cadre institutionnel étatique est caractérisé par une multitude de ministères et d'institutions de recherche impliqués dans le secteur PFNL. Peu d'institutions ont une mission spécifique concernant les PFNL comme la Sous-Direction de la promotion et de la transformation des PFNL du Ministère des forêts et de la faune au Cameroun. Le manque de leadership institutionnel, de moyens humains et financiers et de collaboration efficace entre les institutions concernées ne facilite pas le développement du secteur.

Les interventions des partenaires au développement restent fragmentées et sont peu ciblées vu l'inexistence d'une politique nationale voire sous-régionale sur le sujet.

Le secteur privé reste peu développé et des associations professionnelles ou cadres de concertation sont quasi inexistantes dans la sous-région à l'exception du Cameroun.

**Conclusions et recommandations**

Le cadre législatif et réglementaire régissant l'utilisation des PFNL en Afrique centrale pourrait apporter une meilleure contribution à la valorisation du plein potentiel socioéconomique et écologique du secteur.

Au niveau politique, l'élaboration de stratégies compréhensibles, participatives et focalisées sur les acteurs concernés est nécessaire afin de définir les priorités pour le développement du secteur PFNL. Ensuite, il est nécessaire de compléter et de renforcer l'application des textes réglementaires en prenant en compte les PFNL. Cela peut être facilité par l'inclusion des PFNL dans le domaine d'intervention du processus AFLEG/FLEGT qui se concentre, en ce moment, sur l'utilisation des ressources forestières ligneuses.

Au niveau du droit d'usage, il serait important pour légaliser le commerce des PFNL au niveau local d'analyser les possibilités d'étendre le droit à une commercialisation limitée par zone géographique.

Au niveau de la commercialisation et de la fiscalité, il est indispensable de mettre en place un dispositif d'octroi d'agrément spécifique aux PFNL, afin de faciliter l'accès aux permis de commercialisation. La fiscalité et les documents de circulation concernant les PFNL devraient être harmonisés afin de promouvoir le commerce sous-régional.

Au niveau institutionnel, il est nécessaire de clarifier et renforcer le rôle des services gouvernementaux concernés et de faciliter la création d'associations professionnelles relatives aux PFNL.

La mise en œuvre de ces propositions ne nécessite pas de financements importants mais dépend d'une volonté politique au niveau de leur application.

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**(*Prière de consulter la page 62 pour plus d'informations sur ce projet.*)**

## CARMINE AND COCHINEAL EXTRACTS

The Food and Drug Administration (FDA) is deliberating a rule that would require food companies to state on their labels whether a product contains additives made out of insects that, when crushed and processed, yield a rich red or a vivid orange colour. The additives – carmine and cochineal extract – can cause allergic reactions in a small group of people.

The additives have been used for centuries and come from female beetles imported from Peru, the Canary Islands, Bolivia, Chile and South Africa. The FDA said that the beetle-derived ingredients are used in 815 cosmetic products, most of which are already labelled. The additives also produce the lovely pinks, purples and reds that perk up juices, Popsicles, cosmetic face blushers, fruit cocktail cherries, port wine cheese, artificial crab meat, strawberry milk drinks, caviar, fruit-based aperitifs and other products.

The FDA, based on company testing, declared carmine and cochineal extract safe in the 1960s. Companies at that time said they had received no adverse reports from use of the substances. It was not until about ten years ago that medical reports surfaced showing that the additives can cause allergic reactions.

The FDA proposed in January 2006 that foods containing carmine and cochineal extract list them on their labels. Retail cosmetics must already list them, but the FDA proposal adds "professional-use" cosmetics and gifts or free samples that often come with promotions to buy cosmetics. Companies would have two years to change their labelling under the proposal, which could cost up to US$3 million, the FDA said. Because they come from insects, carmine and cochineal extract are considered natural additives and can now be accounted for on a label as simply "artificial colour" or "colour added". (*Source: The Seattle Times* [United States], 10 May 2006.)

*"Riches of the forest: for health, life and spirit in Africa"*

## COMMERCIALIZING NON-TIMBER FOREST PRODUCTS: DOES IT HELP POOR PEOPLE?

Non-timber forest products (NTFPs) provide food, building materials and medicines, and are an importance source of income. But many development programmes for rural forest communities fail to make the best use of these products.

A report from the United Nations Environment Programme's World Conservation Monitoring Centre, funded by the Forestry Research Programme of the United Kingdom Department for International Development (DFID), looks at 16 NTFP value chains in Mexico and Bolivia. The plant products traded include wild cocoa, organic rubber, mushrooms and various palms. Commercialization increases the demand for NTFPs that are already farmed or produced by poor communities in tropical forest areas. This approach supports the idea that people need access to a range of different activities for secure incomes.

Several factors make NTFP commercialization successful, but research findings indicate that forests can only contribute to poverty reduction when poor people have secure long-term rights to forest resources. Land tenure is also important, but neither Mexico nor Bolivia has policies specifically to support this aim and forest-dependent communities are often forced to trade NTFPs in the informal sector because they lack the legal requirements to trade in official markets.

Non-governmental organizations (NGOs) can help, but most NGOs provide support through donor projects. These often lack coordination with government programmes and general donor funding for commercializing NTFPs tends to be low. Nevertheless, research shows that NTFPs can contribute up to 95 percent of a household's annual income, providing a safety net when other activities fail to provide income. NTFPs also represent one of the few income opportunities for women in rural communities, who are more likely to be involved in processing and cultivating the products.

Several factors may contribute to the lack of success of NTFP commercialization initiatives, including the following.

- In most cases, commercialization initially leads to overexploitation of a resource.
- Communities often suffer from a lack of market information and a limited capacity to act on it when they do receive it.
- Many projects define success on how well a product sells, rather than considering other non-financial benefits considered important by rural forest-based communities, including improved organization, resource management and individual status.

The successful commercialization of NTFPs can reduce poverty, increase gender equality and improve landownership and access to resources for poor people. It can also improve forest management practices and make them more sustainable. However, this is largely subject to interventions from governments, including:

- policies that focus on more than one product and support a range of NTFPs;
- a clear statement of which laws apply to NTFPs, under which circumstances and who is responsible for implementing them;

- better access to education, information and credit systems for poor rural people and small-scale entrepreneurs;
- better transport and communication facilities in forest areas to improve access to markets;
- policies that further increase opportunities for women in NTFP activities.

(*Source: Commercialization of non-timber forest products in Mexico and Bolivia: factors influencing success*, eds E. Marshall, K. Schreckenberg and A.C. Newton. UNEP World Conservation Monitoring Centre, 2006; http://quin.unep-wcmc.org/forest /ntfp/outputs.cfm)

**FOR MORE INFORMATION, PLEASE CONTACT: Elaine Marshall, Independent Consultant, Heywood House, Crawley End, Chrishall, Royston, Herts SG8 8QN, United Kingdom. E-mail: Marshallelaine@googlemail.com**

## ESSENTIAL OIL OF SPANISH SAGE

Spanish sage (*Salvia lavandulifolia* Vahl) is endemic to the Iberian Peninsula, arable and of high commercial interest. Its name comes from the Latin *salvus*, which means "in good health", on account of its curative properties. It contains active principles that make it a very interesting species, both scientifically and commercially (it is also used in perfumery). Most of its popular uses are fully justified by scientific research.

The major sage species are *Salvia officinalis* (common sage) and *S. lavandulifolia*, which is taxonomically close to *S. officinalis*.

Plants grown in experimental fields in Castilla-La Mancha (Spain) were studied for their essential oil composition and yield. Plant material was harvested from crops belonging to the Agronomic Centre in Marchamalo, Guadalajara, dependent upon the Agriculture and Environment Delegation, sampling once monthly during the vegetative resting season and after flowering, and twice monthly during initial and full flowering.

*Salvia lavandulifolia*

In each sample, water content was determined by an azeotropical mixture of xylol-toluene. Volatile fraction was obtained by Clevenger water distillation and gas chromatography was analysed. Chromatography analyses were done by flame ionization detector (FID). Major constituents were identified on the basis of their retention times and Kovats rates, compared with adequate reference compounds.

**Essential oil yield** (percentage) is expressed as essential oil volume (ml) obtained for every 100 g of dry plant material. Yearly average yield was 2.2 percent. Yield at initial flowering was 1.6 percent and during full flowering it was 2.8 percent.

**Chemical composition.** Identified constituents are 1-8 cineol, limonene, camphor, α pinene, camphene, myrcene, borneol, β pinene, ρ cymene, viridiflorol, α humulene, bornyl acetate, terpinen-4-ol and γ cadinene. (*Contributed by:* Dr M.P. Arraiza and Dr J.L. de Pedro, Department of Forestry Engineering, ETSI Montes, Universidad Politécnica de Madrid, 28040 Madrid, Spain. E-mail: paz.arraiza@upm.es; joseluis.depedro@upm.es)

## HONEY TRIALS ON CANCER PATIENTS

A Manchester (United Kingdom) cancer hospital is importing manuka honey from New Zealand to treat patients after surgery. The honey is believed to have healing powers and doctors at Christie Hospital plan to use it on mouth and throat cancer patients. They hope it may reduce the patients' chances of contracting methicillin-resistant *Staphylococcus aureus* (MRSA) and help lessen inflammation.

It has been used on special honey-coated dressings at the Manchester Royal Infirmary since May. Now 60 patients at the hospital are taking part in a study to see whether the honey can prevent infections that can be resistant to antibiotics.

The honey is produced by bees that mainly feed on the manuka bush. It can be expensive – up to £12 for a jar – but the hospital is buying in bulk to help keep costs down and has so far imported 400 kg of honey for the clinical trials. (*Source:* BBC News [United Kingdom], 7 July 2006.)

## ICE CREAM SPRINKLES

Sprinkles are those tiny chocolate sweets that transform plain ice cream into a fun treat. Chocolate sprinkles are made largely from sugar and cornflour, with a little fat to soften the texture and some cocoa powder to give them flavour and colour. The rainbow-coloured sprinkles have no flavour added whatsoever. To improve their appearance, sprinkles are coated with confectioner's glaze and wax.

Confectioner's glaze is the term for edible shellac. A thin layer of shellac puts a shine on the sprinkles just as it does on a polished wooden surface. Confectioner's glaze and wax give the shine to everything from malted milk balls to jelly beans. (*Source: The Capital Times* [United States], 1 August 2006.)

## MARKETINGMAAP: MEDICINAL AND AROMATIC PLANTS MARKETING

The purpose of this group is to provide a forum for herb sellers and buyers at the international level. It provides an opportunity for members to post their trade inquiries and contact potential markets around the globe. The group also discusses the problems of herb trading.

For a subscription, send a request, with full address and contact details to: marketingmaap-subscribe@yahoogroups.co.in (*Contributed by:* P. Oudhia, Founder, Marketingmaap, 28-A Geeta Nagar, Raipur, Chhattisgarh, India. E-mail: pankajoudhia@rediffmail.com; http://in.groups.yahoo.com/group/marketingmaap)

## MEDICINAL PILLOW

Mongolians use many species of medicinal plants to cure all kinds of chronic illnesses and have traditionally used pillows made from a wide variety of aromatic plants. The Mongolian company Khuvsgul-Ikh Taiga has produced aromatic pillows, using time-honoured methods. These pillows are now sold in shops in Ulaanbaatar.

The aromatic pillow has wormwood (*Artemisia*), thyme and juniper contents. It has a soothing effect and acts as a precaution against coughs and influenza. (*Source:* Mongolia Web News, 11 April 2006.)

## NATURAL FIBRES TO SAVE A MILLION TROPICAL FOREST TREES

Coconut, jute, sisal, rubber and other permanent tree crops cause less soil degradation than many other agricultural crops and generally have a positive environmental impact. When sustainably produced from plantations and farms, they can substitute sawnlogs and fuelwood, otherwise exploited from natural forests. The economically available volume of these plants and trees corresponds to an amount of natural tropical timber that is harvested annually from an area of about 0.6 million ha. The production and utilization of these plants can therefore reduce the pressure on natural tropical forests and contribute towards biodiversity conservation.

The major available replacements for wood products in today's scenario are plastic, metals and a few other products. Given the close resemblance of coir and other hard fibres to wood in chemical composition and the availability of renewable fibre every 45–60 days, they would in all practical aspects be good replacements for tropical timber. Such new and innovative products could provide the entire range of wood products, by substituting wood with value-added natural fibres for sustainable development.

When calculated on an all-India basis, consumption by about 20 000 interior designers and architects would be approximately 5 460 000 trees per year, equivalent to clearing 50 753 acres (20 540 ha) of forest.

Poor rural areas need the means for socially and environmentally sustainable development. Coconut, jute, sisal and rubber plantations could be considered a production system for small and marginal farmers that is socially desirable and environmentally positive, particularly if agroforestry principles are applied. The social and environmental benefits of plants and palms have clearly outweighed possible ecological problems. In particular, the socio-economic conditions of the agrobased industry mean employment potential for millions of the rural population, mostly women. (*Contributed by:* T. Mathew, Natur Fibertech Pvt Ltd, Aysha Complex, 3rd Floor, Ist Main Road, Jayamahal, Banagalore 560 048, India. E-mail: natura@naturaindia.com *or* Tommy@naturindia.com; www.naturaindia.com)

## NATURE-BASED ENTREPRENEURSHIP PROVIDES NEW BUSINESS OPPORTUNITIES IN RURAL AREAS

In Finland, as in many other European countries, there is a clear need for new business opportunities in rural areas because of the continually decreasing number of jobs in more traditional entrepreneurship sectors such as agriculture and forestry. One example of a potential new livelihood is nature-based entrepreneurship (NBE).

NBE can be defined as sustainable entrepreneurship based on the resources and experiences offered by nature. The sector offers, for example, tourism products, handicrafts and food products, which are based on nature and natural resources, or material or immaterial values (e.g. silence, clean air and water). The products can usually be described by attributes: nature-centred, responsible, domestic, local, handcrafted and individual. Typical examples of NBE are nature tourism activities (e.g. canoeing and hiking) and utilization of NWFPs. In NBE, nature is a significant factor and must be taken into account in an ecological way. Therefore, the sustainability and environmentally friendly production processes, as well as social responsibility, typically have a major role in NBE.

The role of the sector has also been observed at the policy level, e.g. in national rural policy and forest policy programmes. One of the main reasons is that the income originating from NBE, especially from nature tourism, is consistently good throughout rural regions. NBE can offer livelihoods for rural entrepreneurs as a main business or a secondary occupation.

The growing trend of NBE can also be seen in education where its role is becoming more and more important in the educational programmes of vocational schools, polytechnics and even universities. In addition to the diversified farmers and other rural entrepreneurs expanding to the NBE sector, there is a coming new generation of entrepreneurs, who are educated specifically to be professionals in the sector. In the business development of these new entrepreneurs, the appropriate new technologies such as information computer technology (ICT) solutions could be essential aids to benefiting from both national and international information and in building international networks. (*Contributed by:* A. Matilainen, University of Helsinki, Ruralia Institute, Seinäjoki unit, Kampusranta 9, 60320 Seinäjoki, Finland. Fax: +358 (0)6 421 3301; e-mail: anne.matilainen@helsinki.fi; www.helsinki.fi/ruralia/seinajoki)

## NEWSLETTERS

**Biodiversidad**

Biodiversidad es una revista trimestral independiente latinoamericana, producida en forma conjunta por GRAIN (España) y REDES (Amigos de la Tierra, Uruguay). *Biodiversidad* se publica en español, algunos artículos se traducen de *Seedling* y otros son contribuciones de colaboradores de la región.

Biodiversidad es una publicación informativa y de debate sobre diversidad biológica y cultural para el sustento de las comunidades locales. Cubre también el uso y la conservación de recursos genéticos, impacto de las nuevas biotecnologías, patentes y políticas públicas.

**PARA MÁS INFORMACIÓN, DIRIGIRSE A: Grain, Gerona 25, pral. E-08010, Barcelona, España. Tel.: (+34) 933011381; fax: (+34) 933011627; correo electrónico: grain@grain.org; www.grain.org/biodiversidad/**

### ForLive Highlights

*ForLive Highlights* is a new quarterly newsletter reporting on the ongoing activities and outcomes of the ForLive project "Forest management by small farmers in the Amazon: an opportunity to enhance forest ecosystem stability and rural livelihoods". This newsletter is also available in Spanish as *Destaques ForLive*.

**FOR MORE INFORMATION ON THE PROJECT, PLEASE CONTACT: Inka Montero at inka.montero@waldbau.uni-freiburg.de *or* visit www.waldbau.uni-freiburg.de/forlive/Home.html**

### The ComForM Newsletter

The *ComForM Newsletter* is the official newsletter of the bilateral Programme for the Enhancement of Research Capacity in Developing Countries (ENRECA) project "Community-based natural forest and tree management in the Himalayas" (ComForM).

**FOR MORE INFORMATION, PLEASE CONTACT: H.O. Larsen, Editor, ComForM office, c/o Dean's office, Institute of Forestry, Pokhara, PO Box 203, Nepal. E-mail: hol@kvl.dk; http://nepal.sl.kvl.dk**

## NON-PROFIT ORGANIZATIONS AND NGOS

### Caravan – Forestry Conservation and Development Project

Caravan, a regional Northwest Frontier Province-based Pakistani NGO, is implementing a forestry conservation and development project in upper Swat in northern Pakistan with the objectives of introducing a community-based mechanism for sustainable forest resources and promoting NTFPs as an economic alternative for poor communities.

The organization had a breakthrough when three clusters of grassroots-level community organizations formed valley conservation and protection committees and a multistakeholder forum called the Kohistan Integrated Development Forum (KIDF) to facilitate and monitor the overall conservation, protection and development of forest resources in the area. KIDF has entered into an agreement with forest department local officials to collaborate in developing forest resources and has also assisted in the establishment of joint community and forest department checkpoints to combat timber smuggling.

**FOR MORE INFORMATION, PLEASE CONTACT: S. Jafar Shah (Executive Director), Ilege Colony, PO Box 18, GPO Saidu Sharif Swat, Northwest Frontier Province, Pakistan. www.caravan-swat.org/**

### CALLING ALL NGOS AND NON-PROFIT ORGANIZATIONS

Is your NGO or non-profit organization involved in any aspect of NWFPs? Would you like information about your organization and its NWFP activities to reach a wider audience? If so, please contact us – we are interested in learning more about you and sharing the information with our readers. Articles not exceeding 200 words are welcome in English, French and Spanish and should include full contact details. Please send them to Tina Etherington at the address on the front page. We look forward to hearing from you!

### Centre for Integrated Rural Development and Environmental Conservation (CIRDEN)

Created in 2003, CIRDEN is a registered non-profit community-based organization operating in the Northwest Province of Cameroon. CIRDEN's mission is: "Improving livelihoods through community empowerment for sustainable development" and their current projects include: environmental protection and agroforestry; ecotourism and museum promotion; and youth/women empowerment and microfinance projects.

**FOR MORE INFORMATION, PLEASE CONTACT: N.R. Fru, Chief of Communication and Research, CIRDEN, PO Box 104, Mankon Bamenda, Northwest Province, Cameroon. Fax: (237) 336 20 18; e-mail: cirden200@yahoo.com *or* ntomnif@yahoo.com**

### Earthwatch Institute

Earthwatch Institute is an international non-profit organization that supports scholarly field research worldwide in the biological, physical, social and cultural sciences. This support covers a variety of topics and welcomes diverse scientific communities.

Earthwatch provides scientists with the funding and human resources they need in the form of motivated and dedicated paying volunteers. Preliminary proposals are accepted and reviewed throughout the year and should be submitted 18 months in advance of the anticipated fieldwork. Principal investigators must be present in the field and oversee all research activities. Professionals from any nationality, for work in any regional area, are eligible to apply. In particular, Earthwatch is interested in supporting typically under-represented groups, such as early career scientists, women in science and developing country nationals.

**FOR MORE INFORMATION AND TO DISCUSS POTENTIAL PROJECTS, PLEASE CONTACT: Earthwatch Institute International, 3 Clock Tower Place, Suite 100, PO Box 75, Maynard, MA, United States 01754-0075. Fax: +1 978 461 2332; e-mail: research@earthwatch.org; www.earthwatch.org/research**

### Ecological Internet, Inc.

Ecological Internet, Inc., a non-profit charity formerly named Forests.org, specializes in the use of the Internet to achieve environmental conservation. Ecological Internet's mission is to empower the global movement for environmental sustainability by providing information retrieval tools, portal services and analysis that assist in the conservation of climate, forest, ocean and water ecosystems; and to initiate the age of ecological restoration.

Online since 1993 and one of the first 10 000 Web sites, the NGO has grown to be the most substantial and effective environmental conservation portal and action network in the world. Approximately one million users visit Ecological Internet a month. Ecological Internet's action network regularly helps achieve conservation outcomes, most recently in the Congo and Indonesia. Ecological Internet takes a biocentric approach, seeking ecological science-based policy responses adequate to address the range of environmental crises that threaten the Earth and humanity.

**FOR MORE INFORMATION, PLEASE CONTACT: G. Barry, Ph.D., President, Ecological Internet, Inc., PO Box 433, Denmark, WI 54208-0433, United States. E-mail: GlenBarry@EcologicalInternet.org; www.ecoearth.info/campaigns/**

**MacArthur Foundation announces programme to recognize small non-profit organizations**

The Chicago-based John D. & Catherine T. MacArthur Foundation has announced a new annual award of up to US$500 000 for small non-profit organizations around the world that have shown unusual effectiveness and creativity.

The Foundation will not seek or accept nominations for the award, which will be in addition to any other funding MacArthur may provide to organizations. To qualify, organizations must demonstrate exceptional effectiveness and creativity; have reached a critical or strategic point in their development; have annual budgets of less than $2.5 million; show strong leadership and stable financial management; work in one of the fields that MacArthur funds; and have previously received MacArthur support.

**FOR MORE INFORMATION, PLEASE CONTACT: The John D. and Catherine T. MacArthur Foundation, Office of Grants Management, 140 S. Dearborn Street, Chicago, IL 60603-5285, United States. Fax: +1 312 920 6258; e-mail: 4answers@macfound.org; www.macfound.org/site/c.lkLXJ8MQKrH/b.913959/k.BB2A/How_to_Apply.htm**

## PARASITISM OF AMLA, AN ECONOMICALLY SIGNIFICANT NTFP

Amla, the Indian gooseberry, is collected from two conspecific species, *Phyllanthus emblica* and *Phyllanthus indofischeri* (together formally *Emblica officinalis*). Collection in the Biligiri Rangaswamy Temple wildlife sanctuary in Karnataka, India, provides a significant proportion of annual cash income for the area's indigenous population and a substantial amount of revenue for the Karnataka Forest Department.

Many amla trees in the sanctuary are heavily infested by hemiparasitic mistletoes. Infection leads to defoliation, reduced growth and productivity and eventually death. Recent research suggests the prevalence of infection in this area has increased rapidly in the last ten to fifteen years and that half of the total amla population may have already been lost. Harvesters consider mistletoe infection to be a major threat to sustainability. The impact of mistletoe parasitism on this species and therefore on the livelihood incomes of harvesters requires further investigation.

One major study in the sanctuary by scientists from Imperial College London's Division of Biology, in association with the local research organization Ashoka Trust for Research in Ecology and Environment (ATREE), has characterized spatial patterns in infection prevalence across the sanctuary and identified mechanisms behind mistletoe spread. This study will assess the full livelihood implications of mistletoe infection and assess the feasibility of specific management strategies.

It is hoped that the research will raise awareness that factors additional to harvesting can threaten the sustainability of important NTFP harvesting systems. (*Contributed by:* Lucy Rist, Imperial College, Division of Biology, Imperial College London, 4th Floor, Royal School of Mines, Prince Consort Road, London SW7 2BP, United Kingdom. Fax: +44 (0)20 7589 5319; e-mail: lucy.rist@ic.ac.uk *or* lucy.rist@imperial.ac.uk; www.iccs.org.uk)

## PERSPECTIVAS DE LOS PRODUCTOS FORESTALES NO MADEREROS Y DE LOS SERVICIOS AMBIENTALES EN AMÉRICA LATINA Y EL CARIBE

La extensa superficie de los bosques de América Latina y el Caribe y su inmensa diversidad biológica representan un gran potencial para la participación de los productos forestales no madereros (PFNM) en los mercados locales, regionales e internacionales. Estos productos benefician a las comunidades locales y al igual que el pago por servicios ambientales (PSA) suelen ser herramientas que ayudan a financiar inversiones que persiguen el desarrollo sostenible. Entre los servicios ambientales de mayor relevancia se encuentran los servicios hidrológicos; la protección de la diversidad biológica; el almacenamiento de carbono y la protección de la belleza del paisaje natural.

En los últimos decenios, ciertos PFNM han crecido en importancia para la economía en pequeña escala. Si bien la participación de estos productos en la economía formal por lo general no es significativa (debido a la escasez de datos acerca de la valoración económica y la falta de registros de estos productos), existen algunas excepciones que juegan un papel muy importante como fuente de ingreso para las poblaciones que viven en los bosques o en sus cercanías. Entre ellos se puede mencionar la castaña de Pará (*Bertholletia excelsa*), cuyos mayores productores en 2002 fueron el Brasil (30 mil toneladas), Bolivia (22 mil toneladas) y el Perú (2,9 mil toneladas). Otro valioso producto es el palmito (*Euterpe* spp., *Bactris gasipaes* y *Guilielma* spp.), el Brasil cuenta con una producción de 117 mil toneladas anuales (2002), el segundo productor regional es Bolivia, cuya producción proveniente del bosque natural está siendo paulatinamente sustituida por el palmito de plantaciones.

También en el Cono Sur (subregión que comprende: Argentina, Brasil, Chile, Paraguay y Uruguay) se encuentran productos que se elaboran en gran escala como la yerba mate (*Ilex paraguariensis*), el boldo (*Peumus boldus* o *Boldoa fragrans*) de Chile, el piñón (*Araucaria araucana*) y el palmito. Los mayores productores de yerba mate en 2002 fueron la Argentina (327 mil toneladas), Brasil (205 mil toneladas) y el Paraguay (24 mil toneladas), países donde este producto es de consumo tradicional. En Chile, el cultivo de mimbre, ha logrado cierta importancia en la producción de muebles y otros accesorios.

En Centroamérica (Belice, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua y Panamá) y en México los PFNM son de gran interés para las comunidades campesinas e indígenas. La población hondureña utiliza más de 300 especies de la flora para autoconsumo y comercialización de subsistencia con fines de alimentación, uso medicinal, ornamental y en algunos casos industriales (fibras, látex, resinas y taninos). En Honduras, desde 1960 se resinan los pinos con el fin de producir aguarrás, colofonia, dipenol y aceite de pino (en 2002 la producción fue de 15 mil barriles de resina).

En Guatemala, el chicle (*Manikara achras*), el xate (*Chamaedorea* spp.) y la pimienta gorda (*Pimienta dioca*) son los productos más importantes dentro de su economía. En los últimos diez años se han difundido nuevos PFNM pero menos significativos que los anteriores. En México, por ejemplo, se utilizan cerca de mil PFNM, de lo cuales 70 son comunes en el mercado con una producción anual de 68 mil toneladas, entre éstos se destacan la goma, la cera, la fibra, los fritos, los hongos y las cortezas. En este país, la mayoría de estos productos son de uso doméstico; sin embargo existe una infraestructura industrial para los PFNM más importantes como ser la resina de pino, lechuguilla, palmilla, orégano y candelilla. En Costa Rica, entre otros países de esta subregión, se usan plantas medicinales tales como la cuculmeca (*Smilax dominguensis*) y la uña de gato (*Uncaria tomentosa*) y en el Caribe prevalece el uso de diversos tipos de palmeras para la construcción.

El mercado de los servicios ambientales en América Latina y el Caribe es muy amplio. La demanda por servicios ambientales incluye los usos del bosque para el ecoturismo y recreación en áreas especialmente desarrolladas para estas actividades. Los consumidores de estos servicios son poblaciones locales, nacionales y extranjeras, y este subsector tiene un alto potencial para generar ingresos, impulsando el desarrollo económico regional.

Tanto en el mercado de los servicios como en la producción de los PFNM, los habitantes rurales juegan un importante rol, ofreciendo oportunidades de aumentar los beneficios económicos de los bosques, contribuyendo al mejoramiento de las condiciones económicas de los sectores más pobres de la población y promoviendo el manejo forestal sostenible.

**Principales fuerzas impulsoras que afectan los PFNM**

Las principales fuerzas impulsoras que afectan la producción de los PFNM son dos:

1º) la demanda en los mercados nacionales e internacionales y

2º) los programas y políticas nacionales y locales.

La fuerza número uno ha estimulado la producción de algunos PFNM a mayor escala, que han desarrollado canales apropiados de distribución. Es importante mencionar que la limitación para la expansión de la producción de los PFNM está relacionada con la disponibilidad de los recursos, características de los productos, tamaño de los mercados y aspectos de logística de transporte y distribución en los mercados consumidores.

La segunda fuerza está relacionada con los programas y políticas nacionales y locales que han favorecido la producción sostenible de ciertos PFNM, como por ejemplo en las Reservas de Extractivos en Bolivia y en Brasil, que a su vez están estrechamente relacionadas a las instituciones y a las comunidades comprometidas con el desarrollo de este subsector.

**Principales fuerzas impulsoras que afectan los servicios ambientales del bosque**

Las políticas de desarrollo sostenible y de protección de los recursos forestales en algunos países de la región, junto a la implementación de programas nacionales y locales, son de estímulo para el desarrollo de los servicios ambientales del bosque. Mecanismos innovadores realizados en forma conjunta a estas políticas están creando una creciente demanda nacional e internacional de estos servicios. Algunos ejemplos concretos incluyen el turismo ecológico, el pago por servicios ambientales, los créditos de carbono, que están en línea con iniciativas globales de valoración de los usos múltiples y beneficios de los bosques como la protección de las cuencas hidrográficas.

**PFNM y servicios ambientales del bosque: perspectivas para el 2020**

Se hace difícil la descripción del escenario de la oferta de los PFNM y los servicios ambientales de los bosques en América Latina y el Caribe, ya que prácticamente no existen series estadísticas sistemáticas disponibles sobre los mismos, aún si se conoce un gran número de proyectos o trabajos en marcha que demuestran el potencial de estos segmentos.

Probablemente en las próximas décadas la producción de los PFNM y la oferta de servicios de los bosques en América Latina y el Caribe continuarán en aumento, sobre todo si los gobiernos de la región seguirán incentivando la producción y el desarrollo de los mismos. Aunque el impacto de estos programas en la economía sectorial en muchos casos es pequeño, a escala local tienen un efecto significativo, ya que en gran parte se integra a las necesidades de las comunidades y poblaciones locales.

**MERCADOS DE PFNM**

El desarrollo de los mercados internos e internacionales para ciertos PFNM específicos y el consecuente incremento de la demanda de los mismos, podrían crear nuevos estímulos para aumentar la producción comercial; aún así, para la mayoría de los PFNM, el grado de producción continuará siendo limitado y sus mecanismos de distribución (logística) permanecerán ineficientes para lograr mercados más grandes y más distantes. Solamente los PFNM cultivados a gran escala (mediante el desarrollo de plantaciones), tendrán un mayor potencial de expansión de producción y de mercado si se basan principalmente en precios más competitivos. Entre estos ejemplos se incluyen la producción de goma hevea (caucho), el cultivo de hierbas medicinales por haciendas farmacológicas, producción de palmito y yerba mate. Por otro lado, existe un gran potencial de utilización de la diversidad biológica de la región para fines comerciales y de turismo ecológico, así como la creciente investigación sobre la utilización de ciertos tipos de plantas comestibles y medicinales.

Se presume que la región de América Latina y el Caribe no quedará fuera del contexto global ya que nuevas leyes y regulaciones ambientales, como por ejemplo, la demanda creciente de tecnologías limpias y proyectos conservacionistas entre otros, crecerán en la mayoría de los países. Estas regulaciones podrían servir como incentivos a los programas de desarrollo relacionados con los PFNM y los servicios ambientales del bosque.

La mejora en la organización y la disponibilidad de la información y datos acerca de los PFNM (por ejemplo redes informativas regionales), la implementación de proyectos sobre la protección de los recursos forestales y de servicios ambientales, continuarán ofreciendo nuevas oportunidades para las inversiones y la valorización de la importancia socioeconómica y ambiental de estos productos y servicios. Si se crean canales de comercialización específicos y se promueven ventajas regionales, es probable que los PFNM producidos a escala industrial verifiquen un crecimiento económico. (Contribución de: Sandra Rivero, Consultora, Dirección de Productos e Industrias Forestales, FAO. Correo electrónico: Sandra.Rivero@fao.org)

**PARA MÁS INFORMACIÓN, DIRIGIRSE A: Olman Serrano, Dirección de Productos e Industrias Forestales, Departamento Forestal, FAO, Viale delle Terme di Caracalla, 00153 Roma, Italia. Correo electrónico: Olman.Serrano@fao.org o Estudios sobre tendencias y perspectivas del sector forestal en América Latina y el Caribe, www.fao.org/forestry/site/outlook/sp**

## POISONOUS TREE FROG COULD BRING WEALTH TO A TRIBE IN THE BRAZILIAN AMAZON

An indigenous tribe of the Brazilian Amazon is attempting to transform the presumed healing properties of the secretions of a venomous frog into a potential pharmaceutical product of value to the global community.

The tribe – led by Chief Fernando Katukina and located in the Campinas Indian Reserve of Brazil – has relied throughout its history upon the poisonous secretions (or "slime") of a frog known as the kambô (*Phyllomedusa bicolor*) and also called the giant monkey frog, because it climbs high into the rain forest canopy), for healing purposes. Tribal shamans have used the slime as an ancestral remedy to treat illness, pain and even laziness. It is believed that the compound from the frog contains anaesthetic-like properties.

The Brazilian Government has announced its support of the tribe's endeavour to introduce the kambô's secretions into the country's research and development profile, where the poison could be transformed into a pharmaceutical product. It is known that these secretions have already been the subject of study by scientists who have acquired several of the frogs and attempted to analyse the healing properties of their secretions. However, one United States-based pharmaceutical corporation that has acquired multiple patents on the frog's poison has yet to produce a viable product.

Thus, as a measure to prevent further acts of what has been deemed "biopiracy", Chief Katukina and the Brazilian Government have engaged in a project (Project Kambô) to fund in-country scientists so that they can study the properties of the frog's poison further so that it can be incorporated into a safe, effective medicine capable of being marketed on a global scale. The crucial ingredients are compounds with anaesthetic, tranquillizing and other medicinal properties. Scientists say the promise lies in isolating peptides from the frog's slime and then reproducing them for medicines to treat hypertension, strokes and various illnesses. The kambô remedy is known as the *vacina do sapo* or frog vaccine (however, despite the term "vaccine", the slime does not vaccinate against any specific germ or illness).

The project was launched last year after Marina Silva, Brazil's Minister of the Environment, received a letter from Chief Katukina, denouncing the growing use of kambô poison by outsiders. Its perceived benefits in recent years have fuelled a pirate trade in the poison in cities across Brazil. Its use, the letter added, is nothing less than biopiracy; if economic gain is generated by the remedy, the Katukina tribe should receive a share. Ms Silva agreed and authorized a ministry project to study the kambô, stipulating that any profits derived from the research be shared with the Katukina.

The frog remedy is one of a handful of customs the Katukina preserve. After catching the frog in nearby trees, tribe members tie it spread-eagle style between two posts, collecting slime from its back and sides with a piece of wood, where it dries. They then release the frog and later, with water or saliva, rehydrate the dried poison before applying it. Once the body processes the poison's toxins its compounds induce what users say is a prolonged sense of alertness and well-being. Because they believe it heightens their senses, Katukina hunters traditionally use it the most.

Fernando, one of only two tribe members to work outside the reserve, is convinced of the kambô's value and adamant that the medication, if used by others, could improve a tribal economy that is currently at subsistence level. The vaccine belongs to us," he said. "Science might help us develop it, but kambô knowledge is Katukina." (*Sources: The New York Times*, 30 May 2006 and the American Association for the Advancement of Science [AAAS], 2 June 2006.)
(*Please see p. 10 for more information on bioprospecting/biopiracy.*)

## PROGRAMME FOR THE PROMOTION AND DEVELOPMENT OF NON-WOOD FOREST PRODUCTS ACROSS AFRICA

The Women's International Coalition Organization (WICO) Africa and the Women's Global Green Action Network (WGGAN) are starting a Programme for the Promotion and Development of Non-wood Forest Products across Africa. Its aim is to improve the environmentally friendly, ecologically viable and socially equitable use of NWFPs in order to improve income generation and food security; contribute to the wise management of Africa's forests; and conserve its forest biodiversity. The Programme's target groups are women and youth.

One of the NWFPs developed is the raffia palm under the Raffia Renaissance Project, using raffia for food (raffia fruit) and drink (raffia wine alcohol production), using the leaves to produce household and fashion items and accessories, and the branches to produce furniture.

There are also projects on rattan, mushrooms, snail farming, etc. with local women's groups.

The Programme works across Africa and also promotes organic farming and fair trade. (*Contributed by:* Ms R.O. Mbone Enie, WICO Africa President and WGGAN Africa Coordinator, PO Box 1075, Limbe, Cameroon. E-mail: rosembone@gmail.com; www.wicohome.org; www.wggan.org)

## REPTILE SKINS SEIZED

On 20 December 2005, over 55 000 reptile skins were seized by the Directorate of Revenue Intelligence at Mumbai port, India, representing one of the largest-ever seizures of snakeskins. The skins had been concealed in 80 jute bags that were booked for export to Singapore and marked as "red chillies". At least three species of snakes were identified – python (*Python*), cobra and rat snake (*Ptyas mucosus*) (CITES II). (*Source: TRAFFIC Bulletin*, 21(1), 2006.)

## RESIN PRICES

Indonesia and China have agreed to maintain their resin price in the world market at over US$900 per tonne, the Chief of state-owned forestry company Perhutani said. The company represented Indonesia during a meeting with representatives of the Chinese Chamber of Commerce and a Chinese forest products company. He said that they had agreed upon the need for the two sides to collaborate in boosting trade in the commodity and maintaining the price of resin at an advantageous level.

China is currently the world's biggest resin producer with a production of about 640 000 tonnes/year, of which some 50 percent are exported. Indonesia is currently the world's second biggest resin producer. The price of Chinese resin fell in May 2006 to $840 per tonne from the previous $1 300/tonne.

China has various species of pine trees that produce latex for resin and has in Hainan Province the *Merkusii* species of pine forest, a species also owned by Indonesia. But the resin production of this species is small, namely only 1 000 tonnes/year. (*Source:* Antara News [Indonesia], 10 July 2006.)

## RIGHTS AND RESOURCES INITIATIVE

The Rights and Resources Initiative (RRI) is a new coalition of organizations dedicated to raising global awareness of the critical need for forest tenure, policy and market reforms, in order to achieve the global goals of poverty alleviation, biodiversity conservation and forest-based economic growth.

Many people who live in forested regions, which cover 30 percent of the world's land mass, manage to exist on a frugal US$2 a day or less, and this includes some 350 million indigenous and tribal people who depend on forests for food, housing, heat and medicine. The Initiative seeks to reduce by half the proportion of people in forest areas who live in extreme poverty by 2015. This can only be done, the group argues, if these communities have clear rights to own and use forest resources.

Founding partners of RRI include the Indonesia-based Center for International Forestry Research (CIFOR); the Coordinating Association of Indigenous and Community Agroforestry in Central America (ACICAFOC); the Washington, DC-based Forest Trends; the Bangkok-based Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC); the Foundation for People and Community Development, Papua New Guinea; and the World Conservation Union (IUCN).

The partners agree that it would be impossible for the world to reach the Millennium Development Goals on poverty and environmental protection without addressing the rights and improving the economic status of the 1.6 billion people – nearly one third of the planet's population – who depend on forests for their survival.

RRI is capitalizing on growing interest – from forest communities, industry, national governments and global development institutions – to shape policies and markets that can make forests integral to poverty reduction. It has assembled a global network of organizations across the world, including community groups, NGOs, research institutions, government officials and market analysts in Africa, Asia and the Americas.

ACICAFOC in Central America believes that the situation in many countries is ripe for the kind of assistance RRI can provide. Members of this group now control some 14 percent of Central America's forests. Their progress has been accelerated by targeted policy and technical guidance, such as management plans that offer locally controlled and sustainable use as an alternative to total bans on commercial activities.

In Southeast Asia, communities of farmers conserve large areas of biodiversity-rich secondary forests independently of conservation programmes.

Village-managed forests in central and southern Africa house diverse species and ecosystems.

Forty million ha of forest in Mexico (seven million in well-organized community forest enterprises) and three million ha of forest in Central America are under community management, with some community timber enterprises investing double the amount for habitat protection as governments in adjacent state-protected areas.

Other countries in Asia and Latin America are conserving species and habitat while producing different marketable and locally consumed forest products – be they timber, non-timber, botanicals, fibre products or organic crops. (*Source:* Forest Policy Info Mailing List, 3 May 2006.)

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## ROSIN BAGS AND BASEBALL

In baseball there is only one piece of equipment lying loose in the field of play – the rosin or resin bag that is placed near the back of the pitcher's mound. During the course of a baseball game at any level, the pitcher will often pick up the rosin bag and slam it back to the ground.

The general definition of the rosin bag is "a bag filled with rosin; used by baseball

pitchers to improve their grip on the ball". It was not until 1926 that the Major League Baseball Rules Committee agreed that pitchers could have access to the rosin bag.

It appears that a former Galesburg resident was the first player to use rosin as a pitching aid. During his younger days as a pitcher, Paul C. Mulberry was having trouble controlling his curve ball. One day when helping to thresh hay on the farm, he noticed that the farmer was applying a white powder to the fan belts of the threshing machine. On inquiry he was told that the substance was rosin. Mulberry speculated that the rosin powder might be the answer to his pitching problems. He bought some of the rosin (a by-product of turpentine) and the next day, 31 July 1916, he used the rosin during a game for the first time.

Initially, Mulberry would dip his pitching fingers into the powder contained in a paper bag in his trouser pocket. He soon decided that the paper bag was not satisfactory and switched to a salt sack. Not surprisingly, the opposition eventually complained to the umpires and forced an investigation. The umpires decided that the use of the rosin was acceptable but that the bag must be placed on the ground near the pitcher's mound. Mulberry felt that the secret of his curve ball was the strategic placing of the rosin on the fingers. (*Source:* Tom Wilson, *The Galesburg Register-Mail*, Galesburg [Illinois, United States], 9 May 2006.)

## SPECIAL TOOLS FOR SAFE GUM TAPPING OF STERCULIA AND ACACIA TREES

(*This article is in response to* Non-Wood News *10*, *i) News and Notes, pp. 23–25, "Improved gum/resin tapping techniques in some species" by M.N.B. Nair; and ii) Country Compass, pp. 49–50, "Scientific harvesting of* kullu [Sterculia urens *gum*]" by *P. Bhattacharya*.)

From time immemorial gum has been used locally, as well as in industry and trade but, with a growing population in India, the supply of gum is not keeping pace with demand. Gum in its natural form is collected from naturally regenerating forests in the form of exudate from stem wounds. All efforts are made to tap out the maximum gum and resin from the trees but little consideration is given to the extent of damage caused.

Axes have traditionally been used by gum tappers to make incisions on the trees; however, there are several disadvantages in their use.

- Gum tappers strike vigorously with their axes on practically the whole trunk of the tree. This means that there is no control over the depth of the incisions and they are likely to endanger the survival of the trees.
- Incisions are so narrow that some of the exuded gum remains within the trunk and is not collected.
- The exuded gum is in contact with the bark of the tree and takes on a dark colour from the tannins in the bark; the gum subsequently fetches a low price because of its inferior quality.

As a result of destructive and unscientific gum tapping, there has been significant mortality in commercially important gum-yielding species. Gum tapping has consequently been banned by some of India's state forest departments, which has resulted in falling revenue and declining foreign exchange earnings.

To overcome this problem the authors have designed some specific gum-tapping tools to save *Sterculia* and *Acacia* trees, on the basis of experimental gum tapping from 1970 to 1986 of *A. nilotica* and *Prosopis juliflora* in the Meerut and Mathura Forest Divisions of Uttar Pradesh and the Hissar and Ambala Forest Divisions of Haryana within a project of the Forest Research Institute, Dehra Dun.

Manufactured after certain necessary modifications, the new special tools should prove beneficial in the tapping of commercially important gum-yielding species such as *Sterculia urens, S. villosa* (gum karaya), *Anogeissus latifolia* (ghatti gum), *Lannea coromandelica* (jhingan gum), *Bauhinia retusa* (semla gum) and *Acacia senegal* (true gum arabic) as well as gum-oleo-resin from *Boswellia serrata*.

Experiments have shown that the tools manage to control the optimum depth of the incisions on the trees, thus helping to obtain the maximum amount of gum without causing damage to the trees. It has also been seen that gum ducts are generally formed about 15 cm from the incision. Whether gum ducts are lysigenous or schizogenous in origin, in both cases it is not necessary to make large or deep incisions at the initial stage. The subsequent depth of freshenings needs to be controlled in order to avoid unnecessary damage to trees. It is hoped that the tools will prove successful in obtaining sustained gum production with no tree mortality.

**The new gum-tapping tools**

Details of the newly designed tools for making initial incisions and subsequent freshenings may be obtained from the authors. Since it was seen that the tools caused no damage to trees in gum tapping of *Acacia nilotica* and *Prosopis juliflora*, it is recommended that they may also be used safely for the commercial tapping of important species such as *Sterculia urens, S. villosa, Anogeissus latifolia, Lannea coromandelica* and *Bauhinia retusa*.

An added advantage of the tools is that they are not very heavy; tappers do not need to carry heavy loads to forest areas. They are all designed to overcome most of the difficulties in gum tapping; they cause minimum injury to trees and safeguard them against mortality. The tools can be used safely in tapping true gum arabic from *Acacia senegal* trees in place of the spear-shaped tool used at present in the Sudan. It is therefore recommended that the state Forest Departments switch over to the use of the newly designed tools in order to work efficiently with no significant detrimental effects on trees. (*Contributed by:* M.P. Shiva, N.P. Singh and F.R. Thakur, Centre of Minor Forest Products, Dehra Dun, India.)

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## TRADE AND NWFPS

**Global analysis of trade-related instruments**

In August 2004, TRAFFIC International was engaged by FAO to carry out a global analysis of trade-related instruments influencing trade in NWFPs and their applications in and impacts on poverty alleviation and sustainable forest management. Case studies on specific NWFPs in international trade were carried out in Cameroon, Bolivia and Papua New Guinea by other, locally based NGOs and the results of these studies were incorporated in the global analysis.

Examples of NWFPs studied included the bark of the African cherry (*Prunus africana*) and African grey parrot (*Psittacus erithacus erithacus*) in Cameroon, and caiman (*Caiman yacare*) and Brazil nuts (of *Bertholletia excelsa*) in Bolivia. Funding for this important work was provided by the Norway Partnership Programme "Forests for Sustainable Livelihoods".

A comprehensive report has been produced and is to be published in February 2007 as an FAO working paper. (*Source: TRAFFIC Bulletin*, 21(1), 2006.) (*Please also see p. 76.*)

**International trade in NWFPs**

In the last issue of *Non-Wood News*, we presented the global import values of raw materials, as well as semi-processed and processed products, for 1992 and 2002. Tables 1 and 2 give the 2004 figures.

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## TRADITIONAL ALLELOPATHIC KNOWLEDGE

The traditional healers of the Indian state Chhattisgarh believe that natural forests are an arrangement of Mother Nature. Although people consider that in forests trees grow in a haphazard manner, the healers believe that there is a specific reason for the presence of any tree with other trees and that biochemical relationships exist among these trees. Although the term "allelopathy" is new to the healers, as a student of this new branch of science I believe that they have always been aware of allelopathic relationships among plants. I have called this "traditional allelopathic knowledge" and have taken steps to document it.

This ancient knowledge is practised in many ways. I observed its use for the first time in northern Chhattisgarh. Before collecting any herb from the forest the healers treat it with specific herbal extracts and leachate. This treatment starts from one month before to the day of collection. For different herbs, different extracts and leachate are used. According to need, the herbs are also treated for different lengths of time. The healers believe that this treatment enriches the herb with medicinal properties. Many solutions are used to "activate" the medicinal contents of herbs. In these cases the herbs are used fresh without any storage.

In Chhattisgarh thousands of herbs grow in the natural forest. The healers have specific treatment for every herb; for example, when neem (*Azadirachta indica*) bark is collected, the trees are treated with the whole plant extract of *Rungia repens*. The same extract protects the roots of old trees of *Bauhinia variegata* from fungal infection. In other regions the healers use the same extract to enrich *Putranjiva* roots with medicinal properties.

TABLE 1. **Global import values of key NWFPs for which HS code refers to a single product (US$ million)**

| HS code | Commodity description | Global import value 2004 |
|---|---|---|
| 060410 | Mosses and lichens for bouquets, ornamental purposes | 24.9 |
| 070952 | Truffles, fresh or chilled | 29.5 |
| 070959 | Mushrooms other than *Agaricus*, fresh or chilled | 427.3 |
| 071239 | Mushrooms (excl. 071331/33) and truffles, dried | 244.2 |
| 200320 | Truffles, prepared or preserved, not in vinegar | 12.7 |
| 080120 | Brazil nuts, fresh or dried | 106.2 |
| 080240 | Chestnuts, fresh or dried | 200.4 |
| 230810 | Acorns and horse chestnuts for animal feed | 0.1* |
| 120792 | Shea nuts (karite nuts) | 1.4* |
| 121110 | Liquorice roots | 29.7 |
| 121120 | Ginseng roots | 245.5 |
| 121190 | Plants and parts, pharmacy, perfume, insecticide use n.e.s. | 908.2 |
| 121210 | Locust beans, locust seeds | 22.6 |
| 130110 | Lac | 43.1 |
| 130120 | Gum arabic | 179.5 |
| 130190 | Natural gum, resin, gum resin, balsam, not gum arabic | 107.7 |
| 400130 | Balata, gutta-percha, guayule, chicle and similar gums | 13.0 |
| 130214 | Pyrethrum, roots containing rotenone, extracts | 26.3 |
| 140110 | Bamboos used primarily for plaiting | 55.7 |
| 140120 | Rattan used primarily for plaiting | 53.4 |
| 140210 | Kapok | 0.1* |
| 170220 | Maple sugar and maple syrup | 137.4 |
| 200891 | Palm hearts, otherwise prepared or preserved | 64.9 |
| 320110 | Quebracho tanning extract | 47.0 |
| 320120 | Wattle tanning extract | 37.4 |
| 320130 | Oak or chestnut extract | 0 |
| 450110 | Natural cork, raw or simply prepared | 107.0 |
| 530521 | Abaca fibre, raw (*Musa textilis*) | 28.5 |
| **TOTAL** | | **3 153.7** |

* 2001 value (as no longer in HS 2002).
*Source:* UN Commodity Trade Statistics.

When bark is collected, especially the inner bark of old trees, the healers treat the trees at different stages. First they irrigate the tree with herbal solutions in order to prepare the tree to tolerate the shock of bark collection; after collection they apply the solution to the injured part to heal the wound. They subsequently visit the trees and monitor their growth. In the case of poor growth they apply different kinds of solutions, for they are aware that without such treatment the trees will die. This knowledge protects the trees from injury and can play a vital role in the replantation of old trees in urban regions.

Traditional allelopathic knowledge is also used in crop cultivation, whereby the healers are able to repel insects and increase the initial growth of seedlings. Old trees are given new vigour. The healers' knowledge is also used to establish new forests.

During interactions with the healers I have tried to learn from them. They told me that the herbs present in the surroundings of any selected herb in natural forests play a vital role in enriching it with medicinal properties. They visit the forest regularly and try to learn from nature. Much of their knowledge has reached them from their ancestors. As very few healers are aware of this unique gift, it is in danger. In extensive summaries (over 9 000), I have put what I have learned on the Botanical.com and Ecoport.org Web sites, yet the healers' knowledge seems endless. I feel that a scientific base is necessary. I have successfully applied my learning to the commercial cultivation of Indian medicinal and aromatic crops.

In Chhattisgarh this knowledge is not used by herb traders and collectors so that the medicinal herbs coming to national markets are not as rich as they could be. I feel that the knowledge existing in Chhattisgarh should also be present in other parts of the world. A forum is needed for healers worldwide so that they can share their experiences. (*Contributed by:* P. Oudhia, 28-A Geeta Nagar, Raipur, Chhattisgarh, India. E-mail: pankajoudhia@yahoo.com)

TABLE 2. **Global import values of selected commodities for which HS code includes NWFPs among others (US$ million)**

| HS code | Commodity description | Global import value 2004 |
|---|---|---|
| 010600 | Animals, live, except farm animals | 454.5 |
| 030110 | Ornamental fish, live | 271.2 |
| 040900 | Honey, natural | 771.8 |
| 041000 | Edible products of animal origin n.e.s. | 231.9 |
| 051000 | Ambergris, civet, musk, etc. for pharmaceutical use | 84.2 |
| 060491 | Foliage, branches, for bouquets, etc. – fresh | 492.3 |
| 060499 | Foliage, branches, for bouquets, etc. – except fresh | 117.1 |
| 071230 | Mushrooms and truffles, dried, not further prepared | 348.0 |
| 200390 | Mushrooms n.e.s., preserved, not pickled | 106.2 |
| 080290 | Nuts edible, fresh or dried, n.e.s. | 712.8 |
| 090610 | Cinnamon and cinnamon-tree flowers, whole | 60.4 |
| 090620 | Cinnamon and cinnamon-tree flowers, crushed or ground | 18.5 |
| 110620 | Flour or meal of sago, starchy roots or tubers | 9.1 |
| 120799 | Oil seeds and oleaginous fruit n.e.s. | 176.7 |
| 130232 | Mucilages and thickeners, from locust bean, guar seeds | 342.7 |
| 130239 | Mucilages and thickeners n.e.s. | 391.3 |
| 140190 | Vegetable materials n.e.s., used primarily for plaiting | 37.5 |
| 140200 | Vegetable materials for stuffing/padding | 3.7 |
| 140300 | Vegetable materials for brush/broom making | 27.3 |
| 140410 | Raw vegetable material primarily for dyeing and tanning | 20.8 |
| 140490 | Vegetable products n.e.s. | 155.6 |
| 320190 | Tanning extracts of vegetable origin | 65.6 |
| 320300 | Colouring matter of vegetable or animal origin | 393.4 |
| 330129 | Essential oils n.e.s. | 535.7 |
| 330130 | Resinoids | 33.0 |
| 380510 | Gum, wood or sulphate turpentine oils | 29.5 |
| 380610 | Rosin and resin acids | 232.8 |
| 410320 | Reptile skins, raw | 99.2 |
| 430180 | Raw fur skins of other animals, whole | 121.5 |
| 460110 | Plaits and products of plaiting materials | 0.4 |
| 460120 | Mats, matting and screens, vegetable plaiting material | 220.7 |
| 460191 | Plaited vegetable material articles not mats or screens | 143.0 |
| 460210 | Basketwork, wickerwork products of vegetable material | 1 078.8 |
| 660200 | Walking sticks, seat-sticks, whips, etc. | 62.1 |
| **TOTAL** | | **7 849.3** |

* 2001 value (as no longer in HS 2002).
*Source:* UN Commodity Trade Statistics.

## TRADITIONAL LEATHER CRAFT

The Muir & McDonald Tannery in Dallas is one of only three tanneries left in the United States. It produces approximately 400 finished sides of leather per month, with about 40 percent of the sales going to a saddle company in Oklahoma. There are other large clients in the United States, but the company also sells to Canada, Germany and the Netherlands.

The Dallas location was ideal for obtaining the Douglas fir bark necessary for extracting tannins when the company was founded in 1863. The 143-year-old tannery maintains its current time- and labour-intensive method of converting animal hides into leather via the "vegetable" process.

Once a week, about 50 hides are collected from some of the company's contacts at 60 local beef or dairy cattle operations. These full hides are "covered liberally" with rock salt and put in a storage area, where they cure for about a month. They are then soaked in a lime-water solution for ten days and cut into two separate halves or "sides"; the hair is scraped away by hand. The resultant "rawhide" can be sold to make large drums, cover saddle-making forms ("trees"), or for other basic uses.

The bulk of the rawhide is started on a ten-week process to be converted to leather. Steps include soaking the hides in tannins made from fir bark and the extract – quebracho – from a South American plant, and then reintroducing oils back into the leather using steam and pressure.

Muir & McDonald says it is the oldest United States tannery using the vegetable process.

A "chrome process" is much quicker, less costly and produces a softer leather, Muir & McDonald said, but the sulphides and other acids used to burn off the hair can be toxic. They say that they have no environmental concerns with their process. (*Source:* Geoff Parks, *Statesman Journal* [Salem, OR, United States], 17 September 2006.) ♣

## AMPELODESMOS MAURITANICUS

**The role of *Ampelodesmos mauritanicus* and fibre plants in central Italy**

Recognition of the importance of non-wood forest products in developed countries has grown steadily in recent years. A research project in the mountains of the Aurunci Regional Park (central Italy) has been initiated and aims at identifying practical solutions for integrating traditional knowledge of NWFPs into the management of protected areas. To date, the study has focused on the role of fibre plants in the village of Maranola in the southernmost area of Latina province, central Italy.

From time immemorial, the population of Maranola has relied on a rural economy mainly devoted to subsistence farming, stock-raising and trade of minor timber and non-timber forest products. Trade in myrtle (*Myrtus communis* L.) leaves existed up to the early 1950s. Official documents of the early nineteenth century show that the dried leaves were sold to leather tanners. Myrtle twigs were also utilized in the manufacture of fish traps by fishers in the neighbouring coastal town of Formia. Ropes of *Agave americana* L. (locally known as *pugnale*) were much appreciated for their durability and strength. Agave fibres made the strings of traditional footwear (*ciocе*) and livestock gears, such as *capezza*, a loose head-holder for mules and donkeys. Of particular importance was the use of *Ampelodesmos mauritanicus* (Poiret) T. Durand et Sch. The word *ampelodesmos* originates from two old Greek cognates *àmpelos* (vine) and *desmòs* (tie) and, traditionally, Aurunci farmers have used *ampelodesmos* leaves exactly for the purpose implied.

Today this species is mainly regarded as an invasive grass; however, until the mid-/late 1950s, it played an important role in the household economy, was traded regionally and represented an emergency source of income. In Maranola, the weaving and trading of *ampelodesmos* (locally known as *stramma*) were female prerogatives. The women were responsible for trading the raw fibres in Formia. A full donkey-load of *stramma* made one *salma*, and consisted of two to three sheaves of unprocessed leaves, depending on the animal's capacity. In the absence of donkeys, women would cover the same distance (4–6 km) on foot, carrying "one sheaf of *ampelodesmos*" on their heads. In addition to the raw material, women sold finished *stramma* products, e.g. brooms and trays (*spaselle*), to fishmongers.

The Second World War saw an intensification of the *stramma* trade, providing an emergency source of income for local communities. According to elders, between 1939 and 1945, the inhabitants of Maranola and neighbouring communities were engaged in the production of rough *ampelodesmos* sacks used during trench warfare. These were commissioned by the government and sent to the frontline, where they were filled with sand.

The *stramma* trade died out completely at the beginning of the 1960s, when synthetic materials (such as nylon ropes) made their way into the regional market and, more important, because of the disappearance of donkeys, the introduction of alternative means of transportation and the drastic transformation of the rural economy

*Ampelodesmos* items are long-lasting. According to elders, the quality and durability of material depends upon how it is stored, and also upon the period of harvesting (e.g. collection must take place during "moon-less days").

The pounded fibres are dried in the open until their colour turns from green to a yellowish shade. Then the fibres are wetted and pounded with a wooden beater (*mazzucco*), before being worked into ropes. Occasionally, for the manufacture of long-lasting items, *stramma* fibres were smoked with sulphur to prevent damage from woodworm.

The basic techniques for rope making were acquired around the age of eight to nine. Small-size ropes (*funinciegli*) were widely used in agriculture. Stronger ropes were used for various purposes, such as for securing heavy fruiting branches to the main trunk, and heavy-duty ropes were highly sought after by youngsters for making swings. A different type of weave produced the so-called *trezza* (plait). A long and curved iron needle was used to insert additional fibres during the weaving of *iettola* (a wider "plait" made of six to seven sets of pounded leaves). Glass demijohns were coated with *stramma* plaits to prevent them from breaking and to protect their content (wine or oil) from direct light. *Iettola* was also used to weave a large flexible container (*sporta*) that was tied on the back of mules and donkeys. More pieces of *iettola* were joined together to produce rough carpets and the flat rectangular trays used by fishmongers to display their merchandise. In the old days, fish was also sold in containers made of *ampelodesmos*.

Other *stramma* items in the Aurunci Mountains included shopping bags, sun hats, round baskets for bread, eggs and mushrooms and cylindrical containers for grains and legumes, up to 2 m in height. *Stramma*, together with straw, was also used as a filling for mattresses. The same plant provided roofing material for *pagliare* (shepherds' huts). *Ampelodesmos* brooms are still occasionally made for household needs. The most common broom type is used for sweeping floors and consists of three bundles of pounded leaves bent together and tied firmly with a string of the same material. There were also other types of *stramma* brooms: i) a miniature-like broom used as a device against witches; ii) one specifically designed for cleaning fireplace chimneys; iii) a longer one for cleaning bread ovens; and iv) a roughly made one for cleaning wine barrels.

Although *stramma* items are now rarely made, small-scale production of new *ampelodesmos* crafts is emerging, and some young people are trying to revive the tradition. Artist and basket weaver Giovanni Morra believes that one of the challenges ahead is to win over local prejudices attached to the use of *ampelodesmos*. "*Stramma* is still associated with poverty and the hardship of war" he claims, "and often local people regard it as a low-class material." Another problem constraining the marketing of *ampelodesmos* items is the competitive prices of imported Chinese baskets.

According to local elders, the abandonment of sustainable *stramma* harvesting has led to an increase in fire hazards. Livia Forte, an *ampelodesmos* master weaver, claims: "Today, *stramma* has grown old, too dried and tall because no one gathers it. So when fire arrives, it is difficult to control. Flames are high and burn so quickly."

Undoubtedly, in the past, traditional grazing patterns, the harvesting of *stramma* and other minor NWFPs, as well as the clearing of underbrush, played a major role

in fire control and management. At present, government prohibition on grazing on fire-damaged land is fostering uncontrolled growth of *ampelodesmos* at the expense of other valuable species of the Mediterranean shrub. Preliminary research findings indicate that a combination of selective grazing and sustainable *ampelodesmos* harvesting could benefit and enrich post-fire landscapes and the upland ecology as a whole. This, of course, challenges the logic of strict/no touch protection embraced by the Regional Park authorities and calls for the active participation of local resource users and community experts in the management of protected areas.

Future research into *ampelodesmos* will have to include a preliminary computation on its potential commercial value, at least for the village of Maranola. Such computation should be based on projections (gatherers willing to get involved, harvesting patterns, seasonality, availability of *stramma*, etc.). It is unlikely that the harvesting and sale of *ampelodesmos* will return to their past glory but steps can be taken to identify new market opportunities for *stramma*. This, indeed, might have positive repercussions for both the local economy and upland ecology. (*Contributed by:* Dr Dario Novellino, Research Fellow, Department of Anthropology, Marlowe Building, University of Kent, Canterbury, Kent CT2 7NR, United Kingdom. E-mail: darionovellino@libero.it; www.kent.ac.uk)

## BARK

**Uses of birch bark in the northern hemisphere**

Historically, indigenous cultures in the northern hemisphere have utilized birch bark to build canoes, houses and make baskets, shoes, etc. For the Anishinaabe people, this bark was the primary resource used and the birch tree is still valued as a sacred tree of life. The bark was peeled from the tree in June and sewn into useful objects that were light, waterproof and durable. Designs were scratched on the surface for decoration.

For the indigenous Scandinavians, birch was also used for these purposes, although strips of bark were typically woven, rather than sewn into useful objects.

Both methods of working with birch bark will be demonstrated and displayed during "The Art of Birch Bark", to be held in July in Wisconsin, United States. (*Source: Ashland Daily Press* [United States], 30 June 2006.)

**Birch bark: prostate cancer treatment?**

The bark of the white birch tree contains a compound – betulinol – that might help fight prostate cancer. This finding is based on research in mice and has yet to be tested on people.

Preliminary tests show that betulonic acid, made from betulinol, may discourage human prostate cancer cells from dividing, and spur these cells to die. The tests were conducted by scientists at Cornell University's Weill Medical College. (*Source:* WebMD [United States], 28 July 2006.)

**Natural pine bark extract relieves muscle cramp and pain**

A study published in the June 2006 issue of *Angiology* shows that supplementation with the pine bark extract Pycnogenol® improves blood flow to the muscles, which speeds recovery after physical exercise. The study of 113 participants demonstrated that Pycnogenol significantly reduces muscular pain and cramps in athletes and healthy normal individuals.

Researchers at L'Aquila University in Italy and at the University of Würzburg in Germany studied the effects of Pycnogenol on venous disorders and cramping in two separate studies.

Pycnogenol is a natural plant extract originating from the bark of the maritime pine that grows along the coast of southwest France and contains a unique combination of procyanidins, bioflavonoids and organic acids, which offer extensive natural health benefits. The extract has been widely studied for the past 35 years and there are more than 220 published studies and review articles ensuring its safety and efficacy as an ingredient. Today, Pycnogenol is available in more than 400 dietary supplements, multivitamins and health products worldwide. (*Source:* Medical News Today [United Kingdom], 18 June 2006.)

**Mahogany bark may hold colon cancer cure**

An unexpected entry in a traditional medicine book from Guinea has led a University of South Carolina cancer researcher to study whether medicinal properties in the bark of mahogany trees may hold clues to understanding colon cancer.

Funded by a US$300 000, two-year grant from the National Cancer Institute, Dr Michael Wargovich will examine mahogany – and four other medicinal plants native to West Africa – in a quest to discover novel, anti-inflammatory compounds that could prevent or treat colon cancer. The study, the first of its kind, could be a major first step towards other studies on medicinal plants and cancer. Specifically, Wargovich is looking at how native medicinal plants in West Africa, used traditionally for pain relief, fever and inflammation, interact to inhibit the growth of cancer tumours.

While visiting Guinea and meeting some of the country's top health officials, the university cancer researcher was given a book, *Pharmacopée traditionale guineenne*, that highlighted around 60 of the country's different plants and their health properties. He found that about 15 plants had anti-inflammatory properties.

For his study, Wargovich will focus on extracts from five West African plants: the neem tree, baobab tree, Senegal mahogany, African basil and kinkirissi bush.

Wargovich is working with Clemson University researcher Dr Feng Chen, whose expertise is in the chemistry of natural products. Chen is looking for the compounds in the mahogany bark that may be responsible for inhibiting inflammation. West Africa has a low incidence of colon cancer, and the reason for this may be in the natural plants used by traditional healers. (*Source:* News-Medical.net [Australia], 27 March 2006.)

## BUSHMEAT

**Bushmeat Research Programme**

Bushmeat is the meat of wild animals hunted by local people for income or subsistence. The harvest of wild meat is a focus of global concern. Unsustainable levels of hunting are believed to threaten the survival of many target species around the world, particularly in the tropics. These extinctions will not only threaten ecosystem services but are also likely to impact seriously upon the food security and livelihoods of those people who use the resource. There is therefore an urgent need to develop successful initiatives that will promote the long-term sustainability of the bushmeat harvest – both to protect threatened biodiversity and to secure the trade's social and economic values.

The Bushmeat Research Programme at the Institute of Zoology, the research arm of the Zoological Society of London (ZSL), is involved in research to enhance understanding of the bushmeat trade in West and Central Africa. A better understanding of the trade will assist both policy-makers and project managers to develop effective methods of regulation and management for sustainability. This work is interdisciplinary in its design: it tackles the biological, economic and social aspects of the trade, using a variety of approaches including field research and mathematical modelling.

The Bushmeat Research Programme currently incorporates the following ten projects across West and Central Africa.

1. Bioeconomic modelling of bushmeat harvesting systems
2. Trade and sustainability along a bushmeat commodity chain (Ghana)
3. Park protection, armed conflict and the bushmeat trade (Democratic Republic of the Congo)
4. The bushmeat trade around Virunga National Park (Democratic Republic of the Congo)
5. Incentives for the sustainable hunting of bushmeat (Equatorial Guinea)
6. Poverty, sustainable livelihoods and the bushmeat trade (Equatorial Guinea)
7. Simple indices of hunter effort and sustainability (Equatorial Guinea)
8. Solutions to bushmeat exploitation in the Sanaga-Cross region (Cameroon-Nigeria)
9. Habitat quality and bushmeat surveys (Sierra Leone)
10. Species vulnerability to bushmeat hunting

This work encompasses several countries in the region (Cameroon, Democratic Republic of the Congo, Equatorial Guinea, Ghana, Nigeria and Sierra Leone) and involves collaboration with a variety of institutions in both the host countries and in the United Kingdom.

The Bushmeat Research Programme is also a component of the ZSL's Bushmeat and Forests Conservation Programme. Through a combination of field projects, applied research, policy work and education activities, the programme aims to protect habitats and wildlife through the management of the bushmeat trade to achieve long-term sustainability.

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**www.zoo.cam.ac.uk/ioz/projects/bushmeat.htm**

### Bushmeat trade in Indonesia

Medan. The eight fruit bats dangle from a stick alongside one of the busiest streets in this teeming city. They hang head down, their feet and mouths bound tightly with rubber bands. The bats, with black wings and reddish-brown fur, are caught in the rain forest about one hour from the city by stringing a net between two trees. They are kept tied up day and night until they are sold. Yet they are not destined to suffer long: they will be sold to passing motorists as a cure for asthma. The recommended treatment is to cook the bat's heart and eat it. "There is always a buyer," said one roadside bat vendor, who estimates that he and his partners have sold as many as 500 bats at about US$3 apiece in the last three years.

Bats are not the only unusual animals on the menu in Indonesia. In various parts of the country, cobra blood, bear paws, sea turtle eggs, orangutan meat, crocodile and tiger penises, geckos, dried seahorses, monitor lizards, goat testicles, shark cartilage, pythons, sperm whales, rhinoceros horns and monkey brains are consumed as health remedies, impotency cures or gourmet treats.

In a nation with 300 ethnic groups scattered across 17 000 tropical islands, it is not surprising that Indonesians have a wide variety of eating habits. In addition, Indonesia is a country where health care is inadequate and established medical treatment can be prohibitively expensive. Some people suffering from long-term illness or impotency are desperate enough to try anything. "These animals are endangered not because they cure ailments but because people believe they can," said Meutia Swasono, Professor of Medical Anthropology at the University of Indonesia.

Small restaurants and shops cater to popular demand for monitor lizard meat, bat hearts, raw monkey brains and cocktails made with cobra bile and blood. In the central Jakarta neighbourhood of Kota, a shopkeeper specializes in selling snakes, bats and dried lizard meat. He said he gets ten to 20 orders a year for monkey brains and that each week he sells about 100 cobras, all caught in the wild.

The quest for cures is contributing to the near-extinction of some animals, particularly the rhinoceros, valued for its horn, and the sun bear, prized for its gall bladder and bile. Some bears are smuggled to China, where their parts are even more valuable. Although the Sumatran tiger is highly endangered, tiger penis can be found for sale in Jakarta, the capital, as a cure for impotence. The price: $40. (*Source:* Dr Syed S. Ahmed on tropical biodiversity listserve, 22 May 2006.)

The Wildlife Conservation Society estimates that one million tonnes of bushmeat are taken from African forests every year. Another study puts bushmeat consumption at 10 oz (284 g) a day per person. Jane Goodall, the well-known primate expert, warned last month that gorillas, chimpanzees and orangutans "are being eaten into extinction". (*Source: The Baltimore Sun,* 12 August 2006.)

### Roads and bushmeat hunting

A new study links the presence of roads to bushmeat hunting in the Congo rain forest and also raises important questions for global conservation. The study, published in *Conservation Biology*, found that roads and associated hunting pressure reduced the abundance of a number of mammal species including duikers, forest elephants, buffaloes, red river hogs, lowland gorillas and carnivores. The research suggests that even moderate hunting pressure can significantly affect the structure of mammal communities in Central Africa. (*Source:* R.A. Butler, mongabay.com, 9 May 2006.)

### Researchers in Africa warn about bushmeat

Researchers in Cameroon are trying to stop the spread of viruses by educating villagers about the meat they cook. The researchers from the Johns Hopkins Bloomberg School of Public Health in Baltimore are studying

blood from monkeys, in an attempt to find viruses that could conceivably transfer from apes to humans. The goal is to find emerging diseases and stop them from spreading around the world.

Cameroon is not far from West-Central Africa where, decades ago, chimpanzees are believed to have planted the seeds of the AIDS pandemic.

Monkey meat or bushmeat is a common and popular fare in the West African forest. Researchers have been warning villagers not to cook the meat if they have a wound on their hand and advised not to sling dead monkeys over their backs, since blood can be transferable if the person has cuts or scrapes.

Although many have been compliant with the researchers, others are not worried and say that disease has never been a problem. (*Source:* United Press International [United States], 16 July 2006.)

**Gorillas on the menu in meat trade**

Chimpanzees and gorillas are finding their way on to dinner tables in western Europe and the United States, an investigation has found. The investigation, by biologist Justin Brashares from the University of California at Berkeley, has discovered that primates, including the great apes, make up nearly one third of the illegal trade in African bushmeat.

Brashares recruited 15 volunteers, all expatriates from West Africa, to visit clandestine meat markets in London, Paris, Brussels, New York, Chicago, Montreal and Toronto. They discovered that just over 6 000 kg of bushmeat move through the seven markets each month. Prof. Brashares believes that this could be an underestimate. Guenon monkeys and baboons formed a large part of the trade. Also sold were duikers, as well as rodents, reptiles and birds.

Bushmeat was often smuggled in from Africa concealed beneath legal shipments of smoked or dried fish. The investigation, published in *New Scientist*, has confirmed long-standing rumours of such an illegal market.

Glyn Davies, Director of Conservation at the Zoological Society of London, said that bushmeat traders were occasionally arrested in London. "The bushmeat trade is huge and supports thousands of people in Africa," he said.

African governments needed to be made aware of the millions of dollars spent on the parallel economy of the bushmeat trade.

International demand for bushmeat was not driven by need, Prof. Brashares pointed out. "It's part of what is clearly a luxury trade," he said. And intercontinental trade, he adds, is again a tiny fraction (he estimates less than 1 percent) of total bushmeat kill, most of which stays in the country of origin. (*Source: Melbourne Herald Sun* [Australia], 7 July 2006.)

**Bushmeat boom benefits Ghana's farmers**

Grasscutters are such a delicacy in Ghana that they are now being farmed to meet demand. Teye Ocansey started to farm grasscutters as a hobby ten years ago. Since then, he has seen his business grow to generate a healthy profit from the 260 grasscutters he keeps in a small shed in the Accra suburb of Awoshie. "It is a delicacy meat and people prefer it to other meats," says Mr Ocansey, a member of a grasscutter farmers' cooperative. "The cholesterol is very low. There is no religious barrier. Everybody likes grasscutter."

The farming may be new, but Ghanaians' taste for grasscutter is hallowed by tradition. But the old ways of hunting the animals – by starting bushfires to scare them and other kinds of bushmeat out of their natural habitat – have prompted environmentalist concern.

"So if we have this market demand, how can we satisfy it without destroying the environment?" says Rita Weidinger, who works for the German Agency for Technical Cooperation (GTZ). "Grasscutter hunting is a lucrative business, so we need to provide alternatives or hunters will continue to exhaust grasscutters." For Ms Weidinger, that alternative is to encourage people to farm grasscutters. As a commercial enterprise grasscutter farming remains the preserve of no more than a handful of people. But with thousands keeping them as a hobby, GTZ is working with the Ministry of Agriculture to train farmers how to rear the animals for the pot. The farmers say that their business is a more attractive proposition for customers than simply buying on the street.

The next step could be to look further afield. On the one hand, Ghana's grasscutter farmers are preparing to rear breeding stock for neighbouring countries. On the other, the huge diaspora of Ghanaians overseas longing for a taste of home could also prove lucrative. But with local demand for grasscutters booming, most farmers are unlikely to need to seek markets far from home. (*Source:* BBC News, 3 April 2006.)
(*Please see p. 44 for more information.*)

## CORK

**Future of cork oak forests hangs in the balance**

Three-quarters of the western Mediterranean's cork oak forests could be lost within ten years, threatening an economic and environmental crisis, according to a new World Wide Fund for Nature (WWF) report.

WWF warns that up to two million ha of cork oak forests will suffer a heightened risk of desertification and forest fires because of a predicted decline in the market for cork stoppers.

The report *Cork screwed?* says that the future survival of cork forests strongly depends upon the market for cork wine stoppers. However, the trend away from cork stoppers could lead, in the worst-case scenario, to synthetic and screw tops holding 95 percent of the closure market by 2015. This would result in the loss of 62 500 jobs in the cork-producing regions. Endangered species such as the Iberian lynx, Barbary deer and imperial Iberian eagle would be put at further risk of extinction.

Cork stoppers, which are biodegradable and can be recycled into other products, represent almost 70 percent of the total cork market value.

Every year over 15 billion cork stoppers are produced and sold to the wine industry. The cork landscapes provide a vital source of income for more than 100 000 people in the cork-producing countries of Portugal, Spain, Algeria, Morocco, Italy, Tunisia and France.

Cork harvesting is an environmentally friendly process during which not a single tree is cut down. Synthetic and screw top closures are more harmful to the environment because they use more energy in production and are oil-based products.

WWF is calling on the cork industry to continue to invest in the quality of cork stoppers, and the wine industry to make cork the preferred closure option. Better

management practices in cork oak landscapes also need to be coupled with Forest Stewardship Council (FSC) accreditation – the highest environmental certification system.

The report can be found at: www.wine.co.za/attachments/PDF-View.asp?PDFID=38 (*Source:* WWF, 16 May 2006 [in *South African Wine News*].)

**Sustainability of cork**

Cork is a truly sustainable product – it is renewable and biodegradable and cork harvesting is an environmentally friendly process with no loss of trees. As well as providing a valuable source of income to more than 100 000 people, these landscapes also support one of the highest levels of biodiversity among forest habitats.

Traditional cork oak *Quercus suber* landscapes, which cover approximately 2.7 million ha in Portugal, Spain, Algeria, Morocco, Italy, Tunisia and France, are under threat from a number of pressures. In particular, the increasing risk of decline in the global cork stopper market for the wine industry, because of the growing use of non-cork substitutes, is threatening to reduce the market value of cork and the incentive to preserve and manage cork oak landscapes. (*Source: Cork screwed. Environmental and economic impacts of the cork stoppers market*. WWF [in *TRAFFIC Bulletin*, 21(1), 2006].)

**Cork harvest in 2006 biggest in latest nine-year cycle**

While Europe had another hot summer in 2006, it also had the biggest cork harvest in the last nine years, bringing in a total of 140 000 tonnes of raw cork, according to the Cork Supply Group, the largest provider of premium natural cork wine stoppers in the United States.

This year Portugal, the largest producer of raw cork, will produce 110 000 tonnes, while the number two producer, Spain, will see 30 000 tonnes.

Cork is produced from the bark of the *Quercus suber* tree, also called cork oak, which grows predominantly in Portugal and a few other countries around the Mediterranean. The trees are stripped every nine to ten years, when the bark is thick enough for viable commercial use. By cycling the production schedule of trees, cork foresters maintain a consistent and reliable source of wood.

Nearly 99 percent of all cork harvested is used for commercial purposes in one way or another. The highest-quality cork is generally reserved for wine stoppers, with lower grades used in a host of products ranging from linoleum and ceiling tiles to car parts and shoe soles. Protected by the Portuguese Government as a renewable resource, the average life span of a cork tree is more than 200 years. (*Source: South African Wine News*, 25 August 2006.)

## LAC

**Cultivation of NTFPs as the best measure of poverty eradication of poor tribal cultivators. A case study of lac cultivation**

Non-timber forest products (NTFPs) have always played a central role as a source of income generation in community forestry projects throughout the world. Forests are generally inhabited by tribal people, especially in India, who are protected by law and given the constitutional right to derive their livelihood from forest produce. They are assigned the special status of scheduled tribes. Most of the tribal population generally reside in the vicinity of a forest and are exclusively dependent on forest produce for their daily needs.

A recent study by the authors focuses on lac, which is a secretion of the insect *Laccifer lacca* and is an important NTFP. Until the 1950s, India virtually had a world monopoly in its production and trade and accounted for nearly 90 percent in both. This scenario changed in recent years, with domestic production declining from 45 000 tonnes in the 1950s to about 12 000 tonnes in 2000. However, there has been a revival in lac production which, by 2003, exceeded 20 000 tonnes, with lac exports exceeding Rs100 crore.

Lac cultivation in India is spread over major forest areas in Jharkhand, Chhattisgarh, Madhya Pradesh, Maharashtra, West Bengal, parts of Uttar Pradesh and the northeastern Himalayan region, with Jharkhand contributing about 68 percent of total production, followed by Chhattisgarh, West Bengal and other states. Lac cultivation is carried out in four crop seasons during a crop year, with each crop contributing different amounts, e.g. the summer crop season contributes about half of total annual lac production.

Lac is a cash crop by nature, thus enhancing the cash flow of a large number of people involved in its cultivation, processing and trade.

In order to examine the current status of lac cultivation and the problems in the higher production of stick lac, the study selected a sample of 152 cultivators spread over major lac-growing areas in Jharkhand, Chhattisgarh, Madhya Pradesh and Maharashtra. The selected cultivators were classified into three categories based on the number of lac hosts: i) small cultivators (up to 100 trees); ii) medium cultivators (from 100 to 250 trees); and iii) large cultivators (more than 250 trees).

The study revealed that palas remains the main lac host tree (81.4 percent), followed by ber (14.1 percent) and kusum (4.5 percent).

The gross return from lac cultivation on ber host trees in different categories of cultivators revealed that large cultivators were earning the highest amount per tree (about Rs122), while small cultivators were earning the least (about Rs59) and medium cultivators about Rs98.

The study of gross returns from lac cultivation on different types of host trees among different categories of cultivators suggested that the difference in gross return per host tree was mainly a result of the varying crop yield rates realized. The price of lac obtained from kusum fetches a comparatively high market price because of its superior quality, whereas lac obtained from palas fetches a lower price mainly because of its inferior quality and colour.

The study further revealed that lac cultivation is the most lucrative enterprise for tribal cultivators, where little effort is maximized in the form of higher cash earnings and the conservation of trees. However, in spite of such a lucrative return from lac cultivation, a large number of lac host trees remain unexploited every year. Constraint analysis was carried out to identify factors that affect lac production adversely and restrict higher production at the farmer level. (*Contributed by:* Dr S.P. Bhardwaj, India.)

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## MAPLE SYRUP

**Maple syrup tapping in the United States**

To obtain sap for syrup, a hole is drilled into the maple tree and the sap drips through a spout or tube into a bucket or plastic bag. Black maple and sugar maple are the trees commercially tapped in Michigan (United States), although the sap from red and silver maples can also be made into syrup.

A tree needs to be about 40 years old and at least 10 in (25 cm) in diameter to be tapped; it can then be tapped for more than a century. Springtime is tap time, because warmer days and freezing nights make the sap flow. Once a tree starts budding, the syrup will taste bitter.

One tap will yield about 10 gallons of sap per season, and it takes about 40 gallons of sap to make 1 gallon of syrup. The colourless sap is 2–3 percent sugar, and is boiled to reduce the water content and concentrate the sugar until it becomes syrup.

Syrup comes in four United States Department of Agriculture (USDA) grades: Grade A Light Amber is the lightest in colour and tastes the mildest. Grade A Medium Amber is a little fuller in flavour and is usually used for pancakes and waffles. Grade A Dark Amber is even fuller in flavour and is used on breakfast cereals, and for cooking and baking. The darkest, Grade B, is best suited for baking. (*Source: Detroit Free Press* [United States], 6 March 2006.)

**Maple syrup production in the United States**

Maple syrup production rose by 12 percent in New Hampshire and Vermont and 13 percent in Maine in 2006, while production nationwide increased 17 percent, according to Department of Agriculture statistics.

As usual, Vermont was the No. 1 syrup state with 460 000 gallons produced. Maine was the No. 2 state with 300 000 gallons, followed by New York with 253 000 gallons. New Hampshire produced 64 000 gallons of syrup, Massachusetts 40 000 gallons and Connecticut came in at 10 000 gallons.

The rise in production is credited to an increase in yield as well as an increase in the number of syrup taps. (*Source:* Associated Press [in *Portsmouth Herald News* (United States)], 16 June 2006.)

**Maple syrup production in Canada**

Canada accounts for 85 percent of the world's maple syrup production, with the United States supplying the remainder. More than 80 percent of Canada's production is exported to the United States. Japan is the second largest market with sales to this country growing significantly in recent years – doubling, in fact, from 2001 to 2003.

In 2004, Canada's production of maple products dropped by 3.6 percent while exports increased by 4.1 percent. Even though production declined, Canadian suppliers were able to satisfy domestic and foreign markets by drawing on the high inventory left over from the exceptional 2000 harvest. Quebec is Canada's biggest producer of maple products (93 percent), with Ontario and New Brunswick accounting for most of the remainder.

In 2005, the Canadian maple products industry received a boost when the *Fédération des producteurs acéricoles du Québec* (Quebec Federation of Maple Syrup Producers), in conjunction with the federal government, announced plans to promote maple products on international markets and to make the maple industry more innovative. (*Source: The State of Canada's Forests 2005–2006.*)

## MEDICINAL PLANTS AND HERBS

***Terminalia pallida* Brandis**

*Terminalia pallida* Brandis is an endemic plant of medicinal importance in the Seshachalam hill range of the eastern Ghats in India. It is a deciduous tree of the family Combretaceae, regionally called *tella karaka*, and is a dominant tree on the Tirumala hills. It has the following characteristics.

- It is a semi-evergreen tree, 8–10 m tall with greyish bark and glabrous branchlets.
- The leaves are simple, 6–12 x 3–5.5 cm thick, coriaceous, alternate, subopposite, broadly oblong to elliptic-oblong, glabrous, glaucus beneath, apex obtuse or emarginate, margin entire or slightly crenulate, base rounded with glands at the base of the leaf blade; petiole to 1 cm, orange-reddish, stipules absent; secondary nerves seven to nine pairs.
- The flowers are pale yellow, small and bisexual, in terminal spikes up to 8 cm long, bracteoles small and deciduous. Calyx tube ovoid, constricted above the ovary, limb campanulate with five triangular, valvate lobes. Petals are absent; there are ten stamens, in two series – the upper five alternate with the calyx lobes, the lower five inserted opposite; filaments are subulate, exerted; anthers small; disc five-lobed, villous. Ovary one loculed, ovules two to three pendulous; style subulate; stigma small.
- Fruit drupe, obovoid, green when young, later turning brown, 1.4–2.5 x 1.3–1.7 cm, very faintly five-ridged when dry, glabrous, indehiscent; seed solitary, exalbuminous; cotyledons convolute.

The leaves usually fall from December to February and new foliage and flowering start from March onwards and continue until the end of April. Fruits appear at the beginning of August until end-September.

The fruit has high medicinal value as an antipyretic, a purgative and a diuretic. The local tribal people use it:

- as a decoction orally to prevent diarrhoea;
- as a powder applied externally on the affected part and given orally for swellings and fever;
- with honey, taken orally to cure peptic ulcers;
- as a powder, given orally with water to control diabetes;
- as an infusion, with the tuberous root of *Pimpinella tirupatiensis*, in the treatment of venereal diseases;
- as a powder given orally as a remedy for coughs and colds;
- as a paste, mixed with turmeric and applied externally to the toes and feet to cure fissures and cracks; and
- in veterinary medicine.

*Terminalia pallida* is being exploited excessively for its fruit. Hence, immediate

steps must be taken to conserve this endemic plant before it becomes endangered. (*Contributed by:* Prof. (Mrs) N. Savithramma, Department of Botany, Sri Venkateswara University, Tirupait 517 502, Andhra Pradesh, India. E-mail: drnsavithri@yahoo.com)

### *Moringa oleifera* has multiple healing properties

The *Moringa oleifera* tree can save millions of lives around the world through its high nutritional and medicinal properties. Every part of the tree is valuable as it is said to have beneficial properties that can cure various ailments. For instance, its leaves can cure high blood pressure, diabetes, diarrhoea and fever.

Dr Jean Baptiste Nduwayezu, Moringa Project Coordinator for the southern African region, said research had also shown that consumption of fresh moringa leaves and dry leaf powder increases the milk production of breastfeeding mothers and improves babies' health. Nduwayezu said that *Moringa oleifera* seeds, which have properties similar to olive oil, are used in water purification and also provide edible oils. Moringa seed oil is used in lubrication, soaps and cosmetics and as a remedy for prostate cancer, bladder problems, gout and skin diseases, among other functions.

Nduwayezu, however, warned that excess consumption of moringa roots in powder form could be toxic and result in cardiac arrest or paralysis. He said that recent reports from Francistown and Gaborone showed that some people were now selling the powder from moringa roots in different dosages. Furthermore, some unscrupulous vendors are making huge profits by selling products labelled moringa tea leaves but that are in fact from the ground roots or stems of any tree or shrub species.

He said there was a need for the establishment of a farmers' association to be responsible for setting standards, testing and approving moringa products. (*Source: Daily News* [Botswana], 14 September 2006.)

### Healing plants found in threatened Borneo forest

Plants thought to help treat or cure cancer, AIDS and malaria have been found in the rain forests of Borneo according to a new WWF report – *Biodiscoveries, Borneo's botanical secret*. But the rapid destruction of trees, much of it by illegal logging, could wreck any chance of using these discoveries in the fight against disease, WWF declared.

A promising anticancer substance has been found in a Borneo shrub by researchers for an Australian pharmaceutical firm, while a chemical found in latex produced by the bintangor tree appears to be effective against the replication of HIV, the report said. The report further says that researchers found a powerful and previously unknown antimalarial agent in the bark of a local tree traditionally used by the Kenyah people of Kalimantan to treat malaria. In laboratory tests this substance appears to kill the human malaria parasite.

In all, the report stated, 422 new plant species have been discovered in Borneo – shared by Malaysia, Indonesia and Brunei Darussalam – in the last 25 years and many others that could have medicinal applications are believed to be there. But "all these promising discoveries could eventually be lost if the disappearing rain forests of the heart of Borneo are not adequately protected", WWF said. Borneo's forest cover has shrunk to 50 percent of its territory today from 75 percent in the mid-1980s. (*Sources:* Reuters, 27 April 2006 and others.)

### Anti-inflammatory properties of copaíba

A study conducted by Brazil's University of São Paulo's Ribeirão Preto Science Department has certified the anti-inflammatory properties of the copaíba plant (*Copaifera officinalis*).

In testing on mice, this tree native to the tropical regions of Latin America and western Africa showed anti-inflammatory properties twice as strong as diclofenac sodium, a synthetic medication.

To date, copaíba has been used in scents and varnishes, but it has also been used in traditional medicine to prevent scarring and against inflammation. (*Source:* Tierramérica, 3 August 2006.)

### China launches international project on herbal medicine

China, the world's main producer of traditional and herbal medicines, has launched an international project to modernize the sector. The Ministry of Science and Technology pledged an initial 100 million yuan (US$12.7 million) for projects that focus on developing new treatments for diseases such as cancer and HIV/AIDS. It is the first time that China has initiated a multinational research project of this kind, which it hopes will provide an opportunity to boost health research in developing nations.

A senior ministry official says it is likely that China will launch research on artemisinin, a herbal medicine from *Artemisia annua* regarded as the best treatment for malaria, with African countries such as Kenya and South Africa.

The scheme has already attracted countries including the United States, Japan and Singapore, says Shang Yong, Vice-Minister of Science and Technology. The first 50 programmes, which will be selected by his ministry and matched with international partners, will start by the end of 2006.

China hopes the project will help increase its share of the global market for traditional medicines. Until now, entry into global markets has been hampered by a lack of consensus as to how to measure the efficacy of traditional medicine. Thus the project will also include efforts to develop international standards for traditional remedies. "It is much cheaper to develop a new herbal medicine than a Western one," says Shang. "So our programmes will have a strong appeal for transnational companies."

Such companies will be able to express their wish to participate through their embassy or their home country's science administration. Shang added that companies, rather than colleges or research institutes, would play the major role in each programme, with an aim to "foster domestic pharmacists".

Chinese drug companies will gain extra funding and access to advanced facilities in developed nations to help them develop their traditional medicines. (*Source:* SciDev.Net Weekly Update, 3–10 July 2006.)

### *Ginkgo biloba*: how a herb could help the brain

Researchers have identified a key cellular pathway by which the herbal medicine *Ginkgo biloba* may protect brain cells. If the results are confirmed in humans, *G. biloba* might one day be used to lessen the effects of strokes.

For centuries, traditional Chinese physicians have used extracts from leaves of the maidenhair tree, *G. biloba*, to treat asthma, bronchitis and brain disorders. Although many of *G. biloba*'s purported benefits remain unproven, doctors in the United States are studying the herb's potential to slow memory loss and ease confusion in patients with Alzheimer's disease. No one knows for sure how the herbal extract affects the brain. (*Source: Science*NOW Daily News, 30 May 2006.)

## MULBERRY

**Mulberry leaves nutritious for livestock**

Mulberry (*Morus alba*), locally known as *nkenene*, is a multipurpose fodder shrub. It plays an important role in the nutritional security of both animals and people. Its sweet fruits are extremely valuable and eaten mainly by children, while its leaves provide high-quality feed for small ruminants.

Kenyan farmers have been feeding cows and goats on mulberry leaves since the 1990s. Ugandan farmers have also begun making use of the shrub. Mulberry was previously planted for the silkworm industry and eaten as a fruit but now it is mixed with fresh forages (grasses and legumes) and given to livestock for a balanced diet. Fresh grasses such as Tanzania (*kakira kambwa*), elephant and Guatemala are a source of carbohydrate and contribute 70 percent to the diet. Fresh legumes such as mulberry, *Calliandra* (*kalibwambuzi*), *Sesbania* (*muzimbandegeya*), *Leucaena, Tephrosia* (*muluku*), lablab, *Gliricidia* (*mutamesse*) and *Ipomea temirostris* (*ekabowabowa*) are protein-giving foods.

The cows and goats graze and browse every type of grass and shrub but, among the legumes, it is mulberry and *Calliandra* that are consumed first. Fresh forages are cut on a daily basis, chopped, mixed and fed to the animals.

According to the *Paths to Prosperity* 1998–99 report by the International Centre for Research in Agroforestry (ICRAF), a similar experiment was carried out in central Kenya from 1997 to 1998 to determine the voluntary intake of tree-shrub fodder supplements by heifers. Mulberry had the highest voluntary intake of the fodder used in this trial, compared with dairy meal. This high intake and the fact that the bark was eaten are indications of mulberry's high nutrition. Sweetness is an important factor in intake.

With each type of fodder, cattle were able to select the more nutritious parts. And their selective feeding, together with the level of supplement intake, determined the amount of nutrients they consumed. As a result, cattle produced more milk when given mulberry than when given *Calliandra* or *Leucaena*. The extent to which farmers used mulberry as fodder for dairy cattle was similar to the extent *Calliandra* and *Leucaena* were used. (*Source: New Vision* [Kampala], 23 May 2006.)

**Silkworm cocoon production shifts from east to west**

In a bid to improve the silkworm cocoon industry, the Chinese Bureau of Commerce plans to support nine silkworm cocoon production areas under the project "West shift of east mulberry". The project includes 200 huge silkworm mulberry bases, which will form the new cocoon production areas, focusing on central and west China. Major provinces include Guangxi, Jiangxi, Sinkiang, Liaolin and Sichuan. Guangxi has replaced Jiangsu Province as the most important in the Chinese silkworm cocoon industry.

The Government of China will supply special funds and necessary support to carry out this project. (*Source:* Fibre2fashion.com, 22 August 2006.)

**Extensive mulberry plantations to be raised in Indian state**

Rajahmundry. Plans are afoot to raise mulberry plantations in 10 000 acres (4 047 ha) in Andhra Pradesh during 2006 in addition to the existing 90 000 acres (36 422 ha), according to the Sericulture Commissioner. She said that so far eight crore saplings had been planted in 3 500 acres (1 416 ha). As many as 5 000 tonnes of silk had been produced from 55 000 tonnes of cocoons.

Steps were taken to produce 75 000 cocoons in 2006. The existing production in the country is 14 000 tonnes as against a 25 000-tonne demand. The Government is planning to set up spun silk mills in the state in a phased manner. (*Source:* FreshPlaza, the Netherlands, 22 August 2006.)

## OAK GALLS

Galls are tumorous mutated oak leaves. They serve as both protective homes and food supply for tiny wasps that alternate between sexual and asexual generations.

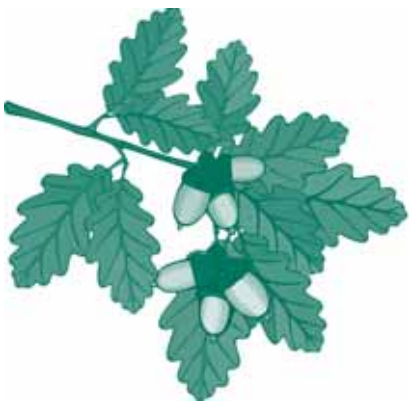
All galls are aberrant plant growths caused by a variety of micro-organisms, nematodes, mites and insects, particularly flies, wasps and aphids. Galls can be found on all groups of plants and come in all sizes, textures and shapes, resembling everything from marbles to dunce caps, spikes, cups or buttons.

Most insect galls develop on oaks and are caused by cynipid wasps, a diverse group of small wasps numbering over 600 species in North America and many thousands more worldwide.

Some oak galls are quite valuable since they have a concentrate mixture of resins and tannins, used commercially to make permanent inks and astringent ointments. Inks of the best quality have been made from oak galls, the most prominent coming from the Aleppo galls of Europe and Asia.

Commonly seen oak galls are thin-shelled, spongy "apples" that start out green and slowly turn brown during the summer. They are formed by the cynipid *Amphibolips confluenta*, a tiny dark-coloured ant-like wasp. During the summer, each gall contains a single male or female wasp. The galls are stimulated to grow by chemicals in wasp saliva that mimic the effects of plant hormones.

In late June or July winged adults emerge from their oak apple condominium to mate. After this brief sexual phase, the males die and the females burrow into the ground and lay fertilized eggs on oak roots. These hatch into all-female larvae that begin feeding on root tissue, which stimulates development of another type of gall below ground. This phase of the life cycle lasts more than a year, and then the larvae develop into wingless asexual females that look completely different from their sexual parents. These crawl up the oak tree to lay unfertilized eggs on developing leaves. No males are required. Oak apple gall wasps of both sexes and all life-cycle phases are stingless. (*Source:* Sara and Jim Lawrey, *Rappahannock News* [United States], 28 June 2006.)



## SANDALWOOD

**Sandalwood oil – aromatherapy for the mind, body, and spirit**

Sandalwood is one of the world's most widely used essential oils, prized for its scent in perfumery, for its therapeutic effects in Chinese, Ayurvedic and Tibetan medicine systems, and for its ability to focus the mind in meditative yogic traditions.

Sandalwood essential oil is most often extracted via steam distillation from the wood of the sandalwood tree, with the heartwood of the roots producing the highest-quality oil. Sandalwood is an evergreen tree, growing to a height of 9 m, with leathery leaves and small purple flowers. Native to southern tropical Asia, the tree is parasitic, gaining its nutrients from one of several other tree species. Because it can only be grown this way, and as a result of its seemingly strict set of environmental conditions, sandalwood is difficult to propagate. To add to the challenge of successful cultivation, sandalwood takes nearly 30 years to mature before yielding oil of any worth.

Sandalwood oil has a woody, balsamic, sweet and slightly musky aroma; it is a pale yellow, greenish or brownish liquid with excellent tenacity (the aroma tends to last a long time) and superior fixative properties. There are several varieties available, with *Sandalum album* considered the most important therapeutically. The Mysore region of eastern India is thought to produce the highest quality of this oil type, although its harvesting is creating a strain on the area's natural environment. Recently, an oil of the *Austrocaledonia* species has been produced on the South Pacific island of Vanuatu from successfully cultivated sandalwood trees. This oil has a fantastic aroma, with a woody, smoky scent that is an excellent base note in perfume and cosmetic blends.

In the West, sandalwood oil is perhaps best known as a natural, woody, sweet body perfume used "as is", or as a familiar aroma in many cosmetics, aftershaves and the like. In the East, however, sandalwood's importance in cultural and spiritual traditions cannot be overstated. The wood is carved into furniture and religious icons, used to build temples and burned as incense in a great variety of ceremonies. The oil is used to anoint the dead. In Myanmar, women sprinkle it on passers-by on the last day of the year. In Hindu marriages, sandalwood is burned in a tent so that the smoke surrounds the bridal couple. For the meditative yogi, the oil and incense encourage a serene state of mind.

Sandalwood is valued in the traditional Indian medicine system of Ayurveda. It is indicated for inflammatory, intestinal and genito-urinary conditions that require cooling. Modern aromatherapy considers the oil an effective skin care agent for dry skin, general irritation and acne; it can help in cases of bronchitis, catarrh, dry persistent coughs, laryngitis and sore throats; it may relieve diarrhoea and nausea, and can be supportive in cases of cystitis. Sandalwood essential oil is also a great tonic for the hyperactive mind.

Finally, sandalwood is one of the few essential oils that improve with age. Because of increasing demand, the price of the oil is climbing significantly every year. (*Source:* Market-Day.net [United States], 14 September 2006.)

**India, Australia and the sandalwood market**

India's 5 000-year-old sandalwood industry is in its last gasp, thanks to smugglers who have ensured that the official trade is killed. Sandalwood production in the country has fallen from about 4 000 tonnes/year in the 1960s to under 1 000 tonnes during the 2000s.

Three years ago India exported 1 800 tonnes of hard-core sandalwood, of a world trade of 6 000 tonnes. In 2005 it was a bare 400 tonnes. As a result, India, once the undisputed leader in the 1 800 crore-a-year market for global sandalwood exports, has lost its position to suppliers in Australia and Indonesia. India's own local requirements are about 150 tonnes a year; in 2006 supplies can continue for about two more years since stocks are on the decline.

A sandalwood tree lives for 60 to 70 years. When it is brought down for profit, it is never felled like other trees, but uprooted in the rainy season, when the roots are richest in the precious essential oil. The yield of oil is highest in the roots, about 10 percent, and lowest in chips, which are a mixture of heartwood and sapwood (1.5–2 percent). The oil content of the heartwood varies from tree to tree and is higher in older trees. One tonne of sandalwood yields 40–50 litres of oil. The bulk price at the factory is more than Rs50 000 a litre. On the Internet the oil retails at Rs1 350 for 10 ml. Each tree yields around 30 kg of heartwood.

Environmentalists say the smuggling of sandalwood could be well in the region of Rs500 crore annually. Marayoor has the best-quality sandalwood in the world and is the only place in Kerala where it grows naturally. Smuggling of this costly wood is rampant, where a single tree can fetch more than a lakh of rupees. Marayoor, which earlier had over one lakh sandalwood trees, now has only 59 000.

Except in some patches of Kerala and Karnataka forests, there are no sandalwood trees left in India and it will be some time before the industry can be resuscitated, since it takes conservatively 50 years before a sandalwood tree can be uprooted for its valuable oil. In the 1990s the price was 3 lakh rupees per tonne and in 2006 it was 30 lakh rupees per tonne.

Who will fill the gap to supply the 6 000 tonnes of sandalwood logs required annually for the world trade? Other nations, mainly Australia with its vast uncultivated lands, have stepped in. The greatest advantage of Australia is that its sandalwood farms are in the private enterprise sandalwood industry. It is already ensuring the topmost security of its sandalwood, and there are no poachers or smugglers.

Australia has become the home for sandalwood plantations with a total annual harvest currently standing at 2 000 tonnes. It has embarked on a long-term sandalwood tree project and the largest sandalwood farm in the world is at Kunnumurra in western Australia, with 12 000 sandalwood trees in each of its 300-acre (121.4-ha) farm segments. The oil content of Australian-grown trees is between 1 and 2 percent, which compares with 6 percent from Indian trees. But now plant scientists in Australia have developed a method of extracting sandalwood oil from trees as young as 15 years, unlike in India where the trees are not touched until they are 40 years old. That means for one extraction cycle in India, there are three in Australia. The Australian scientists are also striving to achieve an oil production figure closer to the Indian trees.

Scarcely two decades old, the Australian sandalwood industry has today the green sandalwood resources available for harvest in excess of 200 000 tonnes and the quantity of dead sandalwood available for harvest was in excess of 15 000 tonnes. At the same time, Australia does not want to flood the market by lowering prices and its Ministry of Agriculture has decided to keep exports locked at around 3 000 tonnes a year.

India is already importing hundreds of tonnes of sandalwood from Australia and the famous Australian red sanders sandalwood is very well received in India for

its oil content. Many Indian companies are also interested in investing in Australian sandalwood plantations and setting up units over there. (*Source: Navhind Times*, 21 August 2006.)

**Indian perfume capital on the brink**

With sandalwood hardly available for the *attar* or *itr* distilleries in Kannauj, the "perfume capital of India" might lose its status in the next few years. Of 21 sandalwood oil distilleries, 19 have shut down, while the remaining distilleries are functioning with cheaper African wood. And every perfumery owner now relies on a second business for a living.

Virendra Dixit, the owner of Pandit Chandrabali Sandalwood Distillery, one of the oldest, blamed the situation on the "shortsighted policies of successive governments", with no efforts being made to increase the area under cultivation and/or improve production. Dixit, who is also president of the Perfumer's Association, said the government has imposed 16 percent excise duty on sandalwood and 10 percent on other perfumes, thus forcing the collapse of surviving distilleries. He added that sandalwood oil, which was available for Rs7 000–8 000 about ten years ago, is sold for no less than Rs50 000 now, and the profit margin per kg is between Rs200 and Rs1 000.

Another perfumery owner stated that "there is no life left in the industry". He said many people have closed down their units and have moved out of Kannauj. (*Source:* Lucknow Newsline [India], 10 July 2006.)

**Big expansion for sandalwood plantation in Australia**

An Indian sandalwood plantation in the Ord Valley is undergoing its biggest expansion in seven years. Tropical Forestry Services is planting a further 235 ha of the exotic hardwood, increasing its total plantation to more than 800 ha. The company plans to harvest its first crop in 2012, banking on continuing strong demand from Asia, Europe and the United States. Premium sandalwood is fetching more than A$100 000 a tonne at global auctions and has risen in value by a compound 22 percent a year over the past 15 years.

The other major grower of Indian sandalwood in the Ord, ITC Limited, has now planted 750 ha; its first harvest is planned for 2014. (*Source:* ABC Online [Australia], 19 June 2006.)

**Vanuatu sandalwood competes with Indian product**

Recent field surveys of natural stands of sandalwood in Vanuatu have uncovered a range of varieties that possess exceptional oil qualities. The main survey was carried out in 2004 by local and Australian experts on six islands in Vanuatu – Malakula, Santo, Moso, Erromango, Tanna and Aniwa – in order to quantify morphological and genetic variation. The survey was also intended to domesticate the good-quality trees for expanding plantings to meet international standards for sandalwood oil.

This new development opens the way for local communities to make a greater contribution to the sandalwood industry through planting superior varieties. The sandalwood oil industry also stands to benefit through future access to a consistent supply of quality oil that is required for developing premium branded products.

Individual sandalwood trees (*Sandalum austrocaledonicum*) were assessed and wood core samples collected from nine populations on the six islands. A total of 28 percent of trees sampled in the two northern islands produced a natora oil meeting the international standard, with a content of more than 41 percent a-santalol and more than 16 percent b-santalol. The selected trees from the remaining southern populations had a mean of 31 percent of a- and b-santalol.

The survey now places Vanuatu in second position after Indian sandalwood, *Sandalum album*, in the world market. *Sandalum austrocaledonicum* is mainly found in Vanuatu and Mare island in New Caledonia compared with *Sandalum yasi* in Fiji and Tonga with poor-quality oil. (*Source:* Port Vila Presse [Vanuatu], 21 February 2006.)

**Saving the sandalwood tree in Kenya**

Residents of Majani village in the Laikipia district of Kenya's Rift Valley Province recently noticed that sandalwood, known locally as *muthirioni*, was being uprooted and taken away at night. Even those in private farms were not being spared. The residents later learned that this was happening because of a huge demand for sandalwood products – bark, stem and seeds – in India. Smugglers working with some residents were buying the wood at K Sh3/kg. In collaboration with other stakeholders, members of Laikipia Conservancy have been trying to stop the illegal harvesting of the tree.

Sandalwood, which was originally found in India and Australia, is a small evergreen tree that grows up to 4 m high in Kenya and up to 20 m in India. It sometimes attains 2.4 m in diameter. Its bark is dark brown, reddish, dark grey or nearly black in younger trees.

"The bark when boiled produces a dark-coloured solution which was used to flavour tea. It was also used together with other herbs for cleaning blood. For others, the boiled product was given to women after giving birth to boost their appetite," remembers Joseph Thuita, a resident of Majani village. Another elder, Charles Ndun'gu, says: "The wood of the sandal tree was sold in many markets in central Kenya just before independence. It was boiled and used as tea and some people said it lifted their mood." After Kenya gained independence, sandalwood products were abandoned as better branded and packed products hit the market.

In India, however, the tree products have attained sacred status. When harvested, the stem, which is known as heartwood, is ground and its steam distilled into oils for use in manufacturing cosmetics, soaps, candles, medicines and perfumes. The wood yields between 4 and 10 percent oil when distilled.

Because of the rising demand for sandalwood products, the tree is considered endangered in India, which is why smugglers have found East Africa an easy source of the products.

The Kenyan Government has banned harvesting of the tree, but the lure of quick money has forced people to target isolated forests and bushes where it is found. (*Source: The East African* [Kenya], 5 September 2006.)

## STEVIA

**The changing market for stevia**

Stevia, also called sweet leaf or honey leaf, is a medicinal plant indigenous to South America, where it has been used for centuries by the Guarani Indians to sweeten foods and beverages. An estimated 280 species of stevia now grow wild in North and South America. However, the only species with the sweetening properties that have

attracted so much attention to the herb is *Stevia rebaudiana*.

Despite the challenging regulatory obstacles that stevia products have faced over the past 15 years, sales continue to climb year after year in both the natural and conventional markets. Currently, sales of stevia and medicinal tea with added stevia total US$14.4 million in the natural channel, up by 32 percent over the previous year. Total dollar sales are lower in the conventional channel, but they have grown nearly twice as much in the same period – 63 percent over the previous year to $3.6 million.

From Latin America to Asia, stevia is used as a natural and safe non-caloric sweetener. For example, the herb accounts for 40 percent of the sweetener market in Japan, where artificial sweeteners have been banned as a result of strict food additive regulations. Stevia has been used in Japan for approximately 30 years with no reported negative effects.

Stevia is almost completely free of calories, making it a wonderful natural alternative to synthetic non-nutritive sweeteners such as sucralose, acesulfame-K and aspartame, which many natural consumers tend to avoid. Stevioside and Rebaudioside A are two chemical components present in stevia. Together, they give the plant a taste that is 200 to 300 times sweeter than refined sugar, without a single side effect.

Besides being a natural alternative to sugar, stevia has a number of other healthful benefits that make it an ideal sweetener for anyone with blood sugar problems. Rebecca Wood, author of *The New Whole Foods Encyclopedia*, noted that stevia has traditionally been used to balance glucose levels because, unlike refined sugars, it does not cause spikes in blood sugar. Blood sugar regulation is increasingly important to consumers in the United States.

Because of its regulatory action on the pancreas, stevia also helps to maintain proper digestion and appetite. Regular use of the herb can help minimize hunger sensations and cravings for sweets or fatty foods. In addition, stevia has an antifungal effect and can be used to combat topical fungal infections such as athlete's foot. It is ideal for candida sufferers, as it does not feed yeast or other micro-organisms. It also has antibiotic properties that have been shown to prevent oral bacterial conditions, specifically cavities and gum disease.

During the late 1980s, stevia was quickly gaining momentum as a popular sweetener in the United States. Around the same time, an anonymous firm lodged a trade complaint with the Food and Drug Administration (FDA), stating that stevia was being used as an unapproved sweetener in the products of a successful tea company. As a result, FDA banned its import in 1991 and changed its classification from a food to a food additive.

This change in classification was a blow to producers. Foods do not need pre-market approval before they enter into the food supply, as they are automatically considered safe. Food additives, however, must undergo expensive toxicological research studies in order to meet FDA's safety requirements. While owners of patented food additives are guaranteed large profits because of their lack of competition in the marketplace, stevia would be impossible to patent. As soon as the herb had been approved for sale as a food additive, anyone could manufacture and sell it as a sweetener. Understandably, manufacturers were reluctant to invest millions of dollars on product research that cannot promise a return on investment.

Since 1992, the American Herbal Products Association (AHPA) has submitted at least two petitions to FDA challenging stevia's status as a food additive. In September 1995, FDA finally lifted its four-year import ban on stevia. However, the reintroduction of stevia to the United States was limited to its sale as a dietary supplement and prohibited its use as a sweetener or flavouring ingredient in any food products.

Today, stevia is sold in most natural food stores in the supplement department. It is available in several forms, including powder and plain and flavoured liquid. Although it has been banned for sale as a sweetener, consumers still purchase stevia for this purpose. Unlike aspartame, stevia is heat stable up to 392°F (200°C). However, baking with stevia is not the same as baking with sugar. The molecular structures of the two sweeteners are completely different. Sucrose (sugar) will caramelize when heated, giving baked goods a brown crust. Stevia, on the other hand, does not have this browning quality. Cooking times may differ from traditional recipes, and ingredient measures are not the same (since stevia is 200 to 300 times sweeter than sugar).

As more studies question the safety of non-natural sweeteners such as sucralose, acesulfame-K and aspartame, consumer demand for safe non-caloric sweeteners is increasing considerably. In spite of federal regulations limiting the sale of stevia products to supplements and medicinal teas, the herb continues to grow in popularity among natural and mainstream consumers alike. (*Source:* K. Rourke, Natural Products Insider [United States], 18 September 2006.)

**Stevia can help meet sugar crisis**

*Stevia serrata* (family name Asteraceae), a herbal plant widely used as an alternative to sugar in many developed countries such as Australia, Canada, China, Japan and the United States, can help meet a country's growing demand for sugar. Herbal scientist Dr Alamgir Mati said the compound made of stevia leaf (sometimes known as sweet leaf or *chinipata*) is 300 times sweeter than common sugar: 5 g stevia leaf has the same effect as 1 kg sugar.

Dr Mati said that 1 kg of sugar is being sold at Tk65 while it takes at best only Tk5 to produce 5 g of stevia. Since Bangladesh is an agrobased country, he believes that the plant could be easily cultivated in its vast char lands since it grows well on open land with regular sunlight. He added that "after 60 days of cultivation, the leaf of the plant can be harvested and turned into granules like those of sugar". This could help minimize sugar imports as well as create job opportunities for a large number of unemployed youth.

Dr Mati stated that stevia has no side effects as an alternative to sugar; rather it reduces blood pressure, risks of obesity and diabetes because it has a low carbohydrate content. (*Source: The New Nation* [Bangladesh], 2 June 2006.)

**Sugar-free honey project**

In an effort to motivate beekeepers to produce sugar-free herbal honey, India has introduced a new ecofriendly beekeeping system in the state of Himachal Pradesh. The National Horticulture Board (NHB) has sent the state 5 000 beekeeping boxes together with the bees, to be distributed in ten of the 12 districts in 2007, an official said.

These bees will be fed on stevia herbal plant leaves that are said to produce sugar-

free honey. The plant is considered a natural sweetener and also attracts bees.

These leaves will come in handy in the countryside during dry winters and the rainy season when the bees are unable to fly out in search of food. In the lean season, the hungry bees are normally fed sugar by beekeepers, resulting in the production of poor-quality honey. Stevia will change this practice.

Sugar-free honey is much in demand by diabetics and those who do not wish to gain weight but at the same time want to enjoy the taste of honey. It is also said to reduce cravings for sugar and fat besides being helpful in controlling blood sugar and high blood pressure.

An official said the project was sent to NHB by the Himachal Organic Association to popularize healthy sugar-free honey. Eventually the state government plans to procure some 100 000 beekeeping boxes to produce herbal honey. (*Source:* India eNews.com, 28 August 2006.)

## TRUFFLES

### Burgeoning business in truffles in Hungary

Truffling is becoming big business in Hungary, where its natural environment for the rare tubers that grow around tree roots is slowly being recognized by the international truffling community.

While French and Italian truffles fetch huge sums on the market, it is still possible to find truffles relatively cheaply in Budapest markets: 1 kg can be bought for as little as 60 000 forints (€230) from stall sellers compared with thousands of euro in culinary centres such as London.

Hungarian truffle gatherers collect 6–7 tonnes of wild truffles a year. Approximately 25 farmers have started cultivating truffles, although their farms will only start to yield them after several years. European farmers, mainly in France, Italy and Spain, produce 60–400 tonnes of truffles each year, accounting for almost all of the global production. (*Source: MTI* [Hungary], 14 September 2006.)

### Namibia's four-star fungus

Black truffles have long been prized in France, where pigs or trained dogs snuffle about under oak trees to bring the treasured delicacies to market for as much as US$1 200/kg when truffles are scarce. But in the Kalahari Desert in southern Namibia, the Nama people will sell you the odd kilo of truffles for a few dollars or so, unless they are keeping them to eat.

Kalahari Desert truffles (*Terfezia pfeilii*) are distantly related to French black truffles, but they are not so aromatic. Unlike the black French truffle, with its hard, knobbly outer layer, Kalahari truffles have a smooth brown skin similar to a small round potato. Like the French truffle, which is always found near the roots of oaks, the Kalahari truffle has a symbiotic relationship with a plant – the desert melon.

The Nama recommend carrying a stout stick when truffle hunting to flip aside adders, although it seems that they rarely bother with such fancy precautions themselves, thrusting their hands into the dense grasses to pluck out the truffles that are betrayed by a small crack in the red sand.

Namibians are as inventive about Kalahari truffles as others are about the potato. They bake them, boil them, mash them, slice them raw with salt or serve cooked slices in a salad. They barbecue them, grate them over pasta and fry them in lashings of butter and eat them on toast. Some recommend wrapping small ones in bacon and baking them whole.

Kalahari truffles are cheap in Africa: collectors are often poorly paid or ask little for their goods. But if the Kalahari truffle ever found its way into the markets of Paris or Rome, it would doubtless create ripples of excitement, attract curious buyers and command higher prices – if not the sky-high prices of European black or white truffles.

The difficulty with exporting truffles, however, is not just their short shelf-life – about a week – but regularity of supply. This wet season desert fungus is widely available one year and scarce the next.

Prof. Varda Kagan-Zur of Ben-Gurion University in Israel has been studying the cultivation of the Kalahari truffle and melons in Namibia in an effort to commercialize them. Dave Cole, who belongs to a Namibian non-profit association of development experts, the Centre for Research Information Action in Africa, is helping to coordinate the project, now in its final year. He says it has had mixed results, "but we have learned quite a few good things".

The study, under way for the better part of a decade, aims to create a predictable supply for markets and provide a livelihood for poor rural farmers. One fear Cole has is that cultivating truffles may create a viable industry for large commercial farmers and bypass small-scale, destitute farmers. (*Source: Los Angeles Times*, 15 May 2006.)

### Mad about truffles in New Zealand

Waipara truffle grower Gareth Renowden is confident that the delicacy will become a big export earner for New Zealand.

Renowden has established a truffière on the steep and stunning terrain of north Canterbury's Waipara Gorge. He is convinced that truffle farming has a huge future in New Zealand and that truffles will one day sit beside other boutique agricultural enterprises and become an important export earner.

There are few truffle experts in the world but Renowden, the New Zealand Truffle Association president, is fast becoming recognized as knowledgeable about the edible fungi that can command up to NZ$3 500/kg. This is despite his 0.5-ha truffle enterprise being in its infancy and that it has so far yielded only one black truffle in nine years. He quickly does the mathematics and says that a hectare of land with a conservative yield of 20 kg could make $60 000.

Renowden says that truffles are a high-value product not vulnerable to the commodity market because they are at the top end of the hospitality industry, which is in its early stages in New Zealand.

However, those who have entered the market have proved that quality truffles can be grown and harvested in New Zealand. There is a huge market in the northern hemisphere just waiting to be tapped because the southern hemisphere can produce truffles outside the northern season, he says. "We know the challenge is to grow enough to be able to meet demand. I think the industry is going to start to take off big time within the next five to ten years." All New Zealand growers have to do is to produce enough not only to satisfy the local market, but also to get quality fresh truffles to northern hemisphere chefs. "But we cannot even supply the local demand yet, let alone the international demand."

Big plantations are being planted in Australia, but rather than seeing them as competition, he says that the two countries are working together to develop the industry and set up quality control standards and a marketing infrastructure to protect the international market potential. (*Source:* Stuff.co.nz [New Zealand], 8 September 2006.) ♣

## AUSTRALIA

**Indigenous ingredients**

According to Vic Cherikoff, an indigenous plant researcher and television presenter: "We have the world's highest fruit source of vitamin C, the kakadu plum. We also have a spice with a compound which is known to be anti-arthritic, another which is antidiabetic and a herb with a component which looks like it will become a prophylactic against senile dementia, Alzheimer's disease and possibly Attention Deficit Hyperactivity Disorder (ADHD)."

Indigenous ingredients have also found their way into food. "For some creative chefs, developing an authentic Australian cuisine is the goal," says Cherikoff. But the benefits of indigenous ingredients extend beyond flavour. Cherikoff says that many of them are more nutritious than their conventional counterparts.

Dale Chapman, indigenous chef and founder of the Dilly Bag range of native products, says: "Some of our native bush tucker has special healing and nutritional value and the rest of the world wants to know about it." Chapman is working on a new section of her Web site, which will focus on bush food for health and medicine. "I am seeking the information from my elders."

Chapman believes that people are looking for ways to live a healthier life. "Why not look in our own backyard?" she says. "It's where the first people of Australia have nurtured, sustained and lived a healthy life for thousands of years." (*Source:* J. Hall, *The Sunday Telegraph*, 27 August 2006.)

### KNOW YOUR INGREDIENTS

**Kakadu plum** contains the world's highest amount of natural vitamin C. It is used as a garnish in cooking.
**Wild rosella flower** is high in natural phenols that protect the skin from free radicals. In cooking, it can be used in sauces, pastries, ice cream or as a garnish.
**Pidjawana wattle resin** is used to treat sore muscles, joint pain and arthritis. The wattle resin aids pain relief and is a natural anti-inflammatory product.
**Alpine pepper** increases circulation and warms muscles. It can be used to season meats or vegetables.
**Blue cypress** oil is used as an antibacterial wash for sores and cuts. It relieves itching.
**Grass lily** is used to heal burns, cuts and abrasions and also relieves itching, skin irritations and insect bites.
**Lemon myrtle** has a high content of citrol, which has antibacterial properties. The oil is used for cooking.
**Quandong** can be used in sauces or as a garnish and the kernel oil, which is high in santalbic acid, is a natural anti-inflammatory product.
**Bush tomato** is used in chutneys and sauces.
**Lemon aspen fruit and juice:** the fruit is used as a garnish, the juice to flavour desserts, dressings and sauces.
**Munthari** is a fruit used in muffins, pies and puddings.
**Forest peppermint** is used in desserts, especially ice cream.

*Lemon aspen fruit*

**Tasmanian beekeepers aim to protect leatherwood honey industry**

Tasmanian beekeepers are moving to secure the state's unique leatherwood honey industry with international legal protection for the leatherwood name. The plans for an appellation scheme have been discussed today at the Tasmanian Beekeepers' Association annual conference in Launceston.

Chairman Julian Wolfhagen says that the leatherwood honey is recognized worldwide as a unique wild product and the new scheme will protect it from exploitation. "It's feasible it might be misused. Someone could buy bulk honey, buy a drum of leatherwood and then mix it with something else and market it as leatherwood and price it," he said. "So it's a way of protecting unique intellectual property that belongs to Tasmania." (*Source:* ABC Regional Online [Australia], 7 July 2006.)

## BANGLADESH

**Prospects for medicinal plants**

It is significant that in a country of over 140 million people, only about 20 percent of the population of Bangladesh are in the habit of taking synthetic medicines or visiting allopathic doctors for treatment. A major section of the rest of the population opts for herbal treatment, particularly the Unani and Ayurvedic systems.

Cost is a factor as to why so many people in the country are used to these alternative systems of medicine. But their popularity also stems from the effectiveness of the treatment in most cases and their relative safety. Herbal medicines are known to create the least or even no side-effects on patients.

The growing of medicinal plants and herbs could also be a lucrative business. Bangladesh at present spends about Tk500 million on the import of herbs or herbal extracts to make medicines. Yet almost all these medicinal plants are grown in the country. Systematic planting and rearing of such plants are the only things lacking. This is regrettable since the entire financial outlay could be saved were the planting of medicinal trees and herbs to be popularized in the country.

Moreover, there are encouraging prospects for exporting medicinal plants, herbs and herbal extracts, provided that planting of medicinal trees and herbs and processing, standardizing and preserving them for export, are developed on a large scale.

One study has found out that it would be a good opportunity to plant medicinal plants and herbs on the fallow lands of the tea estates on the hillsides at Chittagong and Sylhet. Farmers themselves could profitably establish plantations on small strips of land in their homesteads in the rural areas almost all over the country. The cultivation of medicinal herbs and trees could be a source of employment and income at the grassroots level, while also helping to earn a substantial amount of foreign currency for the country.

At present, the annual average size of the export market for herbal products as raw materials is some US$62 billion. The market size is projected to expand to around $5 trillion by 2050. Thus, there should be every incentive for businesses in Bangladesh to take up the growing of medicinal plants and herbs with enthusiasm. (*Source: The New Nation* [Bangladesh], 18 July 2006.)

## BHUTAN

**Bamboo and cane: a case study from Bjoka, Zhemgang, central Bhutan**

A recent report (*Bamboo and cane: potential of poor man's timber for poverty alleviation and forest conservation. A case study from Bjoka, Zhemgang, central Bhutan*) presents the findings of a study on bamboo and cane from Bjoka in central Bhutan. The study assessed the accessible potential growing stocks of *Neomicrocalamus andropogonifolius* and *Calamus acanthospathus*; their roles in the household subsistence economy and impacts on commercial enterprise; traditional uses, indigenous knowledge and local resource management systems; constraints and opportunities of post-harvest practices; and vulnerability status to commercialization of these two NWFPs.

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**Bhutan's NWFP sector**

Under the FAO/Netherlands Partnership Programme, FAO consultant Dr Chandrasekharan visited Bhutan in June 2006 to assess the general conditions – biophysical, legislative/institutional and socio-economic – surrounding the NWFP sector and its potential, including the three products that have high market value but are also facing issues related to resource sustainability, production techniques and market development, i.e. *Cordyceps*, matsutake mushrooms and agarwood.

Based on his report, a national workshop took place in December 2006 to map the future course of action.

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**Ancient formula in capsules**

An ancient combination of the medicinal plant *Cordyceps sinensis* and five exotic herbs, which traditional medicine has used for thousands of years to promote good health and well-being, is now available in capsule form.

A product of Menjong Sorig Pharmaceuticals of the National Institute of Traditional Medicine in Thimphu, Bhutan, the capsule – sold under the brand name CordyPlus – was conceived to increase the plant's efficacy and add value, according to the manufacturers.

The other herbal ingredients of the capsule are *Polygonatum verticillatum, Asparagus racemosus, Rhododendron anthopogon, Withania somnifera* and *Dactylorhiza hatagirea*.

According to the head of the pharmaceutical company, even though the capsule was not targeted towards any specific group of people, most of the consumers were middle-aged and older people. He added that the ancient combination is believed to improve the overall health of those who experience general weakness, fatigue and joint pains. CordyPlus is also recommended for stimulating and revitalizing kidney and liver functions, curing piles and increasing the radiance of skin and hair.

Prices vary according to the availability of raw material and market demand. (*Source: Kuensel* [Bhutan], 10 June 2006.)

**Using science to strengthen So-ba Rig-pa**

Historical records suggest that Bhutan's traditional medicine system or *So-ba Rig-pa* took root in the eighth century. In June 1967 the first indigenous dispensary in the country opened and training of Menpas and Drungtshos (traditional medical practitioners) started in the 1970s. Today the traditional medicinal system is fully integrated with the modern health care system throughout the kingdom.

Approximately 6 tonnes of traditional medicines are produced annually in the form of tablets, capsules, powder, syrup and ointment to meet domestic demand, using the country's rich diversity of medicinal plants. Now the Institute of Traditional Medicine Services, under the Ministry of Health, is looking at strengthening the traditional medicine system through research, by utilizing science and technology to improve the quality of services rendered and ensure the sustainable use of medicinal herbs.

A group of lecturers, researchers and product developers in traditional medicine from Japan, Thailand, Nepal and Bhutan met in Thimphu in early September 2006 for a three-day symposium, which discussed the conservation of Himalayan medicinal resources and the possibility of establishing research partnerships. Papers presented at the symposium looked at the existing policy and legislation governing the use of medicinal plants in the country; traditional medicinal services in Bhutan; scope and outcome of collaborative research; development of food, cosmetic and pharmaceutical products; and what *So-ba Rig-pa* can contribute to the future.

An ITMS spokesman said that there was immense potential in the field of research, which was in its infancy in Bhutan, but this would require a lot of resources. (*Source:* Phuntsho Wangdi, *Kuensel* [Bhutan], 4 September 2006.)

## BOLIVIA

**Employment in the NWFP sector**

For the forest-dwelling people of Bolivia, the most important commercial NWFPs are Brazil nuts (of *Bertholletia excelsa*) and palm heart. In 2002, 21 626 people were employed in the Brazil nut supply chain.

Caiman *Caiman yacare* is also an important NWFP species. The preliminary results of an evaluation conducted by the national caiman management programme in 2005 indicated that approximately 1 750 people are employed in the commercialization of caiman leather. (*Source: TRAFFIC Bulletin, 21(1), 2006.)*

**Los ingresos que los indígenas obtienen del bosque son casi iguales a los de la agricultura**

Según un estudio realizado por el proyecto Bolfor II, más de la cuarta parte de los ingresos promedio de familias indígenas (25,72 por ciento) provienen directamente del bosque, de los productos forestales madereros, no madereros, de la caza y la pesca, lo cual significa que dichos ingresos son casi como los que perciben por la agricultura (26,24 por ciento). Pero el porcentaje sube a más de la mitad (56,59 por ciento) si se añaden las actividades que

dependen indirectamente del bosque, como la agricultura y la ganadería (30,87 por ciento).

Según el autor, Juan de Dios Mattos, especialista en desarrollo rural "esto muestra que el uso racional del bosque no solamente genera un flujo constante de ingresos, sino que es una variable importante de seguridad alimentaria".

El resto de los ingresos indígenas proviene del trabajo remunerado (21,41 por ciento), transferencias (10,42 por ciento), negocios comerciales (7,54 por ciento), ganadería (4,63 por ciento) y subproductos (4,04 por ciento).

Sin embargo, cuando se desagrega la información se encuentra que en 10 localidades de las 17 estudiadas se obtienen mayores ingresos del bosque que los que provienen de las actividades agropecuarias. Aunque las diferencias son muy variadas, el promedio es de 6,33 por ciento a favor del bosque. Hay casos en que es ligeramente superior y otros en que se obtienen del bosque hasta casi un 40 por ciento más que de la agricultura.

"Mientras exista bosque, las familias podrán obtener que por lo menos una cuarta parte de sus ingresos provengan de actividades forestales, independientemente de las condiciones climáticas que tanto afectan a la actividad agropecuaria", agregó.

Para el autor "es importante determinar el valor total de las actividades forestales y como éstas pueden reducir la inseguridad alimentaria a largo plazo", porque "el bosque ofrece a las comunidades rurales más que madera y en muchos casos es el lugar natural de sus actividades productivas". (*Fuente:* RedBoliva.com, 22 de abril 2006.)

## BRAZIL

### Private Natural Heritage Reserves (RPPNs)

Aracruz has signed a cooperation contract with the BioAtlântica Institute (IBio) for the creation of five new Private Natural Heritage Reserves (RPPNs) in the central corridor of the Atlantic Forest – which runs from Espírito Santo to the south of Bahia – totalling more than 5 000 ha of conservation units. Currently there are 37 RPPNs in the Atlantic Forest's central corridor that protect 11 000 ha.

The selected areas shelter species threatened with extinction and are located in strategic zones for the formation of ecological corridors.

According to an IBio spokesperson the RPPNs represent one of the most successful strategies for forming ecological corridors since they do not require expropriation and ensure direct participation of society in their efforts to conserve biodiversity. (*Source: Aracruz News*, 33.)

### Iracambi Medicinal Plants project

Located at the boundary of the Atlantic rain forest in Brazil, one of the world's most threatened ecosystems, the Iracambi Medicinal Plants (IMP) project, or Medicina da Mata, has identified 12 indigenous plant species of traditional, medicinal and commercial value (see Table).

The project aims to provide an alternative source of income for local farmers through the sustainable harvesting of these plants. At a later stage, the International Standard for the Sustainable Wild Collection of Medicinal and Aromatic Plants (ISSC-MAP) will be applied as a framework for the collection area management plan, formalizing the economic incentive to conserve the forest.

These plant species grow within an initial project area of 35 km$^2$, located in southeastern Minas Gerais in Brazil, and provide traditional medicines, identified and commonly used by members of the local community. The initial study and collection area is anticipated to expand to approximately 250 km$^2$ in the next ten years, contingent upon the results of the first efforts.

The IMP project is founded on a holistic approach that recognizes the interaction between people and plants. Seeking to treat the cause rather than the effects of deforestation, the project aims to strengthen both the economic and cultural value of the forest. In so doing, IMP is determined to revitalize the links between local people and the forest, as well as fostering support for the preservation and application of traditional medicinal knowledge within the local community.

The 12 plant species selected for the project were chosen using three main criteria: i) traditional ethnobotanical knowledge; ii) existing species-specific economic information, including pharmacological analysis and existing market success; and iii) the role of the species in local forest ecosystems. (*Source:* extracted from: "The Iracambi Medicinal Plants Project in Minas Gerais (Brazil) and the ISSC-MAP" by E. Gallia and K. Franz [in *Medicinal Plant Conservation*, 11].)

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**Indigenous plant species of traditional, medicinal and commercial value identified for the Iracambi Medicinal Plants project**

| Scientific name | Common name* |
|---|---|
| *Baccharis dracunculifolia* | Alecrim do campo |
| *Baccharis genistelloides* | Carqueja |
| *Bauhinia forficata* | Pata de vaca |
| *Carpotroche brasiliensis* | Sapucainha |
| *Casearia silvestris* | Guacatonga |
| *Croton urucurana* | Adrago |
| *Cecropia glaziovii/hololeuca* | Emba uba |
| *Echinodorus macrophyllus* | Chapeu de couro |
| *Hymenaea courbaril* | Jatoba |
| *Passiflora alata* | Maracuja |
| *Pothomorphe umbellate* | Capeba |
| *Tabebuia heptaphylla* | Ipê roxo |

* In Brazilian Portuguese.

## BULGARIA

**Bulgaria looks at strategic development of medicinal plants**

The Bulgarian Government unveiled details of its strategy to maintain Bulgaria's place in the lucrative medicinal plants sector. Governmental strategy for the development of the medicinal plants subsector in Bulgarian agriculture aims to consolidate the country's market position in the field of medicinal plants and thus to encourage economy and employment.

The strategy was drawn up by representatives of state institutions in cooperation with the Bulgarian Association of Herb and Mushroom Gatherers and research institutes and with the financial and technical assistance of the German Agency for Technical Cooperation (GTZ). It was being drafted because of the constant increase in the consumption of plant raw materials for the purposes of cosmetics, the food processing industry and the pharmaceutical industry in Bulgaria, as well as throughout the world.

From 2002 to 2005, the annual trade in medicinal plants on the European market increased from US$7 billion to $9 billion. Similar growth is expected in Asia, Japan and North America. The subsector has good prospects on the international market.

According to the Government, Bulgaria is the biggest exporter of herbs in Europe and is ranked fifth or sixth in the world. Production totals 17 000 tonnes, with exports accounting for between 10 000 and 15 000 tonnes in recent years. The export of herbs includes 150 different plants. According to the governmental statement the shortcomings in the subsector of medicinal plants in Bulgaria are related to cultivation, lack of cooperation within the subsector, lack of an accessible system for market information, funding problems and insufficient training.

The strategy addresses these shortcomings through measures to improve sectoral policy, related to the access of stakeholders to national and European funding schemes, amendment to the procedure for the registration of agricultural producers and encouragement for research in the medicinal plants sector.

The cultivation of medicinal plants will be assisted by the Agriculture State Fund and the Ministry of Environment and Water. The authorities will introduce European Union requirements for plant protection products. "Good practices are about to be introduced in the whole production process, as well as the establishment of a system for market information, and an increase in the share of training in medicinal plants in the curriculum of agricultural universities," the Government's statement said. (*Source: Sofia Echo* [Bulgaria], 18 September 2006.)

*Sclerocarya birrea*

## BURKINA FASO

**Les fruits sauvages au Burkina Faso**

Conscient de l'ampleur de la pauvreté et de l'insécurité alimentaire, le Gouvernement du Burkina Faso, à travers sa politique de lutte contre ces fléaux, s'est donné, entre autres objectifs, celui de moderniser et de diversifier la production agricole. La promotion de la filière des fruits et légumes et celle des petites et moyennes entreprises, notamment de transformation des produits agricoles, est une des stratégies prônées. Cependant, un secteur comme celui des fruits sauvages n'est peut être promu que sur la base d'informations qualitatives et quantitatives sur les usages traditionnels et le potentiel productif, nutritionnel et économique de ces fruits.

C'est pour soutenir cette politique que le Centre de recherches pour le développement international (CRDI) d'Ottawa (Canada) a financièrement aidé le Centre national de la recherche scientifique et technologique (CNRST) pour une étude sur les fruitiers sauvages de 2002 à 2006. L'objectif global du projet était de contribuer à la lutte contre la pauvreté et à l'amélioration de la sécurité alimentaire des populations par la conservation et la valorisation des fruitiers sauvages.

De façon spécifique, il s'est agi de:

1) recueillir le savoir des populations locales concernant les ressources fruitières sauvages et leurs différentes formes d'utilisation;
2) évaluer la contribution des fruitiers sauvages à l'équilibre alimentaire des populations;
3) évaluer le potentiel productif des fruitiers sauvages;
4) explorer les possibilités de conférer une valeur ajoutée aux fruits sauvages et appuyer les acteurs de la filière pour l'apprentissage des techniques de développement d'une activité entrepreneuriale; et
5) développer une stratégie de conservation de la biodiversité des fruitiers sauvages.

Usant de la méthode active de recherche participative, une équipe pluridisciplinaire a pu établir la liste des espèces fruitières d'usage courant dans les terroirs villageois, identifier les procédés traditionnels de transformation, ainsi que les règles et modes d'accès aux fruits. Cette équipe a ainsi pu constater que certains procédés de transformations comme ceux des fruits de *Saba senegalensis* A.DC. Piton, *Zizyphus mauritanien* Lam., *Vitellus paradoxe* C.F. Gaertn, *Sclerocarya birrea* A.Rich Hochst, etc., peuvent être facilement modernisés pour conquérir de nouveaux espaces de consommation.

Par un suivi de quantification de la consommation, l'équipe a pu évaluer les fréquences et les quantités moyennes de fruits consommés dans les ménages comme ingrédients de repas et comme repas sommaires. Par des analyses de laboratoire, la composition physico-chimique des fruits de 15 essences locales a été déterminée en vue de mettre en évidence leur valeur nutritive et thérapeutique. Il est apparu que la consommation de fruits comme ceux de *Detarium microcarpum* G. et Perr., *Saba senegalensis* A.DC. Pichon, *Tamarindus indica* L., *Parkia biglobosa* Jacq. Benth., etc., peut aider à corriger certaines carences alimentaires.

La qualité hygiénique des produits de fruits vendus sur le marché a également été mesurée. La présence de salmonelles et d'*Aspergillus* spp. a été observée sur des aliments prêts à la consommation tels les fruits de *Ziziphus mauritiana* Lam. et *Detarium microcapum*.

Le potentiel productif a été évalué sous l'angle de la densité des principales espèces fruitières, de leurs rendements en fruit, des proportions des parties comestibles, et du niveau des attaques parasitaires des fruits.

La démarche de l'*Analyse et développement des marchés* de la FAO a été conduite dans les terroirs d'intervention et a donné lieu à l'élaboration d'une cinquantaine de plans de développement de microentreprises d'exploitation des fruits sauvages qui ont un besoin pressant de financements. Dans la stratégie de conservation des fruitiers sauvages, l'équipe a réussi le greffage de quatre espèces (*Lannea microcarpa* Engl. et K.Krause, *Saba senegalensis* A.DC. Pichon, *Sclerocarya birrea* A.Rich Hochst. et *Tamarindus indica* L.). Cela ouvre la voie au raccourcissement de l'âge d'entrée en fructification et à l'amélioration de la performance de production fruitière de ces espèces. (*Contribution de:* Dr Niéyidouba Lamien, Chargé du projet, INERA, 01 B.P. 910 Bobo-Dioulasso 01, Burkina Faso. Courriel: nlamien@yahoo.fr)

**La production de karité**

Le Burkina Faso est le deuxième producteur mondial de karité (appelé également arbre à beurre). Selon la pluviométrie, entre autres facteurs, ce petit pays de l'Afrique de l'Ouest produit de 40 000 à 80 000 tonnes d'amandes de karité par an. Celles-ci, réputées pour leur haute teneur en matières grasses, sont utilisées localement pour la cuisine, la pharmacopée et la cosmétologie. Elles intéressent de plus en plus les pays occidentaux pour les soins de la peau.

Traditionnellement, ces amandes sont pressées par les femmes. Jusqu'à tout récemment, ce travail harassant s'effectuait à la main ou à l'aide de presses hydrauliques (faites de crics de camions importés), mal adaptées à la tâche et souvent défectueuses. Grâce au financement du Centre de recherches pour le développement international (CRDI), des chercheurs burkinabé et canadiens ont mis au point des presses à karité qui allègent le travail des femmes et permettent d'augmenter la productivité.

Le Gouvernement du Burkina Faso veut notamment inciter les burkinabé à utiliser le karité comme substitut alimentaire à l'huile de palme et d'autres huiles actuellement importées du Ghana, de la Côte d'Ivoire et de la Malaisie.

Le projet karité, qui crée des emplois et procure un revenu supplémentaire aux femmes, contribue à la croissance économique du Burkina Faso. Il devrait aussi favoriser la création d'emplois dans le secteur de l'artisanat puisque les productrices de karité veulent modifier le conditionnement du produit en se servant des feuilles des palmiers éventails locaux. Qui plus est, le projet a une incidence favorable sur l'environnement car, en incitant les Burkinabé à protéger les arbres à beurre, il favorise la lutte contre la désertification. (*Source:* Hélène Peronny, *Le CRDI Explore*, 10 mars 2006.)

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*Karitè*

## CAMEROON

**Meme River Forest Reserve**

Starting in 2006, we are working towards the preservation of the Meme River Forest Reserve in Cameroon and seek assistance for sponsorship of the initiative, to protect biodiversity, halt the disappearance of forests and threatened species, and improve the living and working conditions of farmers within the forest reserve area.

We have recently been empowered by the Government of Cameroon, the Ministry of Environment and Nature Protection and the Ministry of Forestry and Wildlife as an organization to oversee the level of biodiversity exploitation and destruction within the forest reserve in Meme division, an area of 20 000 km$^2$. Our objectives are to conserve biodiversity, protect threatened species of plants and animals, continue research on medicinal plants and tropical diseases, protect the Meme River watershed, develop ecotourism potential and arrest climate change. (*Contributed by:* Tcharbuahbokengo Nfinn, Director-General, The Federation of Environment and Ecological Diversity for Agricultural Revampment and Human Rights (Feedar & Hr), PO Box 321, Kumba Meme Swp, Cameroon. Fax: 00237 335 41 16; e-mail: feedarsecretariat@yahoo.com)

## CANADA

**Non-timber forest products (NTFPs) – opportunity in Canada's boreal forest**

The Canadian northern boreal forest, like many of the world's great forests, offers the promise of untapped resources and economic opportunity for small marginalized forest communities with the development of the NTFP industry. NTFPs are all the botanical and mycological species of the forest, excluding conventional timber. The definition in Manitoba also includes animal products such as antlers, bones and trap lines. The general categories of NTFPs include wild crafts and floral supplies, wild foods and medicinal products.

The suggestion that NTFPs may replace timber harvesting as an alternative source of employment/income for communities is rather like trying to compare apples and oranges. From a Manitoba perspective, the people who are interested in and benefiting from the NTFP industry are certainly not those currently in the timber harvesting business. They tend to be those standing on the sidelines of society as a result of many different circumstances: usually lack of education or lack of opportunities within their communities. They have been raised in a culture of traditional seasonal work and do not wish to leave their communities. Many are trapped in the false economy of social assistance, with no hope for the future and little opportunity.

In northern Manitoba there are communities that have watched their forests being clear-cut, but have felt none of the economic benefits. In contrast, there is a growing body of evidence to suggest that the NTFP industry will become an important part of the solution to the decades of unemployment and poverty that have plagued northern Canada. The NTFP industry provides an opportunity to engage in true sustainable forest management, benefiting both forest ecosystems and the communities that rely on them. NTFPs can be managed and harvested compatibly with timber, although more research and better communication between the various industry members are still necessary.

The development of the Northern Forest Diversification Centre (NFDC) began about six years ago as a community development initiative of the University College of the North (formally Keewatin Community College) based in The Pas in northern Manitoba. The mission of the NFDC is to work with communities and individuals seeking to develop economic opportunities that are aligned with local values and based on local resources, for the benefit of local people. The Centre has identified NTFPs as a realistic and practical income-generating opportunity that can be developed by building on local skills and knowledge. Based on a system of sustainable harvesting and use, the NFDC acts as a research, training, marketing, sales and service organization for the provincial NTFP industry.

The NFDC vision is an NTFP industry composed of a network of community-based and diverse microenterprises supported by a twenty-first century packaging and marketing infrastructure.

The NFDC offers a ten-day community-based training course focusing on local resources, plant identification and basic ecology, sustainable harvesting and handling practices, aboriginal issues, low-technology value-added processing and marketing. The training includes a flexible combination of classroom, field and value-added processing exercises. Additional speciality workshops have been developed to increase local opportunities in value-added products, such as the making of soap and salves, wreath making, antler jewellery and birch bark weaving. An important feature of this training is that there is no age or education restriction and the value-added processing opportunities are low technology and easily adapted by entrepreneurs residing in small communities.

In 2005 the NFDC purchased and marketed products from over 400 harvesters in 25 communities. Included in the catalogue of over 100 products are wild tea blends, skin salves, senega root, Labrador tea leaf, blue hyssop, sweet grass, sweet gale leaf, sweet flag root, bearberry leaf, black poplar buds and high bush cranberry bark, twig and balsam wreaths, diamond willow products and antler jewellery. In addition to providing marketing services, the NFDC assists interested producers in developing new products and helps with packaging, labelling and pricing.

The development of a sustainable NTFP industry, however small, brings some measure of economy and hope for the future. The industry gives a renewed sense of ownership and empowerment, which translates into a community-based urgency to protect and manage the forest resources that surround the communities. Forest management and conservation are now seen at the community level, with growing awareness of the many alternative and compatible values in the boreal forest.

The NFDC will soon be pursuing a comanagement agreement with the Province of Manitoba and the Manitoba Wild Harvesters' Cooperative (incorporated in 2005). The NFDC is also working with the Organic Producers Association of Manitoba (OPAM) and the Canadian Herb, Spice and Natural Health Products Coalition to develop an organic certification and a product traceability process for wild harvested products. This will include harvester certification by species, permanent identification numbers for harvesters, development and monitoring of permanent sample plots for each local harvester association and the enforcement by local associations of a cohesive harvester code of ethics.

Under its current three-year funding contract (the Canada/Manitoba Economic Partnership Agreement), which expires in December 2006, the NFDC plans to turn over the business side of the programme to the Manitoba Wild Harvesters' Cooperative. The Cooperative is currently pursuing a joint venture with the new owners of the local wild rice processing plant, which will see the seasonal wild rice processing operations diversified to include a number of other NTFP value-added processing activities.

This emerging Manitoba NTFP industry is based on a sustainable and ethical wild harvest and is perhaps the most important aspect of the marketing strategy. A truly sustainable NTFP industry requires not only community-based education and training, but also the empowerment of forest communities to protect and manage this resource for themselves and their children.

The NFDC is currently working with the Centre for Non-Timber Resources at Royal Roads University in Victoria, British Columbia, to develop a Canadian NTFP network. The goal of the network is to accelerate and enhance the potential for these resources to make a significant contribution to the economic and social well-being of many rural and remote communities across Canada. Many of the lessons learned in Manitoba and British Columbia will become an important part of the network.

During the 1998 Minneapolis Conference "Farming the Forest for Specialty Products" hosted by the University of Minnesota, an urgent need was identified to change the forestry curriculum in universities and colleges across North America to reflect the growing importance of NTFP values and their significance for economic development in marginalized forest communities. It was also recognized that most current land and forest managers undergo a training and awareness-building process to begin to understand the many diversified values in the forest.

Perhaps the time has come for the professional forester associations in Canada to demonstrate leadership in this area and implement a process to ensure forest resource managers are not missing the forest for the trees. (*Contributed by:* D. Buck, Manager, Non-Timber Forest Products, Northern Forest Diversification Centre, Box 509, The Pas, Manitoba, Canada, R9A 1K6. Fax: +1-204-627-8686; e-mail: dbuck@nfdc.ca; www.nfdc.ca

**Christmas trees**

Canada's main Christmas tree species are balsam fir, spruce, Scots pine, lodgepole pine and Douglas fir. Some trees are harvested from natural forests while others, such as Scots pine, are grown on plantations.

In 2004, Christmas tree production volumes dropped by 3.3 percent and export volumes fell by 5.8 percent (see Table on p. 42). The decrease in exports was probably because of the strong Canadian dollar, which appreciated by 7.5 percent in 2004 over 2003.

| Christmas trees | Million dollars 2004 | Million trees 2004 | Annual change (%) One year | Annual change (%) Ten years |
|---|---|---|---|---|
| Production | 62.2 | 3.9 | -3.3 | -0.3 |
| Exports | 36.2 | 2.5 | -5.8 | 1.6 |
| Domestic consumption | 29.4 | 1.7 | -0.5 | -2.7 |

Most of Canada's Christmas tree exports in 2004 were from Quebec (1.2 million trees), Nova Scotia (0.9 million) and New Brunswick (0.4 million). (*Source: The State of Canada's Forests 2005–2006.*)

**Centre d'expertise sur les produits agroforestiers (CEPAF) – Centre of Expertise for Agroforestry Products**

CEPAF's purpose is to contribute to the solid development of agroforestry and NWFPs within Quebec rural communities by offering an array of services focused on the needs of the emerging industry for agroforestry products.

CEPAF's list of projects in 2003–2007 includes the following.

- NWFPs, an opportunity for the development of rural communities.
- Introduction of NWFPs in riparian buffers and windbreaker hedges.
- Impact evaluation regarding the application of chitosan on ground hemlock plantations.
- Extensive planting of ground hemlock banks in the yellow birch forest of the lower Saint Lawrence region.
- Productivity evaluation by hectare of ground hemlock commercial settlements characterizing various sites found in the lower Saint Lawrence region.
- Growing wild ginger for essential oil.
- Introduction of ground hemlock under forest canopy.

**FOR MORE INFORMATION, PLEASE CONTACT: Ms Julie Daigle, Directrice, Centre d'expertise sur les produits agroforestiers (CEPAF), 235 route 230 ouest, B.P. 6, La Pocatière (Québec), G0R 1Z0 Canada. Fax: +1-(418) 856.1871; e-mail: info@cepaf.ca; www.cepaf.ca**

## COLOMBIA

**Queen ants called the caviar of Colombia**

The people of northern Colombia have been eating ants for centuries. They believe the accurately named *hormiga culona* – big-bottom queen ant – is everything from a natural form of Viagra to a protein-rich defence against cancer.

Now the invertebrates are going global: a businessman in Santander Province exported more than 880 lbs (399 kg) of the inch-long (2.5 cm) queen ants last year, many of them to be hand-dipped in Belgian chocolate and sold in fancy packaging at US$8 for a half dozen at upmarket London department stores.

But even as the delicacy begins to expand beyond Colombia, the ants appear to be dwindling in Santander, which worries the region's ant-eating bipeds. This year's harvest, which usually begins around Easter and lasts as late as June, was one of the worst on record, with peasants in Barichara reporting half their normal year's haul.

Entomologists say the winter was unusually harsh and spring rains were late, which may have disturbed the virgin queen ants' nuptial flights – the one time a year when they emerge from their dune-like ant hills to seek a mate and form a new colony. Almost as often, the queens are snatched by lizards, birds or humans.

Expanding fields of beans, tomatoes and tobacco have also replaced the region's last remaining wilderness and farmers consider the leaf-cutting ants – the species *Atta laevigata* – to be serious pests.

Andres Santamaria has been given a $40 000 grant from Santander's government to develop an environmentally sustainable, export-oriented programme for breeding the ants. Whatever the local conditions, overseas demand by itself will not endanger the ant supply, say those involved in the trade.

In Colombia, people generally toast the ants in salt at community gatherings and eat them as a snack. But there is innovation. Restaurants in Barichara offer an ant-based spread for bread and an ant-flavoured lamb sauce.

Stuffed tortilla "atta wraps" headed the menu at a recent tasting at the Montreal Insectarium, an insect museum in Canada. "In France, they're so highly regarded that people started calling them the caviar of Santander," said the curator at the museum.

Edible, a United Kingdom novelty food brand sold about 220 lbs (99.8 kg) of the ants last year, most of them dipped in chocolate, along with other specialities such as lollipops with scorpions inside.

During harvest time in Santander, ants are sold by the bagful at almost every roadside stop. But although relatively abundant, they are not cheap – costing as much as $11 per pound (0.45 kg).

The *culona* is a source of regional pride, its image gracing everything from the logo of a long-distance bus company to the provincial La Culona lottery. (*Source*: Associated Press [in *Houston Chronicle* (United States)], 12 August 2006.)

## COSTA RICA

**New postage stamps feature indigenous forest fruits**

Non-wood forest products are the subject of three colourful new postage stamps issued by Costa Rica in October 2006. The three indigenous forest fruits featured are the guapinol (*Hymenaea courbaril*), jorco (*Garcinia intermedia*) and achiote (*Bixa orelana*). (*Source:* www.elmundoforestal.com/filatelia/)


## DEMOCRATIC REPUBLIC OF THE CONGO

The Democratic Republic of the Congo has 100 million ha of rain forest of which 20 million are subject to industrial timber licences and 9 million allocated to parks and nature reserves. Of the remaining 71 million, the uninhabited parts may be attributed to timber companies and the inhabited parts returned to local communities for livelihood purposes. In addition, the Democratic Republic has 45 million ha of miombo and deciduous forests that are also subject to logging, much of it illegal, as well as to preservation measures and use for rural livelihoods.

Ecotourism earned tens of millions of dollars for the Treasury during the 1980s

but yearly park revenues are now down to a trickle of several hundred thousand. The industrial production potential of the low altitude rain forests is estimated at 6 million $m^3$ per year but the volume officially declared has never exceeded 0.5 million $m^3$ and even fell to 0.1 million $m^3$ during the recent war. At present, the volume produced by the informal sector amounts to 1.5–2.4 million $m^3$, achieved by 8 000 small operators known as craft sawyers. The majority of rural and urban households use wood for cooking. It is estimated that wood provides 80 percent of domestic energy, representing 6 million $m^3$.

The forest is also the habitat that provides 1.1–1.7 million tonnes of bushmeat and unknown volumes of mushrooms, caterpillars, roots, tubers and medicinal plants. Rain forest, miombo and deciduous systems all suffer from overexploitation and destruction.

The 1949 forestry law primarily regulated timber exploitation. In 1999, FAO provided technical assistance for the drafting of a modern code that was promulgated in August 2002. It has three objectives: ecological preservation, sustainable timber production and sustainable rural livelihoods. To reach these objectives it defines two types of status: gazetted forests and "protected" ones. The gazetted status concerns forests of overriding ecological and environmental value, while the "protected" status is reserved for forests that may be allocated for purposes of rural livelihood or timber production.

**Ecological preservation.** Article 14 of the 2002 law states that 15 percent of the national territory must be covered by gazetted forests. There are four main categories of protected areas in the Democratic Republic: national parks (nine sites), game reserves (one site), forest reserves (seven sites) and farming reserves (two sites). Other designations include areas set aside for scientific research or as hunting zones and nature reserves. The existing protected area network covers an estimated 195 426 $km^2$ (8 percent of the land area). National parks, faunal reserves and game reserves are managed by the Congo Institute for Nature Conservation (ICCN), which also manages scientific research. The EU is assisting a reform that will allow private-public partnerships for management purposes.

The Democratic Republic of the Congo is opening up to new ways of giving economic value to its environmental services, such as bioprospecting and the prototype carbon fund.

**Community forestry.** Article 22 states that local communities may ask to obtain all or part of the forests that were controlled under customary law. The article reinstates historic rights that, from the point of view of the local communities, went unrecognized by the Congolese state. Implementation of this article is much in demand by the inhabitants, yet so far no forest has been returned to the control of any local community. The only proximate exceptions are two "community" reserves that were instituted in 2006, which have as main objectives the preservation of gorillas and other wildlife. Implementation of article 22 would bring the decentralization of forest governance and management that is necessary, in the context of the Democratic Republic, to safeguard the forest cover. It could also improve the economic welfare of its inhabitants. (*Source:* extracted from a debriefing presentation by Ad Spijkers, departing FAO Representative, Democratic Republic of the Congo, October 2006.)

## EL SALVADOR

Bioproducts of El Salvador es una empresa que se especializa en un producto no convencional. Esta compañía cría mariposas de distintos tipos para exportar sus larvas a Estados Unidos y Canadá. Es un nuevo nicho de mercado para las dinámicas exportaciones salvadoreñas. (*Fuente: La Prensa*, 19 de junio 2006.)

## ETHIOPIA

**Delivery contract for dry raw bamboo**

Land and Sea Development-Ethiopia Plc (LSDE) has announced a five-year US$136 million contract agreement providing for the sale and delivery of dry raw bamboo and eucalyptus forest material and products to its clients – pulp and paper mills in India.

During the contract time, LSDE will sell and deliver approximately 30 000 tonnes of the agroforestry products, whose development sites are in the Benshangul-Gumuz and Amhara states.

The company's president said that the company would be harvesting and replanting bamboo and hybrid eucalyptus and other non-wood crops that could be used in pulp and paper manufacturing. The project would be the first of its kind in Africa. (*Source: The Ethiopian Herald*, 23 May 2006.)

## FRANCE

**Trouble flares as mushroom rustlers stalk countryside**

Guards are being employed in the French countryside to protect wild mushrooms amid pitched battles between pickers salivating over the best harvest in living memory.

Many mayors have introduced licences that authorize local people to search for mushrooms but ban outsiders. The system is gaining ground after sun and rain produced ideal conditions for ceps, chanterelles, *Craterellus cornucopioides* and other wild mushrooms.

With France gripped by what one commentator described as "la folie des champignons", guards are being paid to patrol woods in search of unauthorized pickers. Several dozen people are being investigated by the state prosecution service on suspicion of mushroom theft and breaking the French Forestry Code. They face fines of up to €300, although the penalty can rise to €1 500 for professional traffickers.

Pierre Dulong, the Mayor of Ligardes village in the Gers Département in southwest France, said he pioneered the mushroom licensing system after the commune's forests were invaded by "les urbains".

Eric Cusson, who heads a team of guards in southwest France, said that many rural councils had followed M. Dulong's lead. "More and more mayors, as well as private landowners, are using our services

because they are fed up with people picking mushrooms on their land," he said. "You find refrigerated lorries bottling the mushrooms by the side of the woods ready to sell them to restaurants – and that really irks the landowners."

About 120 companies trade in wild mushrooms in France, paying pickers to find between 5 000 and 10 000 tonnes a year. (*Source:* The Times Online [United Kingdom], 10 October 2006.)

## GHANA

**Developing alternative sources of income for forest-dependent communities**

Forest fringe communities in Ghana, which are constrained by poverty, rely heavily on forest resources to satisfy present livelihood needs. In satisfying these needs, however, they apparently give little consideration to the future. This threatens the goal of sustainable forest management. TBI-Ghana (Tropenbos International-Ghana) believes the solution lies in combining awareness raising with the development of sustainable (forest-based) livelihood opportunities for these communities.

TBI-Ghana has developed various activities with local communities to reduce poverty and sustainable dependence on forests. An alternative livelihood project, carried out in collaboration with the local NGO Rural Development Youth Association, supported rural communities in developing grasscutter farms as an alternative to dependence on bushmeat. Grasscutters are rodents that can be easily raised and sold, as they are a preferred source of protein locally. (*Source: Tropenbos Annual Report 2005.*)

**FOR MORE INFORMATION, PLEASE CONTACT: TBI-Ghana, PO Box UP 982, KNUST, Kumasi, Ghana. Fax: +233-5161376; e-mail: tropenbos@idngh.com**
***(Please see p. 27 for more information on grasscutter farming in Ghana.)***

**Don't promote other economic trees at shea's expense**

A senior lecturer at the University of Development Studies has expressed concern over the rate at which shea trees are being destroyed to make land available for the cultivation of other economic trees such as cashew and mango. Dr Joshua Adam Yidana warned that if measures were not taken to check the practice, a time would come when the country would not be able to meet international demand for shea butter. Dr Yidana was speaking at an interregional conference on the development of the shea industry in Tamale, northern Ghana.

Dr Yidana said the country had a total population of 94 million shea trees, which produced about 150 tonnes of shea butter. Sixty percent of the shea butter produced is used internally while 25 percent is exported. He also said that more than 2.5 million tonnes of shea nuts produced worldwide were used for the production of cosmetics, pharmaceuticals, confectionery and edible fats. He added that, unlike cocoa and other products, which had synthetic substitutes, the shea nut tree had no substitute; moreover, consumers now preferred organic or natural products.

The northern regional minister acknowledged the economic importance of the shea tree in the lives of rural women and emphasized the determination of the government to provide support for the growth of the shea industry in northern Ghana. (*Source: Gye Nyame Concord* [Ghana], 29 March 2006.)

***Voacanga africana* – the plant with the potential to boost Ghana's foreign exchange earnings**

Ghana is to supply over US$6 million worth of *Voacanga africana*, the country's leading medicinal plant export product, to major importers from Europe and China in 2006.

Mr Samuel Kwame Agyei, President of the Botanical Products Association of Ghana (BOTPAG) said that the plant, which grows in six regions – eastern, Volta, central, western, Brong Ahafo and Ashanti – had an active principal ingredient used for memory enhancement in major Western countries.

Although the medicinal plant provided employment and income for more than 8 000 collectors, the practice of uncoordinated harvesting posed a threat to the benefits that could accrue to individuals, companies and the nation as a whole. Mr Agyei said that farmers in the six regions had begun harvesting the seeds prematurely, ahead of the upcoming harvesting season, which commences in July. He said low-quality control protocols and assurance systems and lack of regulation could result in the supply of substandard products to the world market. BOTPAG has scheduled a series of sensitization programmes to educate farmers about harvesting practices and other quality control measures.

Export earnings from natural plants have increased from $300 000 in the 1990s to the current $4 million.

Plant medicine remains a priority since about 65 percent of developing countries (according to a World Health Organization report) rely on it for treatment; hence the need for the government to support the industry. (*Source: Accra Daily Mail*, 15 June 2006.)

*Voacanga africana*

## INDIA

**Exotic mushroom yield dips and prices rise**

The prices of a rare and wild Himalayan mushroom that is a much exported delicacy have gone up sharply to as much as Rs5 000/kg as a result of low yield this year.

Locally called *guchhi*, this wild mushroom is found in the damp and dark forests of Himachal Pradesh at heights of 1 800–3 000 m above sea level. The much sought-after wild mushroom (it cannot be cultivated) begins to sprout in spring and continues to do so until early summer in the highlands of Shimla, Kullu, Kinnaur, Sirmaur, Chamba and Mandi districts. Some determined *guchhi* hunters go away for weeks to scour the mountains and valleys for *guchhi* before returning with their collection. They sell the grey mushroom at high prices in Shimla, Chandigarh and Delhi markets. One *guchhi* merchant in Shimla said that hunters often send it to Delhi from where much of it is exported to Europe and the United States while the rest is used by luxury hotels.

According to government officials, the production of *guchhi* mushroom in the state varies between 2 000 and 5 000 kg. But this year, the yield is expected to be one of the lowest. (*Source:* NewKerala.com [India], 21 May 2006.)


*"Steps to sustainable and community-based NTFP management"*

**Sunderban – repository of NWFPs**

Sunderban is a land mass criss-crossed with numerous rivers, creeks and channels and includes the single largest chunk of mangrove forest in India. Because of the uniqueness and richness of its biodiversity, it enjoys the status of a World Heritage site. It is also home to the royal Bengal tiger.

It is a source of livelihood for the poor villagers who live on the northern outskirts of this biosphere reserve. Among the variety of NWFPs available, honey and fish are the most important. Minor forest products (MFPs) specifically include grass, fruit, leaves, bark, exudates, animal products, soil and minerals; in short, MFPs cover all animal, vegetable and mineral products other than wood found and collected mainly in forest regions.

**Honey and wax.** Nectar is composed chiefly of sucrose with some fructose and glucose. It is used as food by bees and some of it is stored as honey after partial digestion. Honey contains 70–75 percent invert sugar (a mixture of dextrose and levulose), together with proteins, mineral salts and water. Besides its consumption as food, honey is used in Indian medicine. Honey is provided by the wild bee *Apis dorsata* (rock bee) and the domesticated *Apis indica* (Indian bee). A wild single comb can yield up to 35 kg honey and 1 kg wax.

**Honey collection in Sunderban.** Honey collection is allowed only within the buffer zone leaving the area of the Sajnekhali Wildlife Sanctuary and permits are issued to the traditional Moulis with registered boats. The collection of honey is regulated as per requirement allowing a fixed tariff per unit weight to the honey collector for the collection of honey and wax.

At present the honey is being purchased in bulk by the West Bengal Forest Development Corporation Ltd (WBFDC), on whose behalf the local range officers issue collection permits to the honey collectors. The WBFDC takes the honey to its filtration unit in Calcutta and subsequently markets the filtered honey.

Honey collection is a dangerous practice since collectors quite frequently fall prey to tigers. The high casualty figures of honey collectors (56 dead and 11 injured from 1985 to 2003) are cause for reflection. The management strategy should be to reduce honey collection gradually and the use of musk, tiger guard and other protective measures should be enforced so that the casualty figure is minimized.

The quantity of honey and beeswax, together with the total revenue obtained in the Sundarban Tiger Reserve are given in the Table below.

**Honey and beeswax in the Sundarban Tiger Reserve, 1984–2000**

| Year | Total honey collected (kg) | Total revenue received (Rs) | Total beeswax collected (kg) | Total revenue received (Rs) |
|---|---|---|---|---|
| 1984–85 | 61 560 | 696 040.3 | 4 045.5 | 264 780.6 |
| 1985–86 | 77 575.5 | 543 114.63 | 5 087.575 | 226 366.4 |
| 1986–87 | 47 016.5 | 178 334.02 | 2 962.75 | 141 231.72 |
| 1987–88 | 43 489.4 | 264 901.7 | 2 550.45 | 6 516.4 |
| 1988–89 | 55 295 | 275 805.41 | 3 135.05 | – |
| 1989–90 | 3 585 | 19 703.58 | 231.8 | 35 567.2 |
| 1990–91 | 13 877 | 55 550.8 | 858.25 | 320 380.98 |
| 1991–92 | 29 669 | 107 034 | 1 776.6 | 114 979.05 |
| 1992–93 | 49 442 | 193 226.1 | 2 991.27 | 7 449 |
| 1993–94 | 57 304.4 | 354 353 | 3 299.6 | 416 213.4 |
| 1994–95 | 28 825 | 526 957 | 1 580.85 | – |
| 1995–96 | 26 850 | 532 578.5 | 1 258.6 | 108 557 |
| 1996–97 | 32 400 | 380 603.4 | 1 858.6 | 290 224.5 |
| 1997–98 | 44 700 | 134 100 | 2 682.4 | – |
| 1998–99 | 39 400 | 118 200 | 1 994 | 178 750 |
| 1999–2000 | 39 600 | 118 800 | 1 700.1 | 149 730 |

*Source:* WBFDC.

The author is grateful to Shri A.K. Raha, Director of the Sunderban Biosphere Reserve for providing this crucial information. (*Contributed by:* S.K. Singh, Forest Survey of India, Kaulagarh Road, PO-IPE, Dehra Dun 248195, Uttaranchal, India. E-mail: sk_singh24800@yahoo.com)

**Fibre houses to provide relief in Kargil**

A wonder product made of bamboo and jute natural fibre will now help schoolchildren in Kargil to attend classes comfortably, even when it is freezing outside.

The innovative combination has been developed by A B Composites Ltd in a small-scale industrial unit on the outskirts of Kolkata. The product not only controls temperature but is also resistant to termites, fire and acid and even blocks harmful ultraviolet rays. Furthermore, it is earthquake-proof. Its light weight and its strength have made it an obvious choice for relief shelters in the tsunami-hit Andamans. And the company is already working on 10 000 of these shelters. This innovation has won the National Award for Research and Development. (*Source:* NDTV.com [India], 4 June 2006.)

## ISLAMIC REPUBLIC OF IRAN

**Export of aromatic and medicinal plants down 9.7 percent**

Some 6 997 tonnes of aromatic and medicinal plants, valued at US$36.37 million, were exported from the Islamic Republic of Iran in the first four months of the current Iranian year (21March –22July).

This showed a 9.7 percent decrease in terms of weight compared with the corresponding period the previous year. Italy, Taiwan Province of China, the United Arab Emirates, Pakistan and Germany were the main importers of these plants during this period. Saffron ($27.5 million), caraway ($2.52 million), tobacco ($1.95 million), liquorice and coriander accounted for the major part of the exported volume. (*Source:* MehrNews.com [Islamic Republic of Iran], 3 September 2006.)

## ITALY

**Import and export figures for mushrooms and truffles**

A recent dossier prepared by *Alberi e Territorio* focused on mushrooms and truffles, both of which have an important cultural and economic role in Italian society.

Import and export figures for 2002 to 2004 showed that, although Italy produces "hundreds of thousands" of mushrooms and truffles, they are not sufficient to meet national demand. In fact, Italy imports overall more of these products than it exports, with 2004 figures showing imports of fresh or refrigerated fungi of 13 127 382 kg (with a commercial value of €77 646 616) compared with exports of 3 057 429 kg (€29 421 497). Dried fungi also follow this trend with 2 171 646 kg imported (€33 552 572) and 747 959 kg (€10 319 850) exported, with most of these imports increasingly coming from China.

Fresh or refrigerated truffles are the exception, however, with 4 778 kg being imported in 2004 compared with 41 764 kg exported (€883 172 and €10 784 128, respectively). (*Source: Alberi e Territorio*, 12, 2005.)

**Essential oil – mugolio**

Mugolio is an essential oil derived from *Pinus mugo* and can be considered a good example of integrated development at the territorial level. The local action group (financed by EU "Leader +" project funds) for the development of the Sarentino valley in the Alto Adige region of northeastern Italy, has promoted mugolio, which has resulted in the project's economic advantage in the cosmetic and tourist sectors.

The product is also certified by the Programme for the Endorsement of Forest Certification schemes (PEFC) because the oil is extracted from certified mugo pine forests, which is a guarantee of the sustainability and traceability of the source. (*Source: Alberi e Territorio*, 4–5, 2006.)

**ALBERI E TERRITORIO**

*Alberi e Territorio* (Trees and territory) is a magazine that covers the scientific, technical and cultural aspects of sustainable management of the environment. Although published in Italian, there are short English abstracts. There are eight issues per year and in 2004 the magazine substituted *Monti e Boschi* (Mountains and woods), which had been published since 1930.

**For more information and to receive in pdf the articles referred to in this section, please contact: Antonio Brunori, Editor, *Alberi e Territorio*, Il Sole 24 Ore Editoria Specializzata Srl, Via Goito 13, 40126 Bologna, Italy. E-mail: redazioneaf@interfree.it**

## JAPAN

**JICA official upbeat about Africa**

The baobab tree is a symbol of the vast prairies of Africa. The jam made from its fruit is unique in its soft, sweet and sour taste. Tsuneo Kurokawa believes that people will buy it. As the founding director of the Japan International Cooperation Agency (JICA) department in charge of the African region, Kurokawa is responsible for the "one-product-for-each-village campaign" in Africa. The campaign is the flagship of JICA's Africa assistance programme, designed to help communities beat poverty.

Last month, Kurokawa asked all JICA offices in Africa to suggest products that could be promoted in the campaign. Forty-five products from seven countries were recommended, mostly based on suggestions from members of Japan Overseas Cooperation Volunteers, sent by JICA and working in rural provinces.

Honey from mangrove forests in Senegal, pink pepper from Madagascar and furniture and leatherwork from Ethiopia are just a few of the suggested products.

Kurokawa is now in the process of promoting these products with help from the Japan External Trade Organization, a government-sponsored trade promoter.

Thirty-four of the 48 sub-Saharan countries are classified as the "least developed among developing countries". Forty percent of the people in these countries live on less than US$1/day. Government-to-government aid alone has not been able to bring about change to poverty there, as armed conflict and coup attempts continued in many of these nations following their independence. "We want to develop products that would sell not only in Japan or Western nations but also in their countries of origin and neighbouring countries," Kurokawa said.

Moisturizing cream made in Ghana from shea butter is already on sale and proving to be popular in Japan. Kurokawa dreams of prosperity for the vast African continent and is determined to help make it come true with this campaign. (*Source: The Daily Yomiuri* [Japan], 9 September 2006.)

**Designation of locust trees as dangerous species threatens the honey industry**

Beekeepers are worried that locust trees, famous for their flowers producing high-quality honey, may be designated as a harmful alien species that threatens the habitat of local trees under a newly enacted law, industry sources said. "If designated, it could force more than half of the beekeepers in the country to give up their livelihoods," said Japan Beekeeping Association Senior Managing Director Katsutoshi Tanioku.

The locust tree is a broadleaf tree that comes from North America and was introduced to Japan during the early Meiji era. About half of the 2 311 tonnes of honey produced in Japan in 2004 were taken from locust tree flowers. In particular, beekeepers in eastern Japan rely heavily on locust trees for their production of honey.

However, the Ministry of the Environment put the locust tree on a list of dangerous species in August 2005 on the grounds that it is highly prolific and could endanger the habitats of Japanese trees. The law prohibits anyone to grow the designated alien species and urges that it be removed. "It hasn't been decided whether it will be designated as a harmful alien species. Even if it is designated, it's legally non-binding," a Ministry of the Environment official said.

However, the environment division of the Niigata prefectural government said that it will cut down locust trees if they are designated by law as harmful alien species. (*Source: Mainichi Daily News* [Japan], 18 July 2006.)

## LAO PEOPLE'S DEMOCRATIC REPUBLIC

**Forest-based ecotourism**

"The current and potential contribution of forest-based ecotourism to poverty alleviation in Laos" will shortly be published as a working paper by FAO's Forest Economics and Policy Division.

This report presents the results of a small survey of visitors to the Lao People's Democratic Republic. The aim of the survey was to estimate the total and potential

number of visitors to rural ecotourism sites in the country, their interests and activities during visits, their expenditure during visits and the contribution that this expenditure might make to rural incomes and poverty alleviation.

The results suggest that a total of 81 000 people may visit rural ecotourism sites in the country each year. They make around 154 000 visits (or 226 000 visitor days) and spend a total of US$14.2 million during their visits. The contribution of this expenditure to rural income is difficult to assess, but it is suggested that about half ($7.1 million) might benefit people living in rural areas. This would be equal to 0.4 percent of total rural income at the national level. However, the number of ecotourism sites is currently quite small, suggesting that this expenditure accounts for a considerably greater proportion of rural income in these areas.

Because of the very small sample size in this survey, the estimates presented above are not very precise. The report makes a number of suggestions as to how this information could be improved in the future. Another source of imprecision is the definition of ecotourism. The figures presented here are much lower than similar figures in national tourism statistics, but it is believed that they represent a more restrictive definition of ecotourism (i.e. rural or forest-based ecotourism) that is more useful for the purpose of this study.

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## NTFP use and household food security in the Lao People's Democratic Republic

Recent field surveys have revealed the high proportion and variety of gathered forest products in the daily diet of rural Lao families. Over 450 of these edible NTFPs have been recorded so far: edible shoots and other vegetables, fruits, tubers, mushrooms, small water animals, wildlife, etc. The diversity of NTFPs consumed reflects the rich agricultural biodiversity of the rural landscape in the Lao People's Democratic Republic.

The direct contribution of NTFPs to food security in valuation studies is approximately 50 percent compared with that of rice, the staple food; together these foods make up around 80 percent of the total value of family subsistence expenditure. NTFPs also contribute indirectly to food security, as they can be sold to buy rice in times of shortage. NTFPs are estimated to contribute 40–50 percent of the cash income of Lao rural households. A similar amount of 50 percent of average household cash income is used to buy rice (more for the poorer families). NTFPs are therefore the most important safety net or coping strategy for the rural poor in the Lao People's Democratic Republic.

The availability of this safety net is declining alarmingly with rapid deforestation for timber logging and conversion of forests to agriculture. The challenge is to adopt land use systems that will keep enough forests in the landscape and allow access to forest resources for the poor. Another option is to domesticate wild species in agroforestry systems and gardens. Many examples can be found of local farmers experimenting with ways to grow wild plants. Lao forest foods also have a potential in niche markets for the export of gourmet foods.

Awareness-raising strategies could be applied to maintain popular pride in this rich cultural tradition of such a diverse range of natural food products. (*Source:* abstract of a paper prepared by Joost Foppes and Sounthone Ketphanh, Forest Research Centre and SNV, the Netherlands Development Organization, for the National Agriculture and Forestry Research Institute (NAFRI)/FAO EM-1093 Symposium on Biodiversity for Food Security, Vientiane, 14 October 2004.)

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## Experiences with market development of NTFPs in the Lao People's Democratic Republic

Some 70 percent of Lao people live in upland communities. Marketing of NTFPs is their main source of cash income, most of which is used to buy rice, since rice shortages are a key issue in upland livelihoods. Consequently, the marketing of NTFPs is directly linked to food security.

The key trend in NTFP marketing is an increased demand from cross-border markets (China, Viet Nam, Thailand). This leads to rapid depletion of some products from the forests (e.g. rattan, orchids and bark products). It also leads to more conflicts among communities on the use of common forest resources. Many local initiatives exist to increase production of NTFPs in gardens.

Yet income from NTFP marketing does not increase. There is a lack of government regulations on NTFP trade to support private sector development. Prices remain low because products are mainly sold raw, since there are few initiatives to add value through quality improvement or processing. Information on quality criteria or processing methods is not available. There are no systems for capturing and disseminating market information.

Following are typical NTFPs exported from the Lao People's Democratic Republic, with an estimate of the export volume per product per year.

- Broom grass (*Thysanolaema maxima*), exported to Thailand to make brooms, 200 tonnes/year
- Sweet palm (*Arenga westerhouttii*) fruits, exported to Thailand to make sweets, 600 tonnes/year
- Paper mulberry (*Broussonetia papyrifera*), exported to Thailand to make paper, 500 tonnes/year
- Benzoin (*Styrax tonkinensis*), exported to France for the perfume industry, 50 tonnes/year
- Peuak meuak (*Boehmeria malabarica*), exported to China to make glue and joss sticks, 700 tonnes/year
- Eaglewood (*Aquilaria* sp.), exported to the Middle East as incense, 20tonnes/year
- Bitter bamboo (*Indosasa chinensis*), exported to China as fresh edible shoots, 200 tonnes/year
- Cardamom (*Amomum* sp.). exported to China as medicine, 500 tonnes/year

The Lao Government and various foreign donor-supported projects are helping local initiatives to link farmers to markets, manage common forest resources in a context of participatory land use planning and promote domestication of NTFPs. Some good examples exist of organizing clusters of upland communities to cooperate with the private sector in setting up more efficient and profitable marketing systems.

Recently, the various stakeholders in the NTFP subsector have started to draw up agreements on how to develop NTFP market information systems (MIS) at the provincial level. A national taskforce has just started to develop an MIS at the national level.

At all these levels there is an urgent need to establish partnerships with organizations in China, Viet Nam and Thailand, to collect and disseminate NTFP market information. (*Source:* abstract of a paper prepared by Joost Foppes and Souvanpheng Phommasane, NTFP advisers, and presented at the International Workshop on Market Development for Improving the Upland Poor's Livelihood Security, Kunming, China, 30 August to 2 September 2005, organized by the Centre for Community Development Studies.)

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*Aquilaria malaccensis*

*"Steps to sustainable and community-based NTFP management"*

## MALAYSIA

### Production of *gaharu*

Researchers are looking at various inducement techniques to produce aromatic *gaharu* on a commercial scale. The Forest Research Institute of Malaysia (FRIM) began research in the late 1990s following a surge in market demand for the resin and it is still refining its inoculation technique.

Based on anecdotes from Orang Asli collectors, researchers deliberately wound the tree trunk and, indeed, *gaharu* has been produced in varying degrees of formation, suggesting that it can be induced in standing *Aquilaria* trees by artificial means. However, the grade obtained was inconsistent.

Over 100 *Aquilaria malaccensis* saplings were planted on a 1-ha trial plot at the Institute's research station at Bukit Hari between 1998 and 2000. Artificial inducement was carried out after three years but the trees did not respond.

FRIM research coordinator Dr Chang Yu Shyun suspects that the trees were not mature enough to produce the resin. "In nature, when a branch or twig is broken, the wound attracts bacteria, fungi and pathogens. In *gaharu*-producing species such as *Aquilaria*, the tree will produce the resin to contain the infection from spreading, covering the wound and blackening the whitish heartwood. That's how *gaharu* is produced."

The senior research officer in the biotechnology division says the research initially focused on inoculation trials but later expanded to cover the biological aspect, economic value, trade and chemical analysis of the fragrant resin.

Meanwhile, the Malaysian Institute of Nuclear Technology (MINT) has applied nuclear irradiation technology to mass-produce plantlets via tissue culture. Seeds were screened for fast-growth and single-bole characteristics at the cellular level and lead researcher Dr Rusli Ibrahim claims he has found the secret formula after one year of experimentation. Five hundred plantlets are growing in a trial plot near Dengkil. Rusli says two other research groups will look for suitable antagonists to induce the tree and the best extraction technique to yield oil of the desired chemical composition.

MINT has submitted four funding proposals under the Ninth Malaysian Plan to support the research work which will also include developing a standard grading system for woodchips and oil extracts. (*Source: Malaysia Star*, 15 August 2006.)

### Malaysian herbal market worth over US$2 billion by 2010

The local herbal market in Malaysia is expected to reach US$2.16 billion by 2010, the Deputy Natural Resources and Environment Minister said. The herbal market, which is currently worth $1.03 billion, is anticipated to grow at an annual growth rate of between 15 and 20 percent.

The government has identified medicinal plants as huge potential assets that will generate economic growth for the country. The Deputy Minister urged researchers, academicians and industry operators to seize the opportunity by stepping up their research and development activities to produce new medicines and market them worldwide.

According to a World Bank report, the international herbal medicine market is expected to reach $5 trillion in 2050 with an annual growth rate of between 10 and 20 percent. (*Source:* People's Daily Online [China], 13 September 2006.)

## MÉXICO

### Cada año México pierde una inmensa riqueza ecológica

Según el grupo ecologista Greenpeace, la destrucción ecológica de los ecosistemas de México representa pérdidas equivalentes a unos 750 000 millones de pesos (unos 67 000 millones de dólares), que equivale al 10 por ciento del PIB.

Greenpeace recordó que México es el país con mayor número de especies de pinos, encinos, cactáceas y reptiles del mundo, el segundo en mamíferos y el cuarto en anfibios. Cada año se pierden 600 000 hectáreas de bosques, Los manglares, de los que se destruyen 22 000 hectáreas anuales, amortiguan los impactos de huracanes, evitan la erosión y es el área de desove del 70 por ciento de especies de pesca. (*Fuente: La Prensa*, 5 de junio 2006.)

## NEPAL

### Increasing rural incomes through a demand-driven programme approach

Business Development Services-Marketing, Production and Services (BDS-MaPS), Nepal, was developed by International Development Enterprises and a complementary set of strong partners (Winrock International, Lotus Opportunities, the Asia Network for Sustainable Agriculture and Bioresources [ANSAB] and WWF) with extensive experience in business development services in the non-timber forest product (NTFP), spice and high-value crop sectors.

The prime programme objectives of BDS-MaPS are to raise income in rural Nepal through interventions aimed at increasing the production, processing and sale of NTFPs, spices and high-value agricultural products. The project target is to increase the income of 9 000 direct and 13 000 indirect beneficiary households impacting over 115 000 people in Maoist-affected districts. The programme is focused on helping participating landless community forest

users, smallholders and micro- and small enterprises to increase their incomes from the collection, cultivation and sale of NTFPs, spices and high-value agriculture commodities in local, national, regional and international markets. The project aims to increase incomes by at least US$125 per year per family.

In its first 15 months, BDS-MaPS worked to enable 2 632 direct beneficiary households (15 790 people) and 5 575 indirect beneficiary ones (33 450 people).

**Why we are there.** NTFPs, spices and high-value agriculture commodities are among the most important resources of Nepal and directly connected with the daily livelihood of the rural poor. They could represent Nepal's high potential products to be equitably used for rural income generation. Other resource-poor people, e.g. the landless and deprived, could also become involved in NTFP business through the community forestry activities within community forest user groups. Furthermore, BDS-MaPS has been able to involve, despite the ongoing political conflicts in the country, the seven districts of the far western, mid-western and western development regions of Nepal, where poverty is rampant. NTFP resources are yet to be fully commercialized to maximize benefits for the poor; poverty that has given rise to the conditions that have allowed insurgency to develop.

**Project activities**

- Action by BDS-MaPS to take supply chain development to build up the capacity of service providers, small farmers, collectors, traders and agro-input suppliers, in order to provide the necessary inputs of embedded knowledge and services.
- Market development focused on coordinating local communities to carry out an organized trade of NTFPs, spices and high-value crops.
- Development of local enterprises.
- Social mobilization for sustainable harvesting and equitable trade of naturally occurring NTFPs and agricultural extension for the cultivation of NTFPs, spices and high-value crops in suitable community forest user group and private land.
- Focusing an awareness on creating new opportunities and market linkages for products.
- Training programmes for gender and disadvantaged groups focused on enterprise development and economic empowerment.
- Awareness raising at local, regional and national levels for the policy advocacy related to NTFP development.
- Assistance to government programmes in building capacity to enhance BDS approach with public goods, including marketing infrastructure, dissemination of NTFP price information, adaptive research and public policy.

BDS-MaPS has successfully completed its second year. The supply chain development to build up the capacity of service providers, small farmers, community forest user groups, collectors, traders and agro-input suppliers for business development has been established in 12 pockets across seven districts. BDS-MaPS has set up training workshops, field tours and meetings for 13 129 beneficiaries. Over 5 272 (40.15 percent) participants were women and 1 881 (14.32 percent) participants were disadvantaged groups.

BDS-MaPS has also helped 8 207 households to increase their income through cultivation, production and market linkages, despite the insurgency. It has increased the average income of these families by about 83 percent in 15 months. BDS-MaPS has established 303 service providers working with beneficiaries. Six trade networks – one for each district – have been established. BDS-MaPS has worked closely with governmental and non-governmental agencies in production, cultivation and marketing and in making necessary policy reforms. (*Contributed by:* P. Maharjan, BDS-MaPS, Nepal.)

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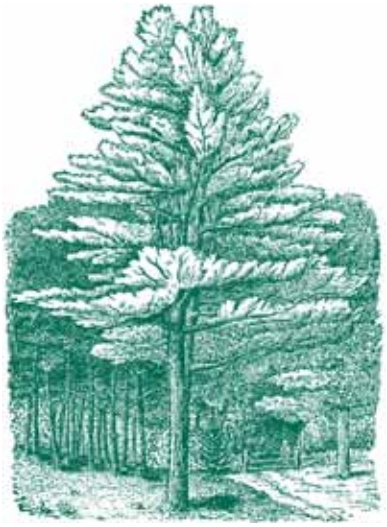
## NEW ZEALAND

### Seeds sown for new Maori garden (recognition of Maori traditional knowledge)

The rain came down in buckets at Hamilton Gardens as a carved gateway, the first stage in the city's $2 million pre-European Maori garden, was opened on 20 July 2006. And that was a good sign that the Maori had got it right with the design, Nga Mana Toopu spokesman Wiremu Puke told the crowd that turned up for the official opening.

The Te Parapara Garden, when completed in three years, will be the first to recreate traditional Maori gardening practices. The project aims to reconstruct Maori garden features and carved structures that were present along the Waikato River between 1840 and 1850.

The challenge now is to raise the money needed to build the garden. The Te Parapara Garden Trust has the job of working with key sponsor Wel Energy Trust to advance the project. (*Source: Waikato Times* [New Zealand], 21 July 2006.)



## NICARAGUA

### Nace cooperativa de artesanía de pino

Mas de 54 mujeres de diversas comunidades indígenas del municipio de San José de Cusmapa en el departamento de Madriz, crearon recientemente una cooperativa de servicios múltiples para competir en el mercado nacional e internacional con la venta de sus productos artesanales. Las piezas (canastas, floreros, maceteras etc.) son elaboradas a mano con materia prima (hojas y ramas) proveniente de los bosques de pino, existentes en la zona. Las mujeres campesinas de lugares pobres han encontrado en este tarea una manera de subsistir, ya que perciben ingresos de hasta mil Córdobas (57 dólares) mensuales con la venta de productos artesanales que llevan la marca «Pinos Fabretinos». (*Fuente: La Prensa*, 17 de mayo 2006.)

**Se controlarán animales en riesgo de comercialización**

El Ministerio de Ambiente y Recursos Naturales (MARENA) anuncio que instalarán retenes en diferentes puntos del país para regular el tráfico de especies silvestres en períodos de veda. Se controlará el transporte colectivo que viaje desde los comunidades donde se da la captura y la comercialización de garrobo, iguana, gaspares y otros animalitos que están desapareciendo. Se sabe que en el verano se acostumbra la ingestión de comidas exóticas como iguanas en pinol, tortugas, garrobos, cusuco (armadillo) en vaho y otros especies que están en vía de extinción por lo que se prohíbe su captura y comercialización. Del cuajipal, una de las especies nacionales de lagartos, se aprovecha su cuero. (*Fuente: El Nuevo Diario*, 5 de abril 2006.)

**Nicaragua pedirá al mundo salvar la lapa verde**

La lapa verde ha sido declarado ave emblemático en la localidad de El Castillo, en el departamento de río San Juan, en Nicaragua, donde se ha iniciado una campaña para preservar esta especie amenazada de extinción. La lapa verde (*Ara ambigua*) es un ave silvestre que vive generalmente en bosques de trópico húmedo en las partes bajas de Honduras, Nicaragua, Costa Rica, Panamá, Colombia y Ecuador. Tiene un pico fuerte y ganchudo que le sirve para abrir las duras semillas de almendro de montaña, su principal fuente de alimentación. La perdida de estos árboles, debido a la tala ilegal en las selvas donde vive la lapa verde, constituye el mayor riesgo a su existencia. El segundo riesgo es el comercio ilegal de esta ave para mascotas en países industrializados como Estados Unidos y Europa. (*Fuente: La Prensa*, 11 de enero 2006.)

**La cooperativa COPESIUNA**

La cooperativa COPESIUNA situada en la Región Autónoma Atlántico Norte, cuenta con 200 productores originarios de 12 comunidades cerca de la reserva de biosfera BOSAWAS, donde producen pimiento, zacate de limón y jengibre. Con apoyo del Banco Mundial instalaron un planta para extraer aceites de esencias para comercializarlo en la costa oeste de Estados Unidos. (*Fuente: La Prensa*, 12 de julio 2006.)

**La empresa COMPROVISSA**

En Río San Juan, Nicaragua, se encuentra la Empresa Comercializadora de Productos de Vida Silvestre de Río San Juan (COMPROVISSA). Es una empresa comunitaria formada por pobladores de comunidades en el refugio de vida silvestre Los Guatuzos, El Monumento Histórico El Castillo, San Carlos y el archipiélago de Solentiname, y se dedica a la producción en cautiverio y exportación legal de mariposas, tortugas ñoca (*Trachemys scripta*) e iguanas (*Iguana iguana*) y subproductos como artesanía a base de fauna silvestre.

Se están logrando ingresos anuales adicionales entre 200 y 800 dólares EE.UU. para cada uno de los socios de COMPROVISSA. (*Contribución de:* Marc G.A.C. Smits, Nicaragua.)

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## NIGERIA

**Nigeria loses N210 billion annually through a decline in roots and cereals**

A survey conducted by the African Institute for Applied Economics (AIAE), has revealed that Nigeria loses N210 billion (about US$1.57 billion) annually through a decline in roots and tubers, cereals and pulses.

According to the report, although there are no concrete data available to assess the exact magnitude, the cost of deforestation and losses of NTFPs in the last five decades are at least N120 billion ($0.8 billion) per year, or 1.7 percent of gross domestic product (GDP) in 2003, if losses of NTFPs are in proportion to forest and woodland losses. This is approximately the size of the federal budget for health and education in 2004 (N153 billion or $1.1 billion).

Findings revealed that deforestation is also impacting fuelwood supply. Real fuelwood prices in various parts of the country have doubled in the last two decades because of increased collection and transportation costs. This is estimated to have an economic cost of at least N45 billion or $0.3 billion per year, which can be viewed as being included in the NTFP losses of $0.8 billion per year.

If Nigeria loses its remaining forest resources, the economic cost will be substantially higher than the current losses. Not only would the current NWFP and timber revenues be lost, but also a considerable part of the fuelwood supply. If the population currently dependent on fuelwood for cooking were to switch to kerosene, the annual cost would be in the region of N650–980 billion ($4.8–7.3 billion) per year.

This amount, in addition to the NWFP and timber values foregone, is equivalent to 9–14 percent of current GDP prices. The present value of annual cost of yield losses from 1985 to 2003 is at least N135 billion per year, or 1.9 percent of the GDP in 2003.

Overall, poor management and degradation of croplands and rangelands together with forest losses and degradation are costing at least N465 billion per year, 6.4 percent of the GDP in 2003. This is just the direct cost and does not include the economic multiplier effects and dynamic gains of increased rural incomes that would have prevailed in the absence of poor management and degradation. (*Source: Vanguard* [Nigeria], 14 July 2006.)

**Niger Delta human development report**

A major sociopolitical issue in the Niger Delta region today is access to land. Local people complain bitterly about having lost so much land to oil operations.

Traditionally, local people have depended heavily on the non-timber resources of the forests to make a living. They rely on a wide variety of forest products for domestic use and for sale in traditional markets. These include fuelwood, fibres, leaves, dyes, fruits and nuts, medicinal plants, barks and roots, spices, palm wine, snails and wild game. The much-reduced forest cover has increased pressure on the remaining forests, which are now suffering from overuse that is further exacerbated by high demand from the expanding towns and cities. It has been well established that wealthier people in urban areas utilize far more forest resource derivatives than the poor who directly depend on them.

People at the grassroots level unfortunately are not benefiting from the increased exploitation of non-timber forest

resources. Intermediaries package most of the harvest for urban markets, where they make huge gains. There are very few returns to the rural economy; in general, there is a net transfer of resources from rural to urban areas.

One of the greatest challenges to human development in the Niger Delta region is how to win people back to the traditional livelihoods that sustained them in the past. As in other parts of the country, younger people have left rural areas.

The fundamental issue is how traditional occupational pursuits can coexist with oil production activities in an atmosphere of mutual suspicion and recrimination. Interest in traditional economic pursuits such as agriculture and fishing cannot be promoted so long as easy money flows from the oil companies, albeit on an unsustainable basis. (*Source: Vanguard* [Nigeria], 15 August 2006.)

## PAKISTAN

### Ethnomedicinal studies in Attock, the Punjab

A recent study was carried out by Tariq Mahmood, Mir Ajab Khan and Jamil Ahmad to assess record and report the ethnomedicinal potential of the Kala Chitta Hills (Potohar Plateau Salt Range) of Attock in the Punjab.

Results of the present investigation were based on 125 species belonging to 40 families of Angiosperms. Based upon their utility, 80 species (40 families) were used as medicinally important plants, 24 species (13 families) were found to be useful for timber and fuelwood purposes and 17 grass species were used as fodder. These plant species also have other benefits, together with their major uses such as apiculture, sericulture, food and fruits, etc. Most of the species are multipurpose.

The Kala Chitta Hills of the Salt Range are unique. The hilly tract is not only responsible for providing benefits such as medicines, timber, fuelwood and fodder, but also plays a role in the biodiversity conservation of the area. For many years there has been a good sustainable relationship between the needs of the people and the benefits extracted from the hills, e.g. medicinal, timber and fuelwood plants. Thus the natural biodiversity of Kala Chitta has been preserved. However, increased population and demand are causing great pressure on the products of the area. This continuous pressure over the last few decades has damaged disastrously the natural characteristic ecosystem of the area. To understand the indigenous knowledge of the local people through ethnobotany is very important for creating awareness among them with regard to sustainable natural resource management.

About 100 informants including local people, hakims and medicinal business people were interviewed and ethnomedicinal data were collected through a questionnaire. Results were compiled, issues discussed, conclusions reached and recommendations made for the future. Further investigation phytochemically as well as pharmacologically should be undertaken in such potentially important areas to provide an extensive basis for the medicinal industries in Pakistan to earn foreign exchange. (*Contributed by:* Tariq Mahmood, c/o Ghulam Khan Bangash, House No. 538, Saddar Bazaar Attock Cantt. Attock, Punjab, Pakistan. E-mail: tariqbangish@hotmail.com)

### Tapping the resources of Baluchistan plateau healing plants: concerns, issues and challenges ahead

The Baluchistan plateau encompasses 43.6 percent of the land mass of Pakistan. Its arid to semi-arid climate, extreme temperatures and less than 10 percent humidity even in the rainy season have made it a native home for wild flora, collected and sold by resourceless and uneducated locals.

Unlike the approximately 8 million widely scattered population, the precious flora is evenly and fairly distributed in the form of various pastures and comprises about 100 healing plants and related species. By nature, more than 50 percent are herbs, followed by 30 percent shrubs and about 15 percent of all others. Most of them have two to five of about 170 reported active ingredients belonging to different functional groups of phytochemicals.

Ethnobotanical and ethnopharmaceutical knowledge about most of the concerned flora is available in the form of various documents. Some of the species have been briefly researched; for instance the role of *Asparagus racemosus* in the female hormonal system is significant as is that of *Withania somnifera* in men. Overall, the flora has, among others, proven antioxidant, anticancer, anti-inflammatory, antibacterial, antifungal and antiseptic properties and can be applied externally, internally or both. The NWFPs are not only used in health care, but also in make-up, cosmetics and stylish life products, as well as in the veterinary and agrochemical fields.

Above all, these NWFPs provide a broad range of subsistence and commercial livelihood opportunities. Furthermore, some of these species and products are significant in international trade and generate income for resource harvesters and collectors, as well as for many other actors in the commodity chain.

However, the main constraints faced by the primary stakeholders (harvesters or collectors and direct sellers) are lack of identification of plant specimens or their parts; unawareness of agricultural traits; marketing swindlers; and resource poorness.

Although the ecological condition of the plateau is fully compatible for cultivation, investment is needed in better seed and subsidies and for purchase guarantee, etc. Therefore, critically reviewed and identified species should be set aside as commercial/industrial crops for pharmaceutical, cosmetic, veterinary, agrochemical, phytotrade, phytopharm and other health area enterprises. Obviously, the government, NGOs and multinational companies should put forward their initiatives to consolidate and coordinate the participatory role of primary stakeholders that will lead not only to improvement in the status quo of economically deprived people, but will also ensure conservation, organization and mechanization of the unattended biodiversity of natural habitats.

In this regard, the main areas to be covered are the following.

- Training of the locals in harvesting natural habitats through optimized agriculture and environmentally friendly ways.

- The government needs to encourage or compel the related actors to set up in the product areas and should also provide producer contract farming initiatives. Collaboration with the national gene bank at the National Agricultural Research Centre (NARC) should be enhanced.
- Facilitation of primary stakeholders in processing as well as marketing of raw material and value-added products involved in phytotrade.
- Although most trade is at the domestic level, international phytotrade should be encouraged.
- The think-tank in Pakistan should convince donor agencies to advise or train the local community on quality standards; export procedure; market penetration strategies; business planning; certification criteria; health and safety issues; cosmetic formalities; oil processing; supply chain management; and regulatory monitoring.
- Commercialize untended indigenous flora for domestic and international phytotrade, relevant manufacturers and the ultimate beneficiaries. The primary stakeholders must be assisted in standard cultivation, optimal harvesting, post-harvest storage and processing methods and techniques involved in the domestication of high-value plants.

(*Contributed by:* Dr Rauf Ahmad, Senior Scientific Officer, Institute of Plants and Environmental Protection, National Agricultural Research Centre (NARC), Islamabad. E-mail: rauf_eco@yahoo.com)

## PARAGUAY

**Esencia de Palo Santo (*Bulnesia sarmientoi* Lorente ex Griseb)**

El Palo Santo (*Bulnesia sarmientoi* Lorente ex Griseb), de la familia zygophyllaceae, es una especie nativa del Gran Chaco Sudamericano, conformado por Argentina, Bolivia y Paraguay. En el Paraguay es endémica, se encuentra en los Departamentos de Alto Paraguay, Boquerón y Presidente Hayes. Se extiende en una amplia zona de aproximadamente el 75 por ciento del territorio chaqueño. El palo santo es catalogado especie en peligro de extinción en el Paraguay.

El palo santo se integra en formaciones particulares dentro del bosque xerofítico denso del Chaco paraguayo como consecuencia de la alta concentración de sal en los suelos, prefiriendo suelos bien drenados.

Es un árbol mediano de 18 metros de altura, de hojas pequeñas bifoliadas, gran cantidad de ramas y frutos en forma de cápsula color verde oscuro. Su madera, de color verdoso con vetado castaño y textura homogénea, es dura, pesada y resistente. El palo santo se regenera fácilmente, aunque tiene crecimiento lento.

La madera del palo santo es utilizada en construcciones, carpintería, parquet, ebanistería, mueblería, artesanía y fabricación de instrumentos musicales. Adicionalmente, los subproductos de la madera son utilizados como leña, ya que desprende un humo muy perfumado. Del aserrín obtenido de la madera se extrae la esencia de palo santo, compuesta principalmente por guayacol, bulnesol y sesquiterpenos aromáticos, utilizada en perfumería, cosmética, jabonería y como aditivo en cera para suelos y materia prima para la producción de azulenos y bujes para hélices de barcos, los cuales son exportados principalmente con destino a Europa. Su resina es empleada en la fabricación de lacas, pinturas y barnices.

En la medicina popular esta esencia es mezclada con vaselina líquida y otros elementos obteniendo una crema, usada para afecciones dérmicas, también es usada en la elaboración de infusiones contra enfermedades respiratorias y gástricas.

Debido a su alto valor ecológico, deben impulsarse planes de manejo forestal sostenibles que regulen la producción y la exportación, tanto de la madera como de la esencia de palo santo, y velar por su fiel cumplimiento amparados por las legislaciones locales vigentes y por la Convención Sobre el Comercio Internacional de Especies Amenazadas de Fauna y Flora Silvestres. (*Contribución de:* Maura Isabel Díaz Lezcano, Becaria paraguaya MAEC-AECI, Escuela Técnica Superior de Ingenieros de Montes, Universidad Politécnica de Madrid, Ciudad Universitaria, 28040, Madrid, España. Correo electrónico: maisdile@yahoo.es)

## PERU

**Camu camu: new Peruvian export hit**

Peru doubled its export revenues in 2005 with respect to 2001, selling its products internationally for US$14 billion. Although this figure was mainly a result of star Peruvian products such as asparagus, citrus fruits and minerals, there are some "new kids on the block": fish, Andean anchovies, biscuits, flowers and camu camu.

Camu camu (*Myrciaria dubia*) is a bush that grows in black water rivers, especially in those abandoned courses called *cochas*, ecosystems of great social and economic importance for the Amazonian jungle of Peru. The fruit contains powerful phytochemicals with health benefits.

The fruit of the camu camu is approximately 2 cm in diameter and has a purplish-red skin with a yellow pulp. Camu camu fruit contains 30 to 60 times more vitamin C than an orange.

The fruit also has a surprising range of medicinal effects. In joint studies it was demonstrated that camu camu flesh has a great antioxidant power and contains chemical compounds with antidepressant properties. In order of potency, camu camu is listed second in effectiveness. Some people have gradually been able to wean themselves off their antidepression prescription medication (such as Zoloft and Prozac) under medical supervision and substitute camu camu powder, with no relapse into depression. (*Source: Living in Peru* [Peru], 12 July 2006.)

**Promoción de la cadena forestal en Loreto, Amazonía Peruana: el caso de camu camu**

Una publicación titulada "Promoción de la cadena forestal en Loreto, Amazonía Peruana: el caso de camu camu" fue presentada en la conferencia internacional "*Small and medium forest enterprise development for poverty reduction:*

El camu camu (*Myrciaria dubia*) es una fruta nativa de la Amazonía. Este arbusto crece en los orillas de los ríos y lagos en la cuenca de la Amazonía, formando rodales naturales de camu camu. Perú es el primer productor mundial de camu camu, le siguen Brasil, Colombia, Venezuela y Bolivia.

Su oferta proviene mayormente (87 por ciento) de recolección (extracción) de las rodales naturales, y una pequeña parte proviene de plantaciones (producción).

El camu camu es un recurso forestal no maderero, es una fruta silvestre cuyo valor reside en que contiene la mayor concentración de vitamina C natural del mundo; tiene un alto contenido de ácido ascórbico: 877 a 3,133 mg en 100 gramos de pulpa. El camu camu tiene el fenómeno de la alternancia en su producción (ciclo de alta y baja productividad).

*opportunities and challenges in globalizing markets*" y CATIE en Turrialba, Costa Rica, que tuvo lugar desde el 23 al 25 de mayo 2006 (este evento fue también patrocinado por la FAO).

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**Project on medicinal plant conservation and use**

A project is currently under way in Peru sponsored by the Darwin Initiative in collaboration with the University of Oxford (United Kingdom), a Peruvian NGO, Centro EORI and five indigenous communities in the Madre de Dios region. The project aims to develop, with the communities, a participatory management plan for the conservation and use of medicinal plant species in the Manu Biosphere Reserve, Peru. Methodological lessons from the project will be summarized as a model, to be subsequently promoted regionally and nationally.

This project is due for completion by September 2007 and progress to date has been good. Inventories of medicinal plant species found in each community have been completed and lists made of plants used by local people. A participatory manual has been designed and the first phase of monitoring the impact of medicinal plant harvesting has been carried out. Participants are also noting the quantities of medicinal plants harvested within each community.

Propagation and cultivation techniques have been taught to the participants and plant nurseries and herbal gardens established; some enrichment planting has also been carried out in areas of secondary forest.

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**Exportación de mariposas**

Perú exportará centenares de mariposas únicas en su especie, a centros conservacionistas de Estados Unidos, Canadá, Inglaterra, España y Japón, informó la ONG peruana ProNaturaleza. Las ventas incluyen ejemplares vivos y disecados de estos insectos que son criados en el centro de conservación de Japipi, en la región amazónica de Madre de Dios (sureste) en la frontera con Brasil.

Perú posee el primado a nivel mundial en diversidad de mariposas, con unas 3 700 especies. La entidad no precisó el volumen y monto de las exportaciones, pero detalló que, independiente del tamaño, color y especie, cada una cuesta entre 2,5 y 4,5 dólares; las más cotizadas son las mariposas *Morpho menelao* y *Morpho aquilles*. (*Fuente: La Prensa*, enero 2006.)

## SOUTH AFRICA

**Conservation and livelihood issues of the devil's claw plant**

South Africa is the third largest producer of wild-harvested devil's claw (*Harpagophytum* sp.) after Namibia and Botswana. Devil's claw is a medicinal plant with analgesic and anti-inflammatory properties used for the treatment of rheumatism and arthritis. It occurs widely in the deep Kalahari sands, predominantly in Namibia, Botswana and South Africa. The harvested plant parts are non-vegetative secondary storage tubers.

To determine the sustainability of the devil's claw trade in South Africa and provide policy recommendations, the biological status (distribution and abundance), socio-economics and trade impacts were researched. The species receives patchy protection under provincial legislation, which generally requires permits for harvesting and processing. The resource occurs in five provinces but is most abundant in the northwest and northern Cape.

Harvesting takes place almost entirely on communal lands of the Northwest Province and is conducted by about 2 000 registered harvesters, although illegal harvesting also occurs. Harvesters are predominantly Tswana-speaking rural women with few other livelihood options. The dried sliced tuber product is sold to intermediaries who supply the international trade. Prices fluctuate between US$0.49 and $2.33/kg depending on international demand and exchange rates. At current production levels the species is not threatened and trade at present national levels is considered sustainable.

Overexploitation at the village level, however, has been observed, and long-term monitoring of areas harvested and improved training, especially of currently unregistered harvesters, are recommended. (*Source:* "Devil's claw (*Harpagophytum* spp.) in South Africa: conservation and livelihoods issues" by D. Raimondo *et al.* [in *TRAFFIC Bulletin*, 20(3)].)

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## SRI LANKA

### Tsunami-hit famed cinnamon plantations reviving

Sri Lanka's famed cinnamon crop, battered when the Asian tsunami wiped out thousands of plants, is reviving with efforts to improve quality to fend off competition from cheaper substitute spices, mainly from China.

Cinnamon is Sri Lanka's fourth-largest earner of hard currency after garments and textiles, tea and rubber, and accounts for 60 percent of the country's total spice exports. The spice is used in food, pharmaceuticals, flavoured tea and Mexican cigars.

The industry boost could help Sri Lanka consolidate its place as the world's top exporter of cinnamon and farmers are seizing the opportunity to revive and modernize their centuries-old trade.

Even before the tsunami that killed about 35 000 people in this tropical island of 19 million people, cinnamon exports were under threat from a cheaper substitute known as cassia, or Chinese cinnamon, which sells for a quarter of the price. Cassia comes from a Chinese tree with an aromatic bark that is similar to natural cinnamon, but of a lesser quality. Cassia is often sold under the "cinnamon" label.

In October, the Spanish Red Cross and Sri Lanka's Department of Export Agriculture started a joint project to regenerate cinnamon plantations in the southern district of Galle, which accounted for over 60 percent of the island's cinnamon output before the 2004 tsunami. With replanting already under way, farmers say they expect to harvest a better crop in about two and a half years.

The selling price of cinnamon depends on its quality, which is determined by the peeling and processing technique. While a single tree yields bark for about 50 years and a 1-acre (0.4-ha) plot can produce from 400 to 500 kg of cinnamon, production is labour-intensive as the bark has to be cleaned, peeled and rolled into tight, slim quills.

One tonne of Sri Lankan cinnamon is priced at about US$8/kg. Cassia, which is also produced in India and Indonesia as well as China, sells at around $2/kg. India and Indonesia also export genuine cinnamon. (*Source: Mainichi Daily* News [Japan], 2 June 2006.)

### Sweet science: Sri Lanka's rural treacle industry

The kithul tree (*Caryota urens*) is a palm that grows up to 20 m high and produces large hanging clusters of flowers near the top. "It is our sole livelihood and my main source of income," said Sisira Kumara. Tappers like Kumara are heirs to a 2000-year-old tradition, braving the ascent twice daily to extract the sap.

They do this by first gashing the base of the flower-cluster stalk, called a *mala*, and then applying a herbal mixture to the "wound" to stimulate it to excrete sap. This prevents the flower from maturing too quickly, since mature flowers cannot be used for harvesting. After about two days, the *mala* is ready. The tapper ties together the hanging flowers and cuts off their ends, positioning a clay pot beneath to collect the dripping sap. The pot is replaced twice a day.

Kithul sap is used to make treacle and a hardened solid version known as jaggery. Both are then sold at local markets. The sap is also used to make a local alcoholic drink.

Sap from the region near Rogesen Gama is of a particularly high quality. And now people in Rogesen Gama say they have another blessing, this time from modern science. In 1994, the Sri Lankan Government, which had paid little attention to this traditional craft before, stepped in through its Ministry of Rural Development and Self Employment Generation to fund research aiming to make sap extraction more productive. "They introduced a new reagent to treat the *mala*," explains one tapper. "We began to use this instead of our traditional herbal mixture. I can get sap from unproductive *mala*. Now I extract two to three bottles more from each one."

After analysing the traditional herbal mixture, the research team from the Colombo-based Industrial Technology Institute came up with a new mixture. This more than doubles the sap production of each flower cluster. It can raise the proportion of productive trees from 20 to 30 percent, using the traditional herbal mixture, to nearly 100 percent using the new product.

The invention won the country's national science and technology award in November 2005, under the category "Production of Raw Materials for Industry". That same month it also received the Best Innovative Technology Award at the Industrial and Technology Institute's 50th anniversary ceremony.

The reagent is made of plant regulators and food additives, including common additives such as salt. The team called the non-toxic mixture KASPER, which stands for Kithul Activation and Sap Production Enhancing Reagent, and has now submitted it for patenting.

The villagers happily accepted the new treatment, but the awards also focused attention on the traditional craft of tapping. In 2006, the Sri Lankan Export Development Board planned to develop kithul treacle into a major export commodity. The number of sap tappers is increasing and new treacle processing centres are being built in villages in the Rogesen Gama area.

Kithul trees are present throughout Sri Lanka, so sap extraction can easily be expanded to fulfil the demands of export markets. The Industrial Technology Institute has already taken the technology to 14 other villages. And the Ministry of Rural Development and Self Employment Generation is currently selecting kithul villages for 2006/2007 under its Thousand Industrial Village Programme. This will involve building infrastructure, including treacle processing centres.

Institutions such as the Asian Development Bank have now recognized sap harvesting. The bank has agreed to back kithul tree-planting projects in selected areas to safeguard the future of sap extraction.

Once the treacle becomes a large-scale, certified export commodity, the villagers will depend on the authorities to ensure that they, rather than any intermediaries, get the maximum benefit from sap production. Another key issue is the price of the treatment mixture. Currently the Industrial Technology Institute is selling the improved treatment mixture to the villages for a reasonable charge.

But what do the villagers think of the government's plans to export their treacle?

When I visited Rogesen Gama in early May 2006, I saw new hope in people's eyes, along with a new sense of determination. They have learned from past disappointments and have established cooperatives to safeguard their brand and help them to market it.

But who else should benefit from this knowledge, which science is set to make highly profitable? Ultimately, it is not the property of the researchers or business people who visit the area: like all indigenous knowledge, it belongs to the village heirs of this ancient tradition. (*Source:* Anuradha Alahakoon [in SciDev.Net], 7 June 2006.)

## SUDAN

**Current and future situation of Sudanese medicinal plants**

The Sudan, the second largest state in Africa, has a rich potential and diverse flora cover as a result of the varying climatic conditions existing from north to south and east to west. It also has vast arable lands (of which only about 15 percent are cultivated).

Within the framework of the activities of its scientific programme, in September 2006 the International Centre for Faith Research organized its fifth international symposium: "The Medical Miracles in Quran and Sunna".

A paper presented at the symposium by Eiman Hassan from the University of Khartoum tackled the issue of Sudanese medicinal plants, focusing on the Sudan's rich medicinal plant resources and encouraging local and foreign investment to enter these valuable and profitable fields. "In the Sudan there are five medicinal plant zones according to classification which represent all the medical plants in West, East and North Africa. In the Sudan the percentage of people who depend on medicinal plants for health care is estimated to be 30–90 percent in all the states."

Most medicinal plant products come from the informal trading sector and bazaars known in all towns of the Sudan as *attaren* shops (traditional medicine stores).

In addition, the Sudan has been an exporter of several important plant drugs and other plant-based materials with industrial usages, such as gum arabic, gum karaya, gum olibanum and arkadeh. The symposium paper also explained that 52 of the most important medicinal plants are used in exports and imports, while 32 of the international pharmacopoeia of medicinal plants are present in the Sudan, and all need to be studied more because of their presence in different locations in the country.

The paper also highlighted some impediments facing the utilization and manufacturing of medicinal and aromatic plants in the Sudan, e.g. the very weak link between research and industrial institutions; the majority of farmers with small landholdings; prices too low to make cultivation attractive; and the persistent problems of packing, storage, transportation and quality control. These are in addition to major problems, including lack of local infrastructures, financing, technical and marketing resources and difficulties in entering into competition with the international suppliers of consumer products.

The paper pointed to some opportunities that open more fields for investments in the manufacturing of medical plants in the local and Middle Eastern markets. There is a strong international demand for many herbal products and essential oils from aromatic plants of the Sudan. (*Source:* Belgees Fagir, SudaneseOnline, 14 September 2006.)

**Sudan to reform gum arabic trade**

A recent symposium on gum arabic has recommended the establishment of a specific council for mapping out policies to streamline production and trade. The symposium called for promoting gum arabic research centres and starting a monetary fund to ensure finance for the production of gum arabic.

The Gum Arabic Company Ltd, holder of the monopoly position for the export of crude gum arabic from the Sudan, offered a much-reduced price for the previous crop, because it possessed a very large buffer stock (about 30 000 tonnes) and faced the lowest prices in more than ten years.

Sudanese gum is produced in the regions of Kordofan (49.3 percent), Kassala (24.4 percent), Darfur (23.4 percent) and White and Blue Nile (2.9 percent).

Gum arabic is a resin that is used as an emulsifier in soft drinks, a thickener in sweets and jellies, a binder in special-purpose inks and drugs and even as a foam stabilizer in beer. Its name derives from the fact that the gum was shipped to Europe from Arabic ports. (*Source: Sudan Tribune*, 9 August 2006.)

*Acacia arabica*

## TOGO

**Couple in the United States use their shea butter business to build a brighter future for Togo**

The nuts of the wild shea tree of West Africa produce a rich butter prized for cooking, cosmetics and healing. As a boy in Togo, Olowo-n'djo Tchala spent hours gathering them to pay for clothing and school supplies. Now when Tchala scoops shea nuts into his hand, he sees an opportunity to help free Togo – perhaps all of Africa – from entrenched poverty.

At Steamboat Island, a rural community near Olympia (United States), Tchala and his wife, Rose Hyde, oversee the production of fair trade shea butter lotions, creams and soaps, bound for retailers. Their small bottling and distribution plant belies the phenomenal growth of what has rapidly become an international operation. In its first three years, Alaffia Sustainable Skin Care – named after a greeting in central Togo – has pumped an estimated US$400 000 into Togo's economy.

Tchala and Hyde earmark 10 percent of sales to development projects in the tiny West African nation: furnishing schools, planting trees in deforested areas and trying to reduce a maternal death rate that claims one in 16 women.

Shea butter was an apt choice for their venture. For centuries Togo's women have overseen the demanding, 12-step process that turns the rough, brown nuts into a silky butter used for everything from skin salve to umbilical-cord cleanser. "A woman in the central part of Togo sometimes can't get married unless she knows how to make shea butter," Tchala said.

Degrees in hand, the couple set about producing handmade, all-natural shea butter – both in bulk and in finished lotions and creams – for the growing world market. Alaffia products are sold throughout the United States and in Hong Kong, South Africa, Taiwan Province of China, Japan, Trinidad and elsewhere.

Alaffia's shea butter cooperative in Sokodé, central Togo, provides well-paid jobs and monthly medical checkups for 80 workers.

Handcrafting shea butter is not easy. Cooperative workers shell, dry and crush the nuts into a thick paste, then add clean water and hand whip the concoction for up to three hours to separate the oils. Another round of stirring causes the oils to crystallize into shea butter, which cools into

waxy, pale-gold chunks that are shipped to Steamboat Island. There, Tchala and Hyde oversee six workers. The small crew liquefies the butter in heated barrels, stirs in other natural ingredients such as baobab and lemon grass, and then hand-bottles the products, which retail for $10–14.

The cooperative's shea butter keeps flowing, softening the world's complexion and smoothing the way for the people of Togo. (*Source:* Seattle PI.com [United States], 7 September 2006.)

## TONGA

**Tongan bark may hold key to diabetes**

Melbourne biotechnology company Dia-B Tech believes that it has found a natural alternative to the antidiabetes drug insulin in the bark of a plant found in Tongan rain forests. Chief executive Ken Smith is tight-lipped on details, preferring not to disclose the name of the vine until the company has a provisional patent over its use. "But what I can tell you is that the plant has been used by traditional healers in Tonga to heal type-two diabetes and obesity over hundreds of years," Mr Smith said. "They mix it with a potion of various plants and tree barks which are ground, mixed with water and taken orally with great results."

The company has been testing the bark since February 2005, today announcing to the Australian Stock Exchange that preliminary results were looking good.

Dr Ken Walder, a scientist with Intramed, another biotechnoogy company involved in the research, said it was already clear that the natural derivative had a component with "very strong" insulin-like qualities.

If developed commercially, the component would be used by people with type-two diabetes, a metabolic disorder that occurs when the pancreas is not producing enough insulin. The medical and commercial potential would be significant if further research confirmed that the component effectively acts as a natural "proxy" for insulin, Mr Smith said. (*Source: Melbourne Herald Sun* [Australia], 8 June 2006.)

## UGANDA

**European Union buyers interested in Uganda's shea nut butter**

Interest in Uganda's shea nut butter is picking up in the European market, particularly with the cosmetics industry, an export trade official has said.

Susan Bingi, who is in charge of the biotrade programme at the Uganda Exports Promotion Board, said that European buyers were showing more interest in the shea nut butter called Uganda *nilotica* type. "Our shea nut butter is now preferred over the West African butter, which was popular before. It has better quality oils and it is exported when it's already in butter form unlike the West African butter which is exported as nuts," Bingi said. She said there are only two companies under the biotrade programme exporting the butter. (*Source: New Vision* [Kampala], 8 May 2006.)

## UKRAINE

**Mushroom and berry pickers violating border with Belarus**

More than 700 Ukrainians have been caught at the Belarusian border in the past two weeks. They are primarily people residing nearby who cross the heavily forested border in search of berries and mushrooms.

Border guards complain that the villagers return to their favourite mushroom and berry-picking spots even after being warned not to do so. On Monday alone, 150 adults and 70 children were caught illegally traversing the border between Ukraine and Belarus. (*Source:* 5tv.com [Ukraine], 11 July 2006.)

## UNITED KINGDOM

**Wild harvests from Scottish woodlands**

From a member of the House of Lords in his castle to an unemployed gentleman in a fisherman's cottage, from a biology teacher on the outskirts of Dumfries to a young farmer on the Black Isle, collecting non-timber forest products (NTFPs) is a source of joy and satisfaction for many in contemporary Scotland. In the autumn of 2004, as part of the Wild Harvests from Scottish Woodlands project, more than 30 people were interviewed about the wild edibles, medicinals and craft materials they collect and the part that collecting plays in their lives.

As a group, research participants mentioned 208 NTFPs derived from 97 vascular plants and 76 fungi and other non-vascular species. Edible uses were the most popular, followed by beverage, craft, garden and medical uses. Most gathering of NTFPs is for personal and family use, followed in importance by gifts, informal economy and barter. Gatherer profiles are used to illustrate that with commercial collection, often "the sums don't add up", but the importance of NTFP collection for personal and cultural identity, social cohesion, public health and happiness is vast.

Scotland is famous for malt whisky. But its wild fruit wine production is also remarkable. More than two commercial enterprises bottle wine made from wild harvests and homemade wines are a standard entry at country fairs. An astounding variety of plant materials finds its way into Scottish demijohns. Brambles and elderberries are obvious choices and birch sap wine has a long tradition. Gorse blossoms produce a dry white wine while rowan berries tone down the sweetness of raspberry in a beautiful rosé.

The results suggest that there is potential for active management of NTFPs in public and private woodlands. They also suggest caution where necessary. Several recommendations for policy, practice and future research are made. (*Source:* extracted from: *Wild harvests from Scottish woodlands. Social, cultural and economic values of contemporary non-timber forest products*, by Dr M. Emery, S. Martin and A. Dyke and published by the GB Forestry Commission in 2006. Full report available online at: www.forestresearch.gov.uk/website/forestresearch.nsf/ByUnique/INFD-5WBLHH)

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**NTFPs in Scotland:**
Non-timber forest products historically played a significant role in local economy, as food, medicine, dyes and other essentials for rural dwellers, until well into the twentieth century. Today, almost a quarter of Scottish people are believed to engage in some form of NTFP collection. (*Source:* Reforesting Scotland, 2005.)

*Ginseng*

## UNITED STATES

**United States reverses five-year export rule on wild ginseng**
The United States Fish and Wildlife Service (FWS) has performed a U-turn over the ban imposed in 2005 on the export of five-year-old wild American ginseng roots – a decision met with relief from an industry that feared years of decline while plants matured to catch up with the regulation.

Wild American ginseng (*Panax quinquefolius*), the root of which has a variety of uses in traditional medicine including stress, cognitive function and immune system boosting, takes between four and five years to reach maturity and start producing seeds. The life span of a plant is around 30 years and it produces more fruit with age.

Since 1975 the plant has been listed under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) as species that, while not being in immediate danger of extinction, may become extinct if trade is not strictly controlled. In the 2005 CITES finding published last August, FWS determined that wild roots must be at least ten years old (double the previous minimum age of five years) and have four "prongs" or leaves before they can be legally exported from the United States.

This decision was met with dismay from the botanical industry, not least because it was made behind closed doors. But the agency subsequently held four well-attended public meetings, which elicited comments from the spectrum of those involved with the wild ginseng trade.

The newly announced decision to reinstate the five-year minimum export rule for those states that have a ginseng programme for at least the next three harvest seasons came after FWS concluded from the information gathered at the public meetings that the practice *"will not be detrimental to the survival of the species"*.

It said that it had heard opinions that increasing the exportable age of wild ginseng would result in greater harvest pressure on older plants, and undermine the transition to woodland planting and management to replace harvesting of wild roots. If new evidence to the contrary comes to light in the meantime, it reserves the right to alter the regulation again, but pledges to do so in sufficient time before the 2007 or 2008 harvest so that stakeholders can be consulted and notified.

Around 19 million wild plants were exported from the United States each year until 2004, making up 7.3 percent of overall ginseng exports. The 2005 ruling meant that significantly less wild ginseng would be available for export in the next five years, to allow for plants that would previously have been cleared for harvesting to grow older and bridge the gap.

Ginseng exports from cultivated sources were excluded from the 2005 ruling, which also held that the position of wood-grown or wild-simulated ginseng would have to be determined on a case-by-case basis. In the update, however, FWS says it has determined that wood-grown roots qualify as artificially propagated and are not covered by the same regulation as wild American ginseng. (*Source:* NutraIngredients-usa.com [France], 12 June 2006.)

## VIET NAM

**Rare fragrant wood should be protected**
The uncontrolled purchase of some of the most expensive fragrant wood in the world – agarwood (*Aquilaria crassna*) – in central Viet Nam demonstrates the need to conserve the valuable commodity.

The Ba To mountain town in the central Quang Ngai Province has seen hundreds of people arrive in recent days to buy agarwood, called *ky nam* in Vietnamese, and discovered by local lumberjacks. However, as *ky nam* is banned for sale in Viet Nam, most deals take place secretly and local residents have sold the precious wood at low prices because they do not know about its real value.

At Tot village, 1 kg of *ky nam* sold for only VND2 million (US$124.8) in the first few days but its price later rose to VND10 million, then to VND100 million and VND200 million ($12.488). After transporting *ky nam* from the village, traders offered VND700 million ($43.709) per kg.

Stored by many as an asset, the wood is revered for its medicinal properties and aromatic essence.

Some traders said that in sales abroad, Vietnamese agarwood would be 1.5 or two times higher than the domestic sales.

The current situation suggests that the government should regulate the trade to improve the value of the precious wood on the world market, and control what commodities are left in the forest to make it a sustainable industry.

Since the country has already organized many auctions on recovered antiques, diamonds and birds' nests (an Asian delicacy), perhaps agar could also be controlled through the auction process. (*Source: Thanh Nien Daily* [Viet Nam], 6 September 2006.)

**Big plans for NWFPs**

A research centre under the Ministry of Agriculture and Rural Development expects to triple the revenue from shipping rattan furniture, farm animals and other NTFPs by 2010.

The Non-Timber Forest Product Research Centre under the Ministry predicts that these goods can earn at least US$500 million annually, including $300 million from exports.

Developing the sector helps preserve the biodiversity of forests and improve the incomes of people who live around them. It also encourages villages to make handicrafts for export.

The Centre said that so far Viet Nam had underestimated the sector's potential, only focusing on protecting and developing forests to serve the wood industry.

Statistics from the Centre show that from 2001 to 2005 Viet Nam earned annually at least US$100 million from exporting NTFPs, including rattan furniture and farm animals, such as snakes and crocodiles. In Ho Chi Minh City, the export of crocodile products, in line with international standards, reaches almost $5 million each year, while in the Mekong Delta, the export revenue from python products is $20 million per year.

The Centre will carry out the national plan on NTFPs until 2020. Besides animals and rattan, these products include herbal plants and wild mushrooms. (*Source: Saigon Times Daily* [Viet Nam], 17 March 2006.)

**Pine resin exports**

Viet Nam recently exported its first consignment of processed pine resin to the United States, which local enterprises described as a breakthrough for the nation's fledgling pine resin production industry. The Quang Ninh Pine Company's 36-tonne shipment, valued at US$70 000, was evidence of the great potential for development in the sector, said the Director-General of the Pacific Ink Company.

American demand for high-quality pine resin – a natural material obtained by distilling pine wood and used to produce many products including ink, glue and paint – is substantial, given that the nation is a centre for the printing and chemical industries. United States-based ink producers relied on pine resin imported from China, South America and Indonesia, but are increasingly gaining confidence in Vietnamese producers. Accordingly, the Quang Ninh Pine Company said it plans to invest in an additional production facility to take advantage of increasing demand.

Although Viet Nam's terrain and climate make it suitable for pine tree cultivation, it had not yet made good use of the natural material, with average annual pine resin output a modest 8 000 tonnes. Local producers have so far exported their poorly processed pine resin at prices considerably lower than those expected on major markets such as the United States.

If the industry were to be given greater priority by the government and authorities and favourable conditions continue to develop, Viet Nam could easily produce more than 40 000 tonnes of high-quality pine resin a year, bringing in about $70 million. This would not only contribute to the state budget, but also create more local jobs and raise incomes among pine growers.

According to the Ministry of Trade, Viet Nam may also secure contracts to export pine resin to Pakistan, which recently expressed interest in importing 800 tonnes. (*Source: Viet Nam News*, 24 May and 30 June 2006.)

## ZAMBIA

**Honey production**

Zambia's woodlands cover millions of hectares, with a significant portion forming part of the larger miombo woodland covering much of central and eastern Africa. They provide an excellent habitat for bees, which in most seasons deliver a surplus of honey.

According to Guni Mickels-Kokwe, a natural resource scientist from the Zambia Alliance for People and Environment, "Trade in beeswax started in the late 1890s when Zambians travelled by foot through Angola to the Atlantic coast. A hundred years later and the long-distance trade in honey and beeswax still provides an important source of livelihood for many people in rural Zambia. Today, organically certified, golden honey and beeswax find their way from rural homesteads into lucrative markets throughout the world."

In the northwestern province some 10 000 beekeepers own about 500 000 hives and produce about 1 000 tonnes of honey and at least 100 tonnes of beeswax per year. About half the honey is exported, while 80–100 tonnes are sold on local markets, with the remainder used to brew a local beer called *mbote*.

Because most honey and beeswax are exported, they have become an important source of foreign exchange for Zambia. Exports – mostly to Europe – started increasing rapidly after 2000 as new companies entered the business.

"Honey and beeswax have become an important source of livelihood for thousands of people in Zambia. About one third of the beekeepers' annual cash income comes from the honey and beeswax trade," said Center for International Forestry Research (CIFOR) scientist Crispen Marunda.

Research by Marunda and Mickels-Kokwe has found that the linkages between beekeeping and forest management in Zambia are quite strong. Because honey and wax are so important to the beekeepers' daily struggle against poverty, they are extremely aware of the need to prevent forest fires. And the presence of so many bees has increased woodland productivity because of increased rates of pollination among flowering trees, enhanced plant regeneration rates and has also helped to maintain high levels of diversity.

However, mortality among some tree species has increased because beekeepers harvest their fibrous bark to make beehives.

While the current level of honey and wax production is improving, Mickels-Kokwe and Marunda believe there is still a lot more that could be done to ensure production reaches its fullest potential. The two scientists believe a number of factors are constraining the industry, the most pressing need being a reform of the beekeeping policy. In response to a request by Zambia's Forestry Department, CIFOR is now helping Zambia to develop a beekeeping policy. (*Source:* CIFOR News Online, 39.) ♣

## MADAGASCAR DECLARATION FOCUSES AFRICAN DEVELOPMENT POLICIES ON THE VALUE OF NATURE

Ambitious goals for reducing poverty and disease in Africa are unattainable without radical changes that make biodiversity and its socio-economic value the foundation for development policies, a global environmental conference concluded on 24 June 2006.

The symposium, organized by Conservation International, entitled "Defying Nature's End: the African Context", produced a five-page Madagascar Declaration that challenges traditional aid and development models for the world's poorest and most disease-ridden continent.

Among its conclusions, the Declaration states that African nations and international development agencies such as the United Nations and the World Bank should recognize that conserving Africa's rich biodiversity is fundamental to achieving sustainable development and reducing poverty. The Declaration calls such natural benefits essential if there is to be hope for African nations to achieve the Millennium Development Goals set by the United Nations in 2000 to achieve significant progress in reducing poverty worldwide by 2015.

The five-day conference of more than 300 delegates began on 20 June 2006. Madagascar was chosen to host the gathering of environmental and development leaders because of its unique and threatened biodiversity, including lemurs and other flora and fauna found nowhere else, and because of the Government of Madagascar's programme to triple the country's protected territory to a total of 6 million ha.

The final Declaration calls for creating and expanding markets for Africa's nature, such as ecotourism and carbon trading, to derive economic benefits from the continent's most valuable resource. Other necessary steps include:

- conserving Africa's most important biodiversity by expanding and strengthening protected area networks, together with the creation of sustainable financing mechanisms such as conservation trust funds;
- protecting and restoring key ecological systems linked to freshwater supply and quality, such as upper-water catchment forests and the rivers flowing from them;
- providing economic incentives for local communities to manage their forests and other natural resources sustainably;
- ensuring that government spending on poverty reduction is based on environmental sustainability;
- ensuring participation of the business community in seeking solutions to environmental degradation caused by industrial development; and,
- prioritizing sustainable agriculture practices and alternatives to fuelwood and charcoal as energy sources to reduce deforestation and the health risks from inhalation of smoke from cooking and heating fires.

(*Source:* Conservation International press release, 24 June 2006.)

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## NEW MULTIMILLION DOLLAR INVESTMENTS WILL HELP PROTECT HIMALAYAN SPECIES

WWF and the Critical Ecosystem Partnership Fund (CEPF) announced in May 2006 a US$5 million investment programme to pioneer new ways of conserving the immense natural wealth of the eastern Himalayan region.

The programme will provide grants for NGOs, community groups and other sectors of civil society to help save the highest priority species, sites and landscapes for conservation in Bhutan, northeastern India and parts of Nepal. (*Source:* CEPF E-News, June 2006.)

## US$20 MILLION PLEDGED TO PROTECT AMAZON

United States philanthropists Victoria and Roger W. Sant have pledged to donate US$20 million to the Worldwide Fund for Nature (WWF) to help create a huge conservation area in the Brazilian tropical forest.

Parts of the Amazon River basin, one of the world's most biologically rich places, are being rapidly bulldozed for ranching, farming, logging and other development. The Sants' money, in the form of a trust, will be used to further the goal of permanently protecting 125 million acres (50 585 700 ha), an area roughly the size of California. It is the largest individual gift that WWF has received.

The Sants have donated millions for other environmental causes. The idea of giving to the Amazon was appealing to them because it was so ambitious. It also helped that they have made several trips to the region to see it for themselves.

The Amazon Region Protected Area initiative began four years ago, with WWF working with the Brazilian Government, World Bank and others. It has set the goal of establishing 70 million acres (28 327 992 ha) of new strictly protected areas, transforming 31 million acres (12 545 254 ha) of neglected parkland into better-managed conservation zones and setting aside 22 million acres (8 903 083 ha) of "sustainable use reserves" to benefit local communities. (*Source: Washington Post*, 27 May 2006 [in *Amazon News*, 1 June 2006].)

## GIANT PANDA ECOLOGICAL CORRIDOR

Sichuan Province's giant panda habitat joined the UNESCO (United Nations Educational, Scientific and Cultural Organization) World Heritage list yesterday and experts regard this as a golden opportunity to integrate scattered habitats to protect the endangered species more effectively. The habitat was included on the list at the 30th session of the World Heritage Committee held in Vilnius, Lithuania.

The protection of the habitat as a whole will radically change the fragmented and island-like plight of panda habitats and enlarge the genetic pool of the species.

The 9 500 km$^2$ habitat covers nine scenic spots and eight nature reserves. About 300 giant pandas and other rare wildlife species live in the area. The area is a good base for

creating a holistic panda preservation plan and gives the animals the chance to migrate.

"We have already launched a programme called the giant panda ecological corridor," an official said. "We are removing all human interference in the domain of the giant panda, including the removal of factories and other constructions."

Initially put forward in 1987, the programme plants bamboo forests among the relatively isolated giant panda habitats so that they will be connected.

The Qinling tunnel is an example. For two decades, two groups of giant pandas living in the Qinling Mountains in northwest China's Shaanxi Province have been separated from each other by a national highway. Now the highway has been abandoned after construction of a tunnel, and workers have begun efforts to rejoin the two groups. To do this, rangers from the Mount Guanyin Nature Reserve and social volunteers have begun planting approximately 90 ha of bamboo on top of a 1 900-m-long highway tunnel that runs through the Qinling Mountains. This will allow free passage between the two isolated panda groups.

Biologists estimate that there are now approximately 1 590 giant pandas living in the wild worldwide, mostly in the mountainous areas of southwest China's Sichuan Province. There are only 273 giant pandas living in the Qinling area. (*Source: Shanghai Daily* [China], 20 May and 13 July 2006.)

## EUROPEAN UNION ANNOUNCES PLAN TO FIGHT EXTINCTION OF PLANTS AND ANIMALS

The European Union (EU) has laid out a plan to halt losses of plant and animal species by 2010 as part of a global drive to slow what could be the worst spate of extinctions since the dinosaurs were wiped out.

The European Commission presented a paper with guidelines for the EU's 25 member states and institutions such as the European Parliament on halting loss of biodiversity, which it said was harming efforts to boost economies and improve the environment. The Commission said that 43 percent of Europe's native bird species, 45 percent of butterflies, 45 percent of reptiles and 52 percent of freshwater fish faced extinction in Europe alone.

Its plan, which did not include new legislation, covered financing, decision-making and promoting awareness, the Commission said in a statement. The environmental group Greenpeace said that the EU's plans were not sufficient and that more was needed from them.

EU nations agreed in 2001 to "halt the loss of biodiversity" on the continent by 2010 – tougher than a global goal set in 2002 of "a significant reduction of the current rate of biodiversity loss" by 2010. (*Source:* Reuters, 23 May 2006 [in Environmental News Network (ENN) Newsletter].)

## CENTRAL AFRICA'S FIRST DEBT-FOR-NATURE SWAP

France and Cameroon signed the first-ever Central African debt-for-nature swap today (26 June 2006). This agreement will invest at least US$25 million over the next five years to protect part of the world's second largest tropical forest, home to elephants, gorillas, hundreds of bird species and indigenous groups such as the Ba'Aka pygmies.

The agreement comes from France's Debt Development Contract (C2D), a complement to the Heavily Indebted Poor Countries initiative (HIPC), a joint undertaking by the World Bank and the International Monetary Fund.

The document requires Cameroon to earmark funds in four different sectors: education, health, infrastructure and natural resources. This is the first C2D agreement to allocate funds to the latter.

"The importance of this unique and history-making agreement lies in the combination of debt forgiveness and investment in forest conservation and local communities," said Laurent Some, director of the Central Africa Regional Programme Office of the World Wide Fund for Nature (WWF).

Through the funds, the Forest and Environment Development Programme – a programme to reduce poverty while protecting and managing natural forestry resources – will be implemented. Funding will be used to manage protected areas, wildlife and forest production better and increase community forest resources and research capacity. The programme is designed to secure some 40 protected areas and increase the present protected area network from 14 to 17 percent of the national land area.

Illegal logging and an underdeveloped infrastructure threaten Cameroon's forests. As a solution, the programme calls for working alongside forest companies to develop management plans and a demand for certified, environmentally friendly products. Employing 12 000 people, the forest sector is Cameroon's largest private employer and the second largest source of export revenue after oil. However, forest sector employment has dropped in recent years, so funds will also be used to re-establish two national forestry schools to train the new recruits.

WWF sees this agreement as a concrete example of the commitment expressed by the region's heads of state at the Brazzaville summit in February 2005 and looks to other nations to follow the lead of France and Cameroon. (*Source:* WWF, 26 June 2006.)

## SAVING LANGUAGES TO SAVE SPECIES

Parties to the United Nations Convention on Biological Diversity in Brazil have set themselves the ambitious target of slowing down the rate of species loss by 2010.

In a recent article, Ehsan Masood argues that conserving biodiversity goes hand in hand with saving the world's endangered languages. Indigenous communities in Africa, Asia, Latin America and the Pacific often have detailed knowledge of their local flora and fauna that they express only in their native languages.

Masood says that if we wish to use this knowledge to protect and exploit biodiversity in a sustainable way, then endangered languages must also be protected. He points out that threatened languages and species are often found in the same places. According to UNESCO, for instance, a quarter of the world's languages are spoken in two of the world's most species-rich countries: Indonesia and Papua New Guinea. (*Source:* OpenDemocracy.Net, 3 April 2006 [in SciDev.Net].) ♣

FAO

## FORESTRY DEPARTMENT

**New Assistant Director-General (ADG) for the FAO Forestry Department**

Mr Jan Erik Heino of Finland has been appointed the new ADG of the FAO Forestry Department. He took up his new appointment on 27 June 2006.

**Potential role of forestry in poverty reduction in the Mekong region**

FAO, in collaboration with the Asian Development Bank and CIFOR, is currently working on a project to estimate the potential of forestry to contribute to poverty reduction in the Mekong region (Cambodia, Viet Nam and the Lao People's Democratic Republic). This includes a study of the contribution of wood and NWFP production to income, employment and exports. The analysis has already covered the contribution of the formal sector (wood products) and will, over the next few months, examine the contribution of NWFPs.

A full report of the study will be given in the next issue of *Non-Wood News*. Details of the project (including existing reports) can be found at: www.adb.org/Documents/PRF/GMS/RETA6115_GMS.asp

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**Asia-Pacific Forestry Sector Outlook Study II (APFSOS II)**

FAO has undertaken a series of global and regional outlook studies in response to requests from its Committee on Forests and regional forestry commissions. The first in this series was the Asia-Pacific Forestry Sector Outlook Study (APFSOS), completed in 1998. Since then, the Asia-Pacific region has undergone unprecedented changes and the pace of change is accelerating. Effective planning and decision-making will be crucially dependent on a sound understanding of how the sector is likely to develop in the next two decades. It is in this context that the 21st Session of the Asia-Pacific Forestry Commission (APFC) held at Dehra Dun, India, in April 2006 recommended revisiting this outlook study to assess likely changes to the year 2020, focusing on policy options and implications.

The key question addressed by the study will be *how to steer the sector along a path that is relevant and appropriate to emerging needs*. As social, economic and technological changes accelerate, forests and forestry will confront a complex array of opportunities and challenges, some familiar while others will be very different from those currently faced. APFSOS II aims to provide this larger picture of change, enabling more informed decision-making at various levels.

The specific objectives of APFSOS II are to identify emerging socio-economic changes impacting on forests and forestry; analyse probable scenarios for developments in the forestry sector to the year 2020; and outline priorities and strategies to address emerging opportunities and challenges.

The main outputs from APFSOS II will be:

- country outlook papers and thematic studies on selected topics of broad interest;
- subregional reports that capture commonalities and challenges faced among neighbouring groups and clusters of countries;
- an overarching regional report outlining the scenarios of forestry development in Asia and the Pacific that elaborates options, priorities and strategies; and
- policy briefs indicating priorities and strategies.

One of the thematic studies will focus on the future of the production, processing and trade of non-wood forest products. In a number of countries in the Asia-Pacific region, NWFPs have become a major source of income and employment and the current and emerging technologies offer considerable scope for new products. While a number of products are traded in global markets, a large number are subsistence products, collected and used at the local level with minimal processing.

It is important to examine the future scenarios of developments in the NWFP sector and to assess what is likely to happen by 2020. Specifically it needs to be assessed whether more products will be commercialized and produced intensively through domestication and what will be their long-term potential for income and employment generation.

The very process of the study is designed to enhance capacity in strategic planning in the sector and to develop a collective vision of shaping the future of forests and forestry.

The outlook study will be implemented through a highly participative approach involving all the countries of the region and other stakeholders, including bilateral and multilateral development agencies, international organizations, civil society organizations, industry and academic and research institutions. The country outlook papers, thematic studies, discussions during the national, subregional and regional meetings and information from the wealth of current literature will form the basis for preparing the draft subregional and regional reports. An expert advisory committee will be established to provide guidance and technical supervision.

The study commenced in October 2006 and is expected to be completed by December 2008. Preliminary findings will be presented and discussed during the 22nd Session of the Asia-Pacific Forestry Commission.

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**Workshop on rattan supply and demand – producer meets consumer**

The global usage of rattan palms (domestic and external trade) is worth over US$5 billion, according to an estimate by the International Network for Bamboo and Rattan (INBAR). Most of the canes processed by the rattan industry are still obtained from unmanaged, wild rattan resources in natural tropical forests.

The collection, transport and – to a limited extent – processing of rattan canes contribute considerably to rural employment and income generation, in particular for forest dwellers and people living close to forests, whose income choices are somewhat limited. Rattan consequently plays a significant role in poverty alleviation.

However, the wild rattan sources providing the basis for the rattan industry are reported to be dwindling rapidly, not only affecting the market for rattan products, but also employment generation for rural people.

A two-day workshop on this subject is being organized by FAO, INBAR and the International Tropical Timber Organization (ITTO) with the Forest Research Institute of Malaysia (FRIM) and is scheduled to take place at FRIM in Malaysia in March 2007. It will bring together specialists from the rattan gathering, processing and marketing sectors to discuss the rattan supply and demand situation and options to solve shortfalls.

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## FAO IN THE FIELD

**Projet «*Renforcement de la sécurité alimentaire en Afrique centrale à travers la gestion et l'utilisation durable des produits forestiers non ligneux (PFNL)*» *(GCP/RAF/398/GER) – Rapport d'avancement***

Le FAO fournit un appui technique aux pays membres de la Commission des forêts d'Afrique centrale (COMIFAC) par le biais du projet régional GCP/RAF/398/GER intitulé «*Renforcement de la sécurité alimentaire en Afrique centrale à travers la gestion et l'utilisation durable des produits forestiers non ligneux* (PFNL)»

Cette note d'information présente, dans un premier temps, le projet et la synthèse des résultats obtenus pendant la première année. En outre, elle souligne les perspectives pour les activités prioritaires à réaliser lors de la deuxième année du projet qui a une durée totale de trois ans (2005–2008). Basée sur les résultats préliminaires du projet, la note propose, dans un second temps, des interventions politiques prioritaires afin de développer le secteur PFNL en Afrique centrale et d'améliorer ainsi sa contribution à la lutte contre la pauvreté, au développement socioéconomique des populations et à la gestion durable des forêts du Bassin du Congo.

Les forêts tropicales d'Afrique centrale couvrent près de 235 millions d'hectares et regorgent, outre le bois d'œuvre, de grandes potentialités en matière de PFNL pour le bien-être des populations de la sous-région. Environ 80 pour cent de la population en Afrique centrale utilisent ces ressources au quotidien pour satisfaire leurs besoins de subsistance et également comme source de revenus et d'emplois. Que ce soit aux niveaux local, national, régional et international, les PFNL procurent de la nourriture, des plantes médicinales, des plantes ornementales, de l'énergie, des matériaux de construction, des équipements de pêche, des biens et des ustensiles divers aux populations. Ils ont aussi une grande valeur socioculturelle et religieuse dans la sous-région. A ce titre, les PFNL contribuent tant à la sécurité alimentaire qu'au bien-être général des populations de l'Afrique centrale.

Malgré leur importance et leurs énormes potentialités, on constate, par contre, une très faible valorisation des PFNL en Afrique centrale, un accès légal difficile à ces produits et une exploitation à grande échelle malaisée pour les différentes couches sociales concernées. Cela se justifie notamment par un cadre légal, réglementaire et institutionnel inapproprié d'une part et, d'autre part, par une faible connaissance de la ressource, un manque d'informations/de données sur le rôle des PFNL dans l'économie du ménage et la sécurité alimentaire.

L'objectif global du projet GCP/RAF/398/GER est d'améliorer la sécurité alimentaire dans six pays d'Afrique centrale (Cameroun, Gabon, Guinée équatoriale, République centrafricaine, République démocratique du Congo et République du Congo) à travers l'utilisation durable des aliments forestiers et des arbres hors forêt.

Pendant sa première phase «diagnostique» (juillet 2005-juin 2006), le projet a lancé une série d'études techniques pour analyser le potentiel de la contribution des PFNL, notamment des aliments forestiers, à la sécurité alimentaire en Afrique centrale. Ces études ont été menées à deux niveaux, à savoir, au niveau sous-régional et au niveau national, et ont dégagé un certain nombre de recommandations pertinentes reprises ci-dessous.

**Au niveau sous-régional**, les études ont analysé les thèmes suivants:

- *La gestion des ressources naturelles fournissant des PFNL*. L'étude propose, entre autres, d'élaborer et d'adopter une stratégie sous-régionale pour la gestion durable des PFNL.
- *L'impact socioéconomique de l'utilisation des PFNL*. L'étude propose de développer des stratégies de vente des PFNL, d'organiser les filières PFNL et d'harmoniser les cadres législatifs en matière de valorisation des PFNL dans la sous-région.
- *Le cadre législatif et réglementaire régissant l'utilisation des PFNL*. L'étude recommande d'améliorer les textes législatifs et réglementaires des PFNL, de diligenter un audit économique et fiscal du secteur PFNL et d'harmoniser les politiques forestières et fiscales en matière des PFNL dans la sous-région.
- *L'impact de l'exploitation du bois dans les concessions forestières sur la disponibilité des PFNL*. L'étude recommande d'inclure les PFNL dans les plans d'aménagement, de réaliser un inventaire systématique des

essences forestières qui fournissent le bois et les PFNL.

- *Les perspectives de la certification des PFNL*. L'étude énumère un certain nombre de PFNL pouvant satisfaire les exigences de la certification.
- *L'exportation des PFNL et des aliments traditionnels de l'Afrique centrale sur les marchés régionaux et internationaux*. L'étude recommande *i*) de lancer, rassembler et vulgariser des études de marché des PFNL prioritaires tels que *Dacryodes edulis*, *Irvingia gabonensis* et *Gnetum africanum*; *ii*) de lancer une étude approfondie sur l'audit des services actuels de contrôle phytosanitaire et de collecte des statistiques des PFNL exportés de l'Afrique centrale; et *iii*) de promouvoir et recenser les exportateurs/importateurs des PFNL de l'Afrique centrale pour s'approcher davantage du secteur privé spécialisé.
- *Le cadre politique et institutionnel régissant l'utilisation des PFNL*. L'étude recommande de développer les noms et les codes commerciaux des PFNL dans la sous-région, de mettre en place un plan de collaboration nationale entre les différentes institutions qui mènent des activités liées aux PFNL, de déployer et animer un réseau national et régional des PFNL à travers des projets de recherche et de valorisation, et d'identifier et de mettre en place quelques indicateurs politiques pour un suivi allant de trois à cinq ans sur les activités relatives aux PFNL.

**Au niveau national**, le projet a réalisé, dans chacun des six pays, l'analyse du cadre légal et réglementaire régissant le secteur PFNL et la rédaction d'une bibliographie annotée de la littérature disponible sur les PFNL. En Guinée équatoriale et en République démocratique du Congo, le projet a réalisé une étude sur la contribution des PFNL à la sécurité alimentaire.

Le projet a participé et a coorganisé plusieurs ateliers aux niveaux national et sous-régional, dont notamment:

- *L'atelier sous-régional sur l'évaluation de l'avancement du Projet GCP/RAF/398/GER* (Kribi/Cameroun, 25-27 juin 2006). De nombreuses recommandations ont été faites au Secrétariat exécutif de la COMIFAC, entre autres de sensibiliser les décideurs politiques sur la nécessité d'une plus grande prise en compte des PFNL dans les politiques nationales et sous-régionales et sur la nécessité de mettre à la disposition des services compétents les moyens appropriés.
- *L'atelier sous-régional sur le cadre légal et réglementaire régissant l'utilisation des PFNL* (Limbé/Cameroun, 28 juin –1er juillet 2006). Cet atelier avait pour but de formuler des recommandations sur les possibilités de réajustement du cadre légal et réglementaire actuel en vue de favoriser une gestion participative, durable et économiquement rentable des PFNL. Plus spécifiquement, il s'agissait de passer en revue et de valider les résultats des études nationales sur le cadre légal régissant le secteur PFNL en Afrique centrale et de proposer les grandes lignes d'une stratégie sous-régionale pour le développement d'un cadre légal approprié favorisant le développement du secteur PFNL et l'intégration sous-régionale en Afrique centrale.

Au regard de ce qui précède, des interventions politiques aux niveaux national et sous-régional se révèlent nécessaires afin de mieux valoriser les PFNL. Pour ce faire, le projet invite le Secrétariat exécutif de la COMIFAC à lancer un signal fort en direction du Conseil des Ministres de manière à susciter la volonté politique requise à la mise en place d'un cadre légal, politique et institutionnel approprié favorisant la contribution significative des PFNL *i*) à la sécurité alimentaire; *ii*) au développement socioéconomique; et *iii*) à la gestion durable des forêts de la sous-région d'Afrique centrale.

En prenant en compte les engagements contraignants liant les Etats à travers le Traité de la COMIFAC et son Plan de convergence, le projet propose que la COMIFAC mobilise davantage les gouvernements et ses partenaires afin de développer et de mettre en œuvre une stratégie politique sous-régionale harmonisée pour le développement et la valorisation du plein potentiel des PFNL. Cette stratégie devrait inclure les activités spécifiques suivantes tant au niveau national qu'au niveau sous-régional:

1. élaborer des stratégies politiques à même de promouvoir le développement du secteur PFNL;
2. compléter et renforcer l'application des textes réglementaires d'une façon harmonisée en prenant en compte les PFNL;
3. élaborer une fiscalité appropriée et harmonisée relative aux PFNL;
4. quantifier le potentiel de ressources naturelles fournissant des PFNL majeurs faisant l'objet d'échanges et de commerce;
5. élaborer et appliquer les plans d'aménagement prenant suffisamment en compte les PFNL;
6. élaborer des approches communes de gestion des PFNL en conformité avec le cadre de la Convention sur la biodiversité;
7. encourager et appuyer l'organisation des structures professionnelles des filières PFNL;
8. collecter et disséminer des informations relatives aux opérateurs économiques exerçant sur le secteur PFNL;
9. collecter et disséminer des données statistiques sur le commerce des PFNL;
10. publier périodiquement des informations relatives au secteur PFNL;
11. coordonner les activités menées par les différents organismes sur la recherche forestière relative aux PFNL.

La caution politique des Ministres en charge des forêts et/ou de l'environnement, entre autres: *i*) contribuera à améliorer le cadre légal et institutionnel régissant le secteur PFNL; *ii*) améliorera la contribution des PFNL à l'économie des pays de la sous-région; et *iii*) marquera un tournant décisif et une volonté politique forte de placer dans l'avenir la question PFNL au cœur des préoccupations des décideurs.

Après avoir été négligés pendant plusieurs décennies, les PFNL ont trouvé leur agenda dans le secteur forêt et environnement, et les activités réalisées par une multitude d'acteurs ont permis d'identifier les contraintes et les potentialités majeures existantes pour ce secteur à majorité informel. Il serait souhaitable que, basées sur ces informations, des politiques appropriées soient développées et mises en œuvre afin de maximiser la contribution des PFNL à la sécurité alimentaire et au bien-être général des populations de la sous-région de l'Afrique centrale.

**POUR PLUS D'INFORMATIONS CONTACTER: Sven Walter, Conseiller technique de la FAO et Coordonnateur régional du projet GCP/RAF/398/GER, Représentation de la FAO au Cameroun, B.P. 281, Yaoundé, Cameroun. Télécopie: +237 20 48 11; courriel: Sven.Walter@fao.org**

(*Prière de consulter la page 12 et* Non-Wood News *13 pour plus d'informations.*)

### NWFPs in Asia

In 2006, FAO's NWFP programme in the region included technical cooperation programme (TCP) projects on marketing and development in the Lao People's Democratic Republic (see below) and on agarwood in Papua New Guinea (see below), together with a study in Bhutan (*Cordyceps*, matsutake mushrooms and agarwood – see p. 37).

FAO is also planning to formulate a subregional project for the sustainable production, processing and marketing of agarwood for funding support by a larger donor. This was one of the aims behind an expert meeting, "Capacity-building Workshop for Improving Implementation and Enforcement of the CITES Listing of *Aquilaria malaccensis* and other Agarwood-producing Species", which took place in Malaysia from 14 to 17 November 2005.

### Eaglewood management project – second phase

FAO's TCP "Eaglewood management project" (TCP/PNG/2901) in Papua New Guinea ended in the first half of 2006. However, since there were a number of originally envisaged activities still outstanding, the extension or second phase with the funding of the unspent balance of the original project has been proposed (TCP/PNG/2902).

Among the activities still to be carried out are follow-up to inoculation tests, distillation technique development, a grading workshop and environmental/social impact assessment.

An offshoot of the project is an idea for a regional project covering the countries in Southeast to South Asia, i.e. from Papua New Guinea to India.

**FOR MORE INFORMATION, PLEASE CONTACT: Hikojiro Katsuhisa, Chief, Forest Products Service, Forest Products and Industry Division, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy. E-mail: Hikojiro.Katsuhisa@fao.org**

### Marketing system development for non-wood forest products in the Lao People's Democratic Republic

FAO's TCP/LAO/3002 project was completed in November 2006, having achieved the following key ouputs:

- the establishment of ten pilot NWFP village enterprise groups (involving 239 people) focusing on rattan, bamboo handicrafts, *posa* (paper mulberry) and mushroom production;
- increased incomes for local entrepreneurs and an increase in their knowledge of markets;
- assessment of the national NWFP sector;
- proposal for a model approach for NWFP marketing development;
- support of the national Market Information System (MIS) task force and organization of MIS workshops in the key regions of the country;
- establishment of linkages to national and international organizations and the private sector (MIS workshop, project partnerships);
- capacity building for local communities and other key actors, such as the National Agriculture and Forest Research Institute (NAFRI) and the National Agricultural and Forestry Extension Service (NAFES), to strengthen their capacity to apply the market analysis and development approach and sustainable management of NWFP resources.

#### UNDERSTANDING THE ROLE OF NWFPS IN LIVELIHOODS

NWFPs are ranked second to agricultural products as a source of income for rural communities living close to forests. The TCP project helped the target groups to benefit from the forest and earn more income by organizing themselves, improving marketing, creating domestication and setting up forest management. It also helped the poorest members of the local communities to play a role and build up their confidence, as well as earning them more income. The project demonstrated to the local communities, but also to local authorities and policy-makers, the importance that NWFP small-scale enterprises can play in alleviating poverty in rural areas. Moreover, they bring revenues to the national economy through marketing and trade.

A final report was prepared on the NWFP marketing system development project, as well as the preparation of a case study entitled "Non-wood forest product community-based enterprise development: a way for livelihood improvement in the Lao People's Democratic Republic". In addition, partners are now engaged in developing a project proposal to bring this experience beyond a pilot project and to apply lessons learned on a much larger scale.

**FOR MORE INFORMATION, PLEASE CONTACT: Sophie Grouwels, Forestry Officer, Community-based Enterprise Development (CBED), Forest Economics, Policy and Institutions Service (FOEP), Forestry Department, FAO, Viale delle Terme di Caracalla, 00153, Rome, Italy. Fax: (39) 06 570 55514; e-mail: Sophie.Grouwels@fao.org; www.fao.org/forestry/site/35689/en**

## THE GLOBAL FACILITATION UNIT FOR UNDERUTILIZED SPECIES

The Global Facilitation Unit for Underutilized Species (GFU) is a multi-institutional initiative established in 2000 under the umbrella of the Global Forum for Agricultural Research, based at the International Plant Genetic Resources Institute headquarters and funded by the German Government.

The objective is to enhance the deployment of the potential that underutilized species bring to the improvement of livelihoods. GFU is not promoting particular underutilized species and is not involved in the implementation of projects by national partners. Rather, its mission is to create an enabling environment for stakeholders dealing with underutilized species; it is concerned with cross-cutting issues that are relevant to most stakeholders and most underutilized species.

Within the term "underutilized species" an enormous range of plants can be identified. They are in the hands of the poor, who are their custodians and responsible for their conservation, crop improvement and development of technologies for their cultivation, processing and utilization, applying the traditional knowledge that has been passed on from generation to generation. These species have the following common features:

- they are only important locally in consumption and hence in production systems;
- they are represented mostly by wild species, ecotypes and landraces;
- they receive little attention from national policies and research;
- their distribution, biology, cultivation and uses are poorly documented;
- seed supply systems are non-existent or fragile;
- markets are non-existent or poorly organized;
- they are scarcely represented in *ex situ* germplasm collections;
- they are maintained mainly through *in situ*/on-farm conservation;
- they are adapted to agro-ecological niches and marginal areas; and
- many of them possess high nutritional and/or medicinal values and have multipurpose uses.

It has been recognized that underutilized species can make the following important contributions.

- **Food security, nutrition and health:** many underutilized plant species are nutritionally rich. They contribute to combating hidden hunger, have a direct impact on well-being and health and are accessible resources for the urban and rural poor as off-season foods.
- **Income generation and local economies:** consumer demand for product diversity is growing, which offers new market opportunities for the producers of novel products and will create employment at various levels. This contributes to the diversification of livelihood opportunities for poor people and decreases their vulnerability.
- **Non-material benefits:** the cultural identity of local communities is strongly related to the use of many traditional plant species and to the application of indigenous knowledge. These represent important assets for local communities and society in general.
- **Biodiversity and environmental services:** underutilized plant species contribute to agro-ecosystem stability and, therefore, mitigate the effects of environmental changes. They are often adapted to marginal conditions.

Despite these benefits many communities have neglected crops that were traditionally used to meet food, fodder, fibre, oil and medicinal needs. The introduction of a handful of crops through colonial intervention and during the green revolution created overdependence on only a few crops, limiting livelihood options for the poor. GFU operates towards the reversal of this situation by focusing on the following three intervention areas.

- **Analyses of policies and formulation of policy recommendations** – efforts are dedicated towards the creation of policy and legal environments that are more conducive to the deployment of underutilized species.
- **Information and communication.** GFU's portal is the gateway to information related to underutilized species. It also provides integrated information on projects, experts and institutions with the intention of generating new partnerships and synergies among involved parties.
- **Awareness creation.** GFU and its partner organizations are pursuing a campaign to raise awareness about the importance of underutilized species for the improvement of livelihoods. Key audiences include policy-makers, donors and the general public as well as the local communities where these plants are grown and used.

As a result of GFU activities it is expected that underutilized species will feature more highly in national and international research and development agendas and that the sometimes negative connotation some of these species carry as poor peoples' crops will be reversed.

Interested stakeholders, able and willing to contribute financially or intellectually towards this initiative are encouraged to join forces with GFU.

**FOR MORE INFORMATION, PLEASE CONTACT: Irmgard Hoeschle-Zeledon and Paul Bordoni, The Global Facilitation Unit for Underutilized Species, Via dei Tre Denari 472/a, 00057 Maccarese (Fiumicino), Rome, Italy. Fax: +39 06 61979661; e-mail: underutilized-species@cgiar.org; www.underutilized-species.org** ♣

*"Steps to sustainable and community-based NTFP management"*

## SMALL AND MEDIUM FOREST ENTERPRISE DEVELOPMENT FOR POVERTY REDUCTION: OPPORTUNITIES AND CHALLENGES IN GLOBALIZING MARKETS

**TURRIALBA, COSTA RICA**
**23–25 MAY 2006**

Around 1 billion people living in poverty depend on forest products for all or part of their livelihood. Many of them reside in tropical areas with high biodiversity and often severe restrictions on commercial agriculture.

Increasingly, development and government agencies are recognizing the important role that small and medium forest enterprises (SMFEs) play in reconciling the goals of poverty reduction and sustainable development, especially in the context of decentralization and more and more globalized markets.

This international conference brought together nearly 200 experts, practitioners and business and community leaders from around the world to discuss institutional and policy options for promoting more viable and sustainable SMFEs. It took stock of experiences in developing SMFEs in globalizing markets for timber and non-timber forest products.

### Major conclusions of the conference

- *Governments can play a critical role in strengthening SMFEs to reduce poverty.* Governments can start by granting and enforcing legal access to forest resources. Curbing illegal logging and unsustainable harvesting of NTFPs will reduce unfair competition. Simplifying bureaucratic procedures for SMFE registration can reduce costs and enhance value-adding opportunities. Financial incentives for start-up SMFEs are an additional positive step. Local or green purchasing policies also have a role to play.
- *SMFEs themselves can improve their competitiveness in national and international markets for forest-based products.* Upgrading technical, business and financial capacities and creating specialized institutions for business management can reduce production and administration costs, facilitate new business partnerships and provide a basis for negotiating more favourable terms of trade. The organization of SMFEs into second-level associations may facilitate the upgrading process.
- *Business development services (BDS) for SMFEs require greater coverage and quality.* Special emphasis needs to be given to train and educate a critical mass of rural BDS providers. Market-based mechanisms for service delivery are essential to ensure the impact and sustainability of these services.
- *Financial services are critical for the start-up and continued development of SMFEs.* Specific credit lines and related services and mechanisms need to be developed according to the needs and nature of SMFEs.
- *NGOs and development agencies can strengthen the existing capacities of SMFEs.* Facilitating access to market and technical information is a priority. SMFE communication networks can be funded to improve information flows, stimulate company-community partnerships and facilitate access to trade fairs and a better articulation between technical, business development and financial services. Facilitating multistakeholder negotiations for better policies and conflict management can help to address context-specific challenges. Support is often also needed to access niche markets such as forest certification or fair trade as well as to improve marketing and negotiation skills.

**FOR MORE INFORMATION, PLEASE CONTACT: Jason Donovan, Rural Enterprise Development Specialist, CATIE, Turrialba, Costa Rica. E-mail: jdonovan@catie.ac.cr; www.catie.ac.cr/econegociosforestales/conference *or* Sophie Grouwels, Forestry Officer, Community-based Enterprise Development (CBED), Forest Economics, Policy and Institutions Service (FOEP), Forestry Department, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy. Fax: (39) 06 570 55514; e-mail: Sophie.Grouwels@fao.org; www.fao.org/forestry/site/35689/en** **(*Please see pp. 52-53 for more information on this conference.*)**

## FOURTH INTERNATIONAL CONFERENCE ON AROMATIC AND MEDICINAL PLANTS IN FRENCH OVERSEAS REGIONS

**TAHITI, FRENCH POLYNESIA**
**11–13 JULY 2006**

The purpose of this conference was to promote the knowledge and enhanced value of plants from French Polynesia and all French overseas departments and territories. Previous conferences were held in Réunion (2000), Guadeloupe (2001) and Guyana (2004).

In French Polynesia, scientists and industrialists are currently interested in the applications of certain plants, such as *tamanu* or *nono*. This partnership work between institutions and producers on tamanu oil could lead to a certificate of origin label for a product that is also found outside French Polynesia.

The conference, which was organized by GEPSUN (Engineering Process, Natural Substances technological platform) and held at the University of French Polynesia, enabled participating scientists to present the results of their latest research, which sometimes leads to concrete commercial applications.

The five themes of this year's conference were:

- essential oils, concretes and absolutes, a general overview of the most recent works on patrimonial aromatic plants from French overseas regions;
- new vegetable substances from newly discovered plants and new molecules;
- medicinal plants and traditional medicine;
- regulation and consumer safety, dealing with the legal status of plants according to different regulations; and
- valorization and economic perspectives, dealing with sustainability and reliability of production channels and environmental and societal responsibilities.

**FOR MORE INFORMATION, PLEASE CONTACT: Université de la Polynésie Française, Plate-forme Technologique GEPSUN, BP 6570 – 98702 Faaa, Tahiti, Polynésie Française. Fax: (689) 82 71 89; e-mail: gepsun@upf.pf**

## INTERNATIONAL TRAINING WORKSHOP ON BAMBOO INDUSTRIAL PROCESSING TECHNOLOGIES AND MACHINES

**ZHEJIANG, CHINA**
**6–20 SEPTEMBER 2006**

Bamboo industrial processing and utilization have become the universal trend of bamboo development in the world. In China, especially in the south, the bamboo industry is one of the most important rural industries, playing an important role in the modernization and economic development of the rural area. In 2004, the bamboo industry production value of China reached US$5.63 billion.

This workshop introduced the industrial processing of bamboo products and the machinery used. Products include toothpicks, skewers, curtains, mats, furniture, various panels (flooring, cement moulding boards, decorative board, fibreboard, etc.), handicrafts, charcoal and shoots.

**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. Fax: 86-10-64703166; e-mail: zhzhu@inbar.int *or* Wjin@inbar.int *or* Jiang Chunqian, International Farm Forestry Training Centre (INFORTRACE), Chinese Academy of Forestry, Beijing 100091, China. Fax: 86-10-62888345; e-mail: jiangchq@forestry.ac.cn**

## USAID/FRAME NATURAL PRODUCTS IN RURAL ENTERPRISES WORKSHOP

**WASHINGTON, DC, UNITED STATES**
**3–5 OCTOBER 2006**

Natural products are estimated to account for between 35 and 60 percent of household incomes in local forest communities and are the main source of livelihood for 90 percent of the world's poorest people. They have the potential to spur rural economic growth, reduce poverty and strengthen local governance as well as conserve biodiversity; this potential is however far from being realized.

**FOR MORE INFORMATION, PLEASE CONTACT: Lauren N. Sorkin, FRAME Outreach Coordinator, International Resources Group (IRG), 1211 Connecticut Avenue, NW, Suite 700, Washington, DC 20036-2701, United States. Fax: +1-202.289.7601; e-mail: lsorkin@irgltd.com; www.irgltd.com *or* http://www.frameweb.org**

## VITALITY OF CORK OAKS AND HOLM OAKS SETTLEMENTS: CURRENT SITUATION

**EVORA, PORTUGAL**
**25–27 OCTOBER 2006**

This meeting was organized by the Directorate-General of the Forest Resources of Portugal in collaboration with the International Association for Mediterranean Forests, the Agronomic higher institute of Lisbon and the WWF MedPo.

The objective of the meeting was to give a progress report on the causes of the deterioration of these settlements in Mediterranean countries, in order to establish the actions and research orientations to be undertaken for including, understanding and solving the problems of deterioration better.

**FOR MORE INFORMATION, PLEASE CONTACT: Denys Poulet, Project Manager, Association Internationale Forêts Méditerranéennes (International Association for Mediterranean Forests), 14, rue Louis Astouin, 13002 Marseilles, France. Fax: +33 (0)4 91 90 71 62; e-mail: denys.poulet@aifm.org; www.aifm.org *or* www.recoforme.net/eng**

## FIRST INTERNATIONAL NON-WOOD FOREST PRODUCTS SYMPOSIUM

**TRABZON, TURKEY**
**1–4 NOVEMBER 2006**

The symposium provided an opportunity to discuss recent developments in NWFP forest harvesting, trade and marketing practices, and the potential importance of NWFPs for socio-economic development. In particular, it discussed issues on sustainable forest operations and improved utilization of NWFPs, as well as the reduction of environmental impacts and wastes in forests and processing facilities.

In the symposium the following issues were also covered: financial, organizational and administrative support measures by governments, the private sector, NGOs to promote the sustainable utilization of NWFPs and their importance for development, employment and income generation, particularly for local populations.

**FOR MORE INFORMATION, PLEASE CONTACT: Symposium Secretariat, Dr Ertugrul Bilgili, Karadeniz Technical University, Faculty of Forestry, 61080 Trabzon, Turkey. Fax: +90 462 325 7499; e-mail: nwfp@ktu.edu.tr; www.ktu.edu.tr/nwfp**

## INTERNATIONAL TRAINING WORKSHOP ON BAMBOO-BASED PRODUCTION AND ENTERPRISE MANAGEMENT

**MAHARASHTRA, INDIA**
**20–29 NOVEMBER 2006**

The International Network for Bamboo and Rattan (INBAR) and the Centre for Indian Bamboo Resource and Technology jointly organized this workshop with the aim of imparting knowledge and skill sets to people involved in the production and processing of the bamboo sector; and to enable them to experience "productivity" as an imperative to sustain and develop bamboo enterprises.

**FOR MORE INFORMATION, PLEASE CONTACT: Mr T.P. Subramony, Resident Manager, INBAR-South Asia Regional Office, I-4, Jangpura-B, New Delhi 110 014, India. Fax: +91 (11) 2437 4802; www.inbar.int *or* www.cibart.org** ♣

## SECOND INTERNATIONAL AGARWOOD CONFERENCE

**THAILAND**
**4–11 MARCH 2007**

This conference will follow up on the experience and the feedback of the hugely successful First International Agarwood Conference, held in Viet Nam in November 2003. The entire event will be organized along similar lines with two days of presentations in Bangkok, an optional excursion to agarwood shops in Bangkok and travel to the countryside, as well as field trips to agarwood plantations and an agarwood oil processing unit. We will then travel to Koh Chang, a tropical island and home of natural extremely endangered *Aquilaria*. The Conference will conclude with a day-long workshop on Koh Chang and an extra day for informal discussions. The formal conference part will include oral presentations and poster presentations.

The Conference will focus strongly on sustainable production, commerce and trade, while continuing to place emphasis on conservation, research and development issues.

**Ecology and biology of *Aquilaria* and *Gyrinops***

- Conservation and sustainability
- Genetics/phylogeny of agarwood-producing species

***Aquilaria* and *Gyrinops* production and management**

- Nursery production
- Plantations

**Agarwood biology and production**

- Certification and legislation/Certification and trade/Certification and genetic research
- Agarwood markets and marketing
- Medicinal (and traditional) uses of agarwood – traditional and new markets
- Agarwood chemistry/terpenoids chemistry

**Cultivated agarwood**

- Agarwood (inducement) production technology
- International cooperation
- Quality assessment and grading

**FOR MORE INFORMATION, PLEASE CONTACT: The Rainforest Project Foundation, Damrak 68, 1012 LM Amsterdam, the Netherlands. Fax: +31 (20) 624-0588; e-mail: trp@euronet.nl; admin.vn@trpfoundation.org**

## COMMITTEE ON FORESTRY (COFO) – EIGHTEENTH SESSION

**ROME, ITALY**
**13–16 MARCH 2007**

Subjects to be discussed at this session of COFO include:

- forests and energy: new challenges in sustainable forest management
- forest protection
- putting forestry to work at the local level
- progressing towards sustainable forest management

**FOR MORE INFORMATION, PLEASE CONTACT: Douglas Kneeland, Secretary, Committee on Forestry, Chief, Forest Information and Liaison Service, Forest Economics and Policy Division, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, 00153 Rome, Italy. E-mail: Douglas.Kneeland@fao.org**

## 2007 INTERNATIONAL SYMPOSIUM ON MEDICINAL AND NUTRACEUTICAL PLANTS

**GEORGIA, UNITED STATES**
**19–23 MARCH 2007**

This symposium is designed to bring together medicinal/nutraceutical plant workers and researchers/scientists representing university/academic, government and private sector laboratories working with various aspects of medicinal/nutraceutical (medicinal and aromatics, herbs, spices and fruits and vegetables with health benefits) plant research in temperate, subtropical and tropical climates.

Participants will benefit from researchers who are active in the development of biotechnology tools for medicinal and nutraceutical plant species in temperate and tropical areas and a host of other horticultural species having health benefits. This is truly an under-researched and highly diversified group of economically important botanical species that receive only limited attention in major discipline-based conferences mainly because of limited participation by speciality plant scientists/researchers.

Areas to be covered include:

- ethnobotany, bioprospecting and conservation of medicinal and nutraceutical plants;
- biotechnology of applications in medicinal and nutraceutical plants;
- medicinal plant-based industries: challenges and opportunities;
- regulatory issues for plant medicines: familiarizing with regional and global levels;
- current trends in research on nutraceutical plants;
- botanical medicines and women's health;
- plant-based biomedical research: reports on current status;
- potential and future of medicinal/nutraceutical plant research;
- production, pre-/post-harvest technology and marketing of medicinal plants.

This symposium will also provide a platform for discussing the increasing global trend of using botanical medicines.

**FOR MORE INFORMATION, PLEASE CONTACT: Dr Anand K. Yadav, Symposium Convener, Agricultural Research Station, Fort Valley State University, 1005 State University Drive, Fort Valley, Georgia 31030-4313, United States. Fax: +1-478-825-6376; e-mail: yadava@fvsu.edu; http://www.ag.fvsu.edu/ishsmanp.html**

## STUDY TOUR ON COMMUNITY-BASED FOREST COTTAGE INDUSTRIES

**THE PHILIPPINES**
**19 JUNE–2 JULY 2007**

The study tour aims to provide participants with the necessary exposure to the different community-based forest cottage industries and related project sites in the Philippines.

The field visit to selected sites will focus on the following subjects:

- current strategies of the Department of Environment and Natural Resources and recent developments in the implementation of the community-based forest management programme;
- small-scale hand-made papermaking;
- household-based wooden novelty manufacture;
- rattan, bamboo and vine crafts, and other forest-based craft industries;
- small- to medium-scale furniture industries;
- cottage-based woodcarving;
- community-based and medium-scale industries for specialized wood products; and
- ecotourism.

**FOR MORE INFORMATION, PLEASE CONTACT: Director, Training Centre for Tropical Resources and Ecosystems Sustainability (TREES), College of Forestry and Natural Resources, University of the Philippines at Los Baños, PO Box 434, College, Laguna 4031, the Philippines. Fax: + (63 49) 536-3340 *or* 536-2639; e-mail: trees@laguna.net; www.uplbtrees.ph**

## II INTERNATIONAL MEETING OF BASKET MAKERS "PINOLERE 2007"

**TENERIFE, CANARY ISLANDS**
**31 AUGUST–2 SEPTEMBER 2007**

This meeting will emphasize basketry from the palm tree, in any form or expression of popular art. The organizers would like to contact basket makers, groups, institutions, museums, etc. that could contribute to this project, especially from around the Mediterranean basin. They are also interested in contacting museums, institutions and groups that are carrying out some activity for the recuperation, diffusion and promotion of work done with palm or other plant fibres associated with the art of basket making.

**FOR MORE INFORMATION, PLEASE CONTACT: Rafael C. Gómez León, Technical Director of the Asociación Pinolere Proyecto Cultural, Calle Alzados Guanches s/n, Pinolere 38310, La Orotava, Tenerife, Canary Islands, Spain. Fax: (034) 922 325 590; e-mail: informacion@pinolere.org *or* directorelpajar@yahoo.es *or* gomezleonrafael@yahoo.es; www.pinolere.org**

## IUFRO EUROPEAN CONGRESS 2007: FORESTS AND FORESTRY IN THE CONTEXT OF RURAL DEVELOPMENT

**WARSAW, POLAND**
**6–8 SEPTEMBER 2007**

Forests and forestry contribute to rural development in multiple ways. Policy-makers and practitioners alike are faced with the growing and increasingly diverse social, economic and environmental demands of modern societies on forests and forestry. In addition, global developments such as climate change and urbanization influence and transform the ways in which forests are perceived, managed, conserved and used as elements of the rural landscape. More scientific knowledge is needed to understand better the complex relations between forests and other land uses and to overcome the different constraints to forestry in the context of rural development. The role of research as a foundation for the development of forestry and urban policies and planning and managing natural resources will be central.

The IUFRO European Congress aims to take a comprehensive and integrated view of the key issues within and outside the forest sector that shape and influence the role of forests and forestry as a means of rural development. The current state of knowledge will be presented, and further research priorities identified. The congress will focus on the following four main themes.

- Policies supporting rural development
- Forests and rural development in the light of global change
- Social aspects of forests and forestry in the rural landscape
- Economic role of forests in rural development

**FOR MORE INFORMATION, PLEASE CONTACT: Prof. Dr Piotr Paschalis Jakubowicz, Chair, Scientific Committee of the IUFRO European Congress 2007, Warsaw Agricultural University, Faculty of Forestry, Warsaw, Poland. E-mail: Piotr.Paschalis@wl.sggw.pl; http://conference2007.wl.sggw.pl/**

## EUROPEAN ASSOCIATION FOR SOUTHEAST ASIAN STUDIES (EUROSEAS) INTERNATIONAL CONFERENCE

**NAPLES, ITALY**
**12–15 SEPTEMBER 2007**

One of the sessions of the conference will cover "New interactions, exchanges and experimentation of genetic resources among small-scale societies in Southeast Asia", which is being organized by Dario Novellino and J. Simon Platten of the Department of Anthropology, University of Kent, United Kingdom.

In Southeast Asia, population pressure and environmental transformations continue to represent an important factor of change for small-scale societies. By and large, semi-nomadic groups are diversifying their livelihood options with an emphasis towards more stable forms of agriculture and various strategies for livestock rearing.

On other occasions, because of progressive desertification and the recurrence of environmental disasters, communities of farmers have increased their use of non-domestic resources, often engaging in food procurement activities (e.g. honey gathering) that are not

customary in their groups. As niches of specialization become more attuned to diversification, social relations, traditional institutions, mobility patterns and ethnobiological relations are also subject to reorganization. On the one hand, modernization followed by globalization, has altered traditional endogenous movements, exchanges and transmission of plant and animal resources. On the other, the introduction and exchanges of imported genetic resources have also created new conditions for local populations to open up to the global flow and negotiate freely with outside forces. Knowledge of introduced breeds and landraces has often been ingeniously transformed by local communities or added as an overlay to pre-existing ways of managing and interacting with the environment. In some cases, this has been orchestrated by cultivators themselves and has resulted in a strengthened expression of local identity and community cohesion within the market economy. However, where sociopolitical circumstances were unfavourable, the introduction of commercial breeds of animals (e.g. imported pigs and cows) and plants (e.g. rubber and oil palm) has created a distinctive cultural space controlled by lobbies and the elite.

As a result, imported breeds, bearing no relationship to the local ecology, have contributed to plundering peoples' territories, undermining the corporate basis of community life. Overall, experimentation with plant- and animal-related knowledge has coevolved within the context of complementary modes of food procurement. More important, through the movement of people, plants and animals, socio-economic and political organizations, ecological knowledge, representations of land and identity, forms of ownership and land management systems have been extended well beyond the medium of the local environment and engage with ever widening circles of knowledge that are, eventually, global. Generally speaking, the introduction of new species and breeds responds to both global and locally situated dynamics, and its localization via peoples' exchanges makes it the subject of constant reworking.

Today, many indigenous plants and animal breeds are at risk because of national agricultural policies. So-called "improved breeds" bring with them ideas and strategies for the accumulation of wealth and prestige, hence fostering patterns of inequality. On a parallel level, international treaties such as the United Nations Convention on Biological Diversity push for the conservation of genetic resources in "the surroundings where they have developed their distinct properties" (article 8).

Overlapping agendas and new political and economic developments occurring across the region provide a rich context in which to examine emerging patterns of people, plant and animal interactions. The conference seeks to explore the many facets of this process, by bringing together a collection of case studies focusing on the exchange, experimentation and transmission of plant/animal resources and knowledge by indigenous societies and rural communities in contemporary Southeast Asia.

**FOR MORE INFORMATION, PLEASE CONTACT: Dr Dario Novellino *or* Dr Simon Platten, Department of Anthropology, Marlowe Building, University of Kent, Canterbury, Kent CT2 7NR, United Kingdom. E-mail: darionovellino@libero.it *or* S.J.Platten@kent.ac.uk; www.kent.ac.uk/anthropology/**

## INTERNATIONAL CONGRESS – A GLOBAL VISION OF FORESTRY IN THE TWENTY-FIRST CENTURY

**TORONTO, CANADA**
**30 SEPTEMBER–3 OCTOBER 2007**

On the occasion of its centennial celebrations in 2007, the Faculty of Forestry, University of Toronto, has taken up a challenge to develop a comprehensive global vision of forestry in the twenty-first century.

The organizers of the congress aim to bring together invited speakers, poster presenters and participants from all interested groups such as policy-makers, forest managers, judges and legal experts, Aboriginal people, scientists and forestry experts from forest industry and international and non-governmental organizations.

Congress discussions will be organized under three themes.

- Global challenges, responsibilities and leadership in forestry
- Frontiers of science and a healthy and diverse forest environment
- Cultures, markets and sustainable societies

**FOR MORE INFORMATION, PLEASE CONTACT: Prof. Shashi Kant, Chair, Organizing Committee, Faculty of Forestry, University of Toronto, 33 Willcocks Street, Toronto, Ontario, Canada M5S 3B3. Fax: 416-978-3834; www.forestry.utoronto.ca/ac_staff/current/kant.htm ♣**

*"Steps to sustainable and community-based NTFP management"*

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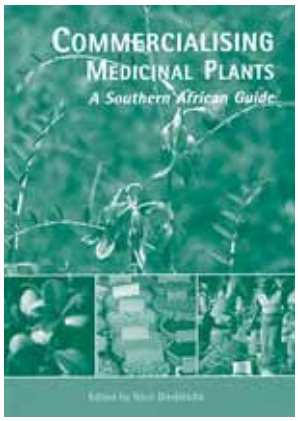


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For more information and to obtain copies, please contact: S.J. Velarde-Pajares, M.Sc., Programme Associate and Acting Global Coordinator, Alternatives to Slash-and-Burn Programme (ASB), World Agroforestry Centre (ICRAF), PO Box 30677, 00100 GPO, Nairobi, Kenya. E-mail: s.velarde@cgiar.org; www.asb.cgiar.org

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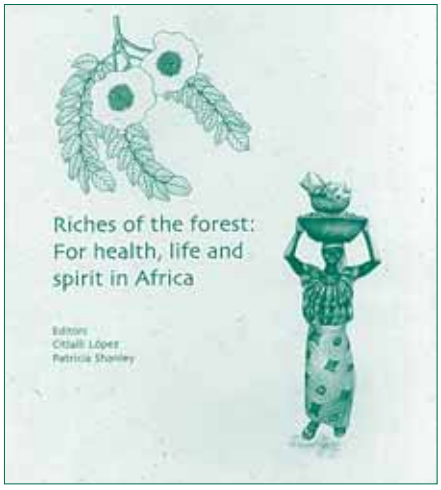


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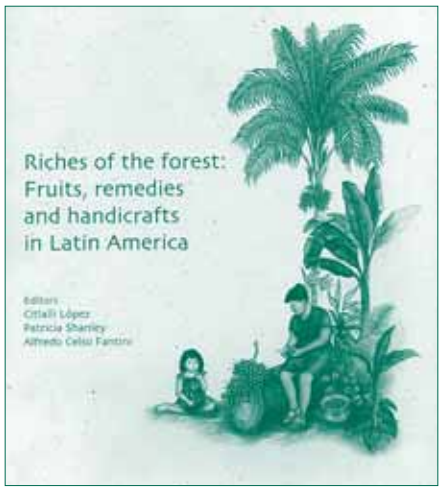


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The authors discuss the unique legal, regulatory, land tenure, geographic, vegetation, and climatic context that southern Alaska presents for marketing NTFPs; they summarize the various species and types of products being harvested; and they consider the marketing challenges and opportunities that new entrepreneurs will encounter. The information and resources provided are intended to enhance income opportunities for all Alaskans, while sustaining the organisms harvested, respecting traditional activities and ensuring equitable access to resources.

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## NEW PUBLICATIONS IN THE FAO NON-WOOD FOREST PRODUCTS SERIES

*Wild edible fungi*, No. 17 in FAO's NWFP publication series, has now been translated into French.


Copies of this publication – *Champignons comestibles sauvages. Vue d'ensemble sur leurs utilisations et leur importance pour les populations* – can be purchased from FAO's Sales and Marketing Group at publications-sales@fao.org

An electronic version is available from FAO's NWFP home page at: http://www.fao.org/docrep/009/y5489f/y5489f00.htm

**Pipeline publications**

FAO's NWFP programme is currently preparing a variety of publications and working documents. Future publications will include the following.

- Trade measures – tools to promote the sustainable use of NWFPs? A working document planned for February 2007
- Non-wood forest products: resource assessment guidelines (a new publication in our NWFP series; planned publication date March 2007)
- Bees and their role in forest livelihoods – a new publication in our NWFP series; planned publication date May 2007

**FOR MORE INFORMATION, PLEASE CONTACT: Hikojiro Katsuhisa, Chief, Forest Products Service, Forest Products and Industry Division, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy. E-mail: Hikojiro.Katsuhisa@fao.org**

## OTHER RECENT PUBLICATIONS

**Tendencias y perspectivas del sector forestal en América Latina y el Caribe (Estudio FAO Montes 148)**

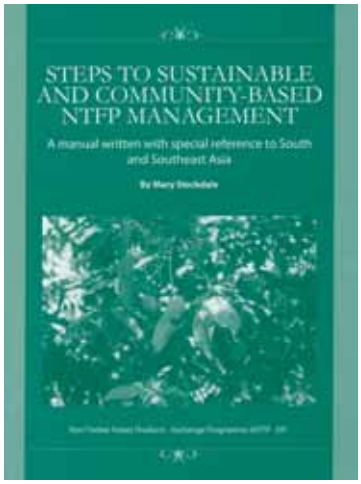

Un nuevo estudio de perspectivas del sector forestal para América Latina y el Caribe (ESFAL) ha sido lanzado a mediado del 2006. Esta publicación forma parte de una serie de procesos de perspectivas realizados por la FAO en diferentes regiones del mundo en colaboración con los países miembros y actores relevantes del sector privado, con organizaciones no gubernamentales y otras instituciones involucradas en el sector forestal de cada región. Mediante este estudio se visualiza y caracteriza la probable situación del sector forestal con horizonte al año 2020, si las actuales tendencias continúan o bien si se toman acciones que influyan el desarrollo del sector.

Este estudio pretende ser un importante apoyo a otros instrumentos para la planificación estratégica, en particular a los Programas Forestales Nacionales en la región de América Latina y el Caribe (ESFAL). Para el caso de los productos forestales no madereros (PFNM), de gran importancia para las economías de comunidades locales en América Latina y el Caribe, se menciona la carencia de datos en serie sobre la producción y el valor económico de estos productos, las dificultades en la comparación de la información de los mismos y la falta de recolección de información sistemática. Para mayor información acerca de los estudios de tendencias y perspectivas del sector forestal en América Latina y el Caribe, dirigirse a: Olman Serrano, Oficial Superior, Dirección de Productos e Industrias Forestales, Departamento Forestal, FAO, Viale delle Terme di Caracalla, 00153 Roma, Italia. Correo electrónico: Olman.Serrano@fao.org; www.fao.org/forestry/site/outlook/sp

**Steps to sustainable and community-based NTFP management. A manual written with special reference to South and Southeast Asia**

Rural and forest-based communities in South and Southeast Asia have managed NTFPs for generations, whether these products are mangoes from India, rattan from the Philippines or honey from Indonesia. These communities have relied on NTFPs for subsistence needs as well as cash income and have often also had close cultural and spiritual associations with NTFPs. In recent times, a decline in the availability of these products has been noticed in many places. The causes range from loss of forest habitat to a decline in traditional systems for controlling NTFP management and to overharvesting by both communities and outsiders as a result of increased commercial demand.

This manual, written by Mary Stockdale, provides the reader with a practical guide to working with a community towards sustainable NTFP management.

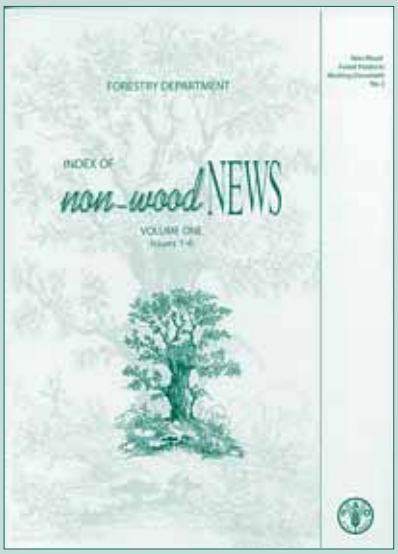


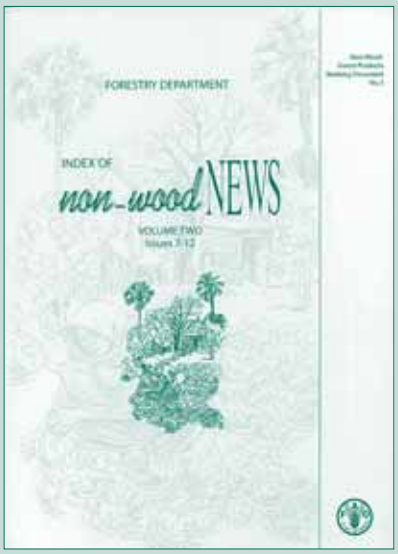
**Linking plant-based enterprises and local communities to biodiversity conservation in Nepal**

People in the mountainous region of Nepal are struggling to survive and the nearby forest gives them the hope to live. They are able to collect fuel and fodder from the rich forest. However, they realize that they are depleting the forest but they do not know that they are destroying both lives and the environment. The practice results in increased poverty and decreased biodiversity. Can poverty be alleviated and biodiversity improved? Is there no synergistic way that brings both factors together? How can poverty alleviation and biodiversity conservation be sustainable? The author, Bhishma P. Subedi, applies different methods and experiments to come up with a practical solution to the challenges.

Subedi concludes that enterprise-oriented community forest management can generate positive outcomes at both conservation and local livelihood levels. In the light of different approaches being tested and implemented to resolve conservation problems, the findings challenge the approaches that set communities aside from forest resources and keep forests untouched. The author finds that there are good prospects for forest-based enterprise development on the local, national and international markets. ♣

## INDEXES OF NON-WOOD NEWS




Since its first issue in March 1994, *Non-Wood News* has focused on highlighting the importance of NWFPs and promoting all their aspects. Through its global coverage, the publication has sought to raise awareness among policy-makers and other readers about the multiplicity of NWFPs and the opportunities they can offer, as well as the vital role they play in forest-dependent communities.

Over the years, *Non-Wood News* has included articles, publications and readers' contributions on a variety of NWFPs (bamboo, medicinal plants, mushrooms, rattan, shellac, etc.); their uses (e.g. in energy drinks and cosmetics, or as dyes, fabrics, fodder and shelter); their economic benefits (NWFP trade takes place in local, national and global markets); and their links to other key issues, such as the bushmeat crisis and biodiversity conservation, as well as traditional knowledge, bioprospecting and benefit-sharing.

*Non-Wood News* has, therefore, collected a wealth of information since its inception. In an effort to manage this knowledge and facilitate its use and retrieval, the first 12 issues of *Non-Wood News* have now been indexed. These indexes are available in two volumes: the first covering issues 1 to 6, with its companion volume covering issues 7 to 12. These volumes and all issues of *Non-Wood News* (available now in pdf and html) can be accessed from the NWFP home page at www.fao.org/forestry/site/6367/en

We hope these new information tools will be of benefit to our readers and to everyone researching the multifaceted world of NWFPs.

For more information, please contact: Tina Etherington at the address on the front page.

**AGORA**
UNESCO and cosmetics company L'Oréal have launched an online forum called AGORA to highlight and support women's contribution towards scientific progress. The partners already collaborate on a programme that awards annual prizes to female scientists on each continent. AGORA will focus on topics such as science education for women and girls, women of science and sustainable development, bioethics and diversity. The forum aims to strengthen ties among community members and to provide a space for discussing crucial issues facing the world. Each quarter, AGORA will publish a series of themed articles – the first is on women's and girls' access to scientific education and the next will focus on women's role in sustainable development.
*www.agora.forwomeninscience.com/agora/*

**Alliance for Zero Extinction**
The Alliance for Zero Extinction (AZE), a global initiative of biodiversity conservation organizations, aims to prevent extinctions by identifying and safeguarding key sites where species are in imminent danger of disappearing. The goal of the Alliance is to create a frontline of defence against extinction by eliminating threats and restoring habitats to allow species populations to make a recovery.
*www.zeroextinction.org/*

**Amazon conservation team**
*http://www.amazonteam.org/*

**Asia-Pacific Forestry Commission**
The Asia-Pacific Forestry Commission (APFC) is one of six FAO Regional Forestry Commissions that cover the world's major geographic regions. The APFC is a forum for advising and taking action on key forestry issues. It focuses on issues pertinent to Asia and the Pacific, a region characterized by its diversity and rapid changes.
*www.fao.org/forestry/site/33592/en*

**Celebrating wildflowers**
*http://www.fs.fed.us/wildflowers/*

**Climate ark climate change and global warming portal**
*www.climateark.org/*

**Connecticut ferns**
*www.ct-botanical-society.org/ferns/index.html*

**EcoEarth.info environment portal**
EcoEarth.info (formerly Eco-Portal) is an environmental portal that has been operational since 1999. The search engine is the largest online environment search index in existence, and the earth blog at *www.ecoearth.info/blog* provides a constant stream of analysis of the most important environmental developments of the day.
*www.ecoearth.info/*

**Finnish forests**
This site is a gateway to Finnish forests and the forest sector and highlights the importance of forests for Finland.
*www.forest.fi*

**Forest law enforcement**
*www.fao.org/forestry/site/18448/en*

**Forest protection in south Finland**
Forests in southern Finland (south of Lapland) are extensively used. They are popular for recreation and contain a large part of the country's forest biodiversity. They are also so intensively logged for industrial use that the current wave of species extinctions is not slowing down. Forest conservation measures in southern Finland are now extremely important. This Web site is about forest conservation, especially in south Finland. Here you can become acquainted with some of the most important unprotected forests and appeal for their future. You can also follow the progress of the Finnish National Forest Conservation Initiative for Southern Finland (METSO) from an ecological perspective.
*www.etelasuomenmetsat.fi/english/00_johdanto.shtml*

**IPDEV**
IPDEV is an EU research project, led by Chatham House in the United Kingdom, to assess the impact of intellectual property rights rules on economic growth, environmental protection and social goals.
*http://www.ip4development.org*

**Lady forester**
*http://www.geocities.com/ccp4treez/*

**North Australian Indigenous Land and Sea Management Alliance (NAILSMA)**
*www.nailsma.org.au*

**Policy and law forum**
*www.eurac.edu/policylaw/*

**Poverty and conservation.info**
The Poverty and Conservation Learning Group (PCLG) is a forum for facilitating mutual learning between key stakeholders, from a range of backgrounds, on conservation-poverty linkages.
*http://www.PovertyandConservation.info*

**SciDev.Net free database of image archives**
*www.scidev.net/announcements/index.cfm?fuseaction=readannouncement&itemid=404&language=1*

**The size of our world**
*www.rense.com/general72/size.htm*

**United Nations Forum on Forests**
*www.un.org/esa/forests/*

**Wikiwords**
Wikiwords is a collaborative project to create a dictionary of all terms in all languages with definitions and example sentences. Wikiwords was derived from the ProZ.com KudoZ open glossary.
*www.wikiwords.org/*

**Wilderness survival**
*http://www.wilderness-survival.net/*

**WildFinder**
WildFinder is a map-driven, searchable database of more than 26 000 species worldwide, with a powerful search tool that allows users to discover where species live or explore wild places to find out what species live there. Containing information on birds, mammals, reptiles and amphibians, WildFinder is a valuable resource for scientists, students, educators, travellers, birdwatchers and nature enthusiasts alike.
*www.worldwildlife.org/wildfinder/*

**WordOrigins**
*www.wordorigins.org/*

**Xpeditions (National Geographic)**
Maps for printing and copying.
*www.nationalgeographic.com/xpeditions/atlas/* ♣

### CONTRIBUTIONS TO *NON-WOOD NEWS*

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 our readers, please do not hesitate to submit it. Articles are welcomed in English, French and Spanish and should be between 200 and 500 words. The deadline for contributions for *Non-Wood News* 15 is 31 March 2007.

**For more information, please contact: Tina Etherington at the address on the front page or by e-mail to: non-wood-news@fao.org**

**Using information from Non-Wood News**

Do you have any objection to me using information from *Non-Wood News* in our local Forestry Newsletter? I will of course state where the information came from (reader from Australia).

*(One of the key areas of intervention of our work is to support information sharing and facilitate networking among those people/organizations working in the field of NWFPs. We therefore have no objection to any part of* Non-Wood News *being used, but request that the original source information be cited.)*

*"Seps to sustainable and community-based NTFP management"*

**Global NTFP Alliance/Network**

Our organization was the pioneer behind the creation of the South and East Asian Countries NTFP Network (SEANN) in January 1995 (see also *Non-Wood News* 13 [2006], p. 72). SEANN has about 24 members and is a living network.

We offer our services to FAO, the International Tropical Timber Organization (ITTO) and others who seriously wish to strengthen the network and form a common forum. Therefore, all may interact with each other without favour or prejudice to form the Global Network on NTFPs in collaboration with SEANN.

(*Contributed by:* Dr M.P. Shiva, Advisor and Founder President, Centre of Minor Forest Products (COMFORPTS), HIG 2, No. 8B, Indirapuram, GMS Road, PO Majra, Dehra Dun – 248171, Uttaranchal, India. E-mail: shivamfp@nde.vsnl.net.in *or* Shivamfp@vsnl.com

*(Dr Shiva is responding to an article on p. 69 of* Non-Wood News *13 regarding the creation of an NWFP global alliance; we greatly appreciate SEANN's willingness to be part of this initiative. This collaborative arrangement, be it called alliance, partnership or network, should be one of the subjects discussed at an international conference on NTFPs being organized during the second half of 2007 by ITTO, in collaboration with FAO and INBAR. More information on this conference will be given in* Non-Wood News *15 [July 2007].)*

**Funding opportunities**

We receive many inquiries from readers regarding funding for their research projects. Unfortunately, the NWFP Programme's budget is limited and therefore we are not in a position to finance these requests.

However, we would like to direct your attention to the online Collaborative Partnership on Forests (CPF) sourcebook on funding for sustainable forest management that has been developed to help users locate efficiently global funding sources for sustainable forest management projects.

A major component of the sourcebook is the database of funding sources that contains information on over 600 funds and is a valuable starting-point in the search for funding opportunities. The search feature of the sourcebook can be found at: www.fao.org/forestry/site/17254/en

As part of this initiative, the FAO CPF team compiles the Forestry Funding News, an electronic newsletter that provides regular updates on forestry funding opportunities worldwide. It can be accessed at: www.fao.org/forestry/site/33747/en

**FOR MORE INFORMATION, PLEASE CONTACT: Mr Edward Kilawe, Forest Information and Liaison Service (FOEL), Forestry Department, Food and Agriculture Organization of the United Nations (FAO), Viale delle Terme di Caracalla, 00153 Rome, Italy. Fax: +39 (06)57055137; e-mail: CPF-Sourcebook@fao.org *or* Edward.Kilawe@fao.org; http://www.fao.org/forestry/cpf-sourcebook**

***(Please also see Earthwatch Institute on p. 16.)*** ♣

### WHAT WE CAN LEARN FROM TREES

**Take advice from a tree**
**Stand upright and strong**
**Defy the storms**
**Remember your roots**
**Drink from the depths**
**Enjoy sunshine, wind and rain**
**Relish healthy air, water and soil**
**Take care of your neighbours**
**Look far around**
**Be alive**
**(Author unknown)**

# Forest cosmetics: NWFP use in the beauty industry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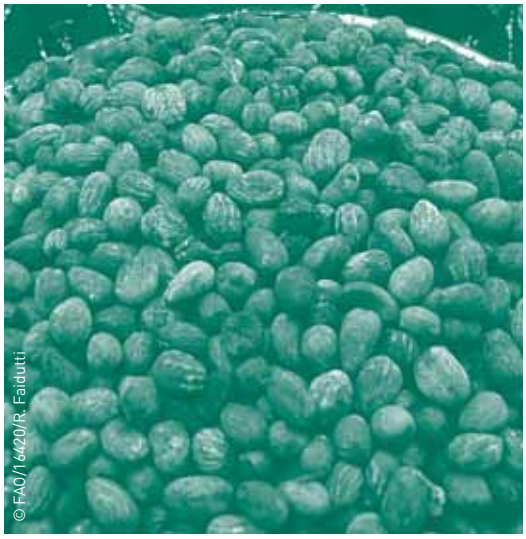
© FAO/16420/R. Faidutti

**Natural cosmetics and beauty care are a US$3.9 billion global market, with predictions indicating a rise to $5.8 billion by 2008. However, traditional societies have always known of the beneficial effects of natural cosmetics and still take advantage of them in their everyday lives, e.g. whether by using shea butter (made from the kernels of *Butyrospermum parkii*) in Africa or thanakha (made from the bark of *Limonia acidissima*) in Myanmar.**

*PRINTED ON ECOLOGICAL PAPER*

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