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

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 antiinflammatory 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.

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.]



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 and ropogonifolius 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 postharvest practices; and vulnerability status to commercialization of these two NWFPs.

FOR MORE INFORMATION, PLEASE CONTACT: Dr Lungten Norbu, Programme Director, Renewable Natural Resources Research Centre, Yusipang, PO Box 212, Thimphu, Bhutan. Fax: +975-2-321601; e-mail: Inorbu@drunknet.bt *or* mrmoktan@yahoo.com

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.

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

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.)

Indigenous plant species of traditional, medicinal and commercial value identified for

formali	zing the	econom	ic incentive	to
conserv	ve the fo	orest.		

These plant species grow within an initial project area of 35 km², 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 km² 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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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.				





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,

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.)



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:

 recueillir le savoir des populations locales concernant les ressources fruitières sauvages et leurs différentes formes d'utilisation;

- évaluer la contribution des fruitiers sauvages à l'équilibre alimentaire des populations;
- ávaluer le potentiel productif des fruitiers sauvages;
- 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 physicochimique 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.) POUR PLUS D'INFORMATIONS CONTACTER: Rigobert Yaméogo, directeur, Centre national de la recherche scientifique et technologique (CNRST). Institut de recherche en sciences appliquées et technologiques (IRSAT); B.P. 7047 Ouagadougou, Burkina Faso. Télécopie: +226-35-70-29; courriel: r.yameogo@fasonet.bf et rigobert.yameogo@cnrst.bf



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 km². 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, DirectorGeneral. 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 plaqued 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 communitybased and diverse microenterprises supported by a twenty-first century packaging and marketing infrastructure.

The NFDC offers a ten-day communitybased training course focusing on local resources, plant identification and basic ecology, sustainable harvesting and handling practices, aboriginal issues, lowtechnology value-added processing and marketing. The training includes a flexible combination of classroom, field and valueadded processing exercises. Additional speciality workshops have been developed to increase local opportunities in valueadded 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; email: 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.

mas trees Million dollars Million trees		Annual change (%)	
2004		One year	Ten years
62.2	3.9	-3.3	-0.3
36.2	2.5	-5.8	1.6
29.4	1.7	-0.5	-2.7
	Million dollars 200 62.2 36.2 29.4	Million dollars 2004 Million trees 62.2 3.9 36.2 2.5 29.4 1.7	Million dollars Million trees Annual One year 62.2 3.9 -3.3 36.2 2.5 -5.8 29.4 1.7 -0.5

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), GOR 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* – bigbottom 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 antflavoured 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.)



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 m³ per year but the volume officially declared has never exceeded 0.5 million m³ and even fell to 0.1 million m³ during the recent war. At present, the volume produced by the informal sector amounts to 1.5–2.4 million m³, 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 m³.

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 km² (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.)



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.)



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.)



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.)

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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 Concor*d [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

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 quchhi 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.)



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

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.)



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 \in 77 646 616) compared with exports of 3 057 429 kg (\in 29 421 497). Dried fungi also follow this trend with 2 171 646 kg imported (\in 33 552 572) and 747 959 kg (\in 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 (\in 883 172 and \in 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

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 (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.)



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. Fortyfive 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 highquality 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.

FOR MORE INFORMATION, PLEASE CONTACT: Adrian Whiteman, Senior Forestry Officer (Economic Analysis), Forest Economics and Policy Division, Forestry Department, FAO, Viale delle Terme di Caracalla, 00153 Rome, Italy.

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

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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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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 massproduce plantlets via tissue culture. Seeds were screened for fast-growth and singlebole 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.)



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, midwestern 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 agroinput 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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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 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.)



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)



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.)



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 nonvegetative 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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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 labourintensive 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 2000year-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.]



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 specialpurpose 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 tightlipped 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 typetwo 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.)



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.]

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 nontimber 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 nonvascular 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 nontimber 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) FOR MORE INFORMATION, PLEASE CONTACT: Dr Suzanne Martin, Project Leader, Social Research Group, Environmental and Human Sciences Division, Forest Research, Northern Research Station, Roslin, Midlothian, EH25 9SY, Scotland, United Kingdom. Fax: 0131 445 5124; e-mail: suzanne.martin@forestry.gsi.gov.uk; www.forestresearch.gov.uk

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-yearold 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 wellattended 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.)



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.] �

