

## ARGENTINA

### Argentina's forest diversity

Argentina stretches across many lines of latitude and, as a result, encompasses a diversity of climates and soil types. It is this geographic diversity that fosters the more than 30 million ha of temperate, subtropical, humid and semi-arid native forest.

In the north of the country is the Chaqueño parkland, forming deciduous xerophilous stands with scrubland, grassland and palm stands. Species present here include various types of *quebracho* (*Schinopsis* spp.), carob (*Prosopis* spp.) and pink *lapacho* (*Tabebuia avellanedae*).

In the northeast of the country, Tucumano-Boliviana rain forests form submontane and montane subtropical forests with altitude determining the composition of mixed forest. Species found here include cedars (*Cedrela* spp.), pink *lapacho*, jacaranda (*Jacaranda mimosifolia*) and *cebil* (*Anadenanthera colubrina*). There are alders (*Alnus acuminata*) above 1 200 m, while mountain or Tucumán pine (*Podocarpus parlatorei*) can be found up to 1 900 m.

The Misiones subtropical rain forest is also found in the northeast. It contains mixed subtropical forests with high levels of biodiversity and multistorey stands 20–30 m tall. In addition, the province of Misiones has a considerable area of forest plantations producing fast-growing species, particularly *Pinus elliottii* and *P. taeda*.

Just south of Misiones is the province of Corrientes, which has the most extensive area of forest plantations. The province of Entre Ríos, bordering Corrientes, has a large area planted with various species of eucalyptus, together with a well-established industry.

Andino-Patagónico forests are found along the Andes from latitude 37° south, southwards to Tierra del Fuego. These forests contain such species as the monkey puzzle or *pehuén* (*Araucaria araucana*) and various species of the *Nothofagus* genus, which are found as far south as Tierra del Fuego.

*Espinal* scrubland forms deciduous xerophilous woodland interspersed with palm stands, grassy savannah, grassy steppe and bushy steppe. This region can be subdivided into three regions, the first dominated by *ñandubay* (*Prosopis affinis*), the second by *carob* and the third by *caldén* (*P. caldenia*).

Argentina has legislation (Law 26.331 and Law 25.080) that protects the country's native forests and establishes various categories for their use, ranging from strict conservation to the possibility of sustainable harvesting. Forestry incentives are established by means of non-repayable grants to producers for planting trees and such silvicultural activities as pruning, thinning, coppicing and the enrichment of native forests. [Source: XIII World Forestry Congress announcement, www.wfc2009.]

## AUSTRALIA

### Australian truffle harvest in full swing

Australia's black truffle harvest is in full swing, with growers tipping a bumper crop of the revered fungus this winter.

Australia's truffle pioneers are in Tasmania, which produced the country's first *Tuber melanosporum* in 1999 after plantings began in 1991. Peter Cooper from Périgord Truffles of Tasmania is predicting a best-ever national harvest for 2009 of about 1.5 tonnes. Europe produces up to 60 tonnes of black truffles during its annual winter harvest.

The feather-light truffles have a three-week fresh shelf-life and fresh is considered best, although truffles can be preserved.

Mr Cooper said prices for Australian truffles have so far withstood an impact on demand caused by the global financial crisis. They will sell this season for about AU\$2.50 per gram, he said.

Tasmanian truffles, sniffed out from under oak and hazel trees by dogs, are picked in the morning and packed and shipped the same day. The clock on freshness is ticking as soon as they are plucked from the earth.

Mr Cooper said they can be anywhere in Australia within 24 hours and anywhere in the world within 48 hours of harvesting. Most of them will be sold overseas, through Asia and into Europe.

A black truffle varies in size from 2 cm in diameter to the size of a grapefruit and is covered in black warts; its appearance indicates nothing of its true value.

The truffles, which form annually, are found just below the soil surface to a depth of 20 cm and are believed to develop their best characteristics in cold soil. [Source: Food Week Online, 24 July 2009.]

### Wattle and myrtle beers

For over 6 000 years, Australian Aborigines in different clans around the country parched and milled wattle seeds (*Acacia*

spp.) from around 100 of the 900 plus species of acacia, then used the coarse flour in baked seed cakes. Wattle seed has an unusually low glycaemic index, which means that the carbohydrates in it are slowly absorbed and therefore better for one's health than sugary, quick-release alternatives.

Wattle seed is now being used by Barons, an Australian brewery, in one of its ales, Barons Black Wattle.

The same brewer uses another little-known NWFP in its Witbier: lemon myrtle leaves. Lemon myrtle (*Backhousia citriodora*) is a flowering plant native to the subtropical rain forests of Queensland, Australia. It is considered to have a "cleaner and sweeter" aroma than comparable sources of citral (such as lemongrass). Lemon myrtle is one of the well-known bushfood flavours and is sometimes referred to as the "Queen of the lemon herbs", with the new growth preferred for its sweetness. [Source: Lehrman Beverage Law [Australia], 29 June 2009.]



## BANGLADESH

### Present status of NTFPs species stock in Sylhet Forest Division: a case study from Juri Forest Range-2

The exploitation of NTFPs is less ecologically destructive than timber harvesting and therefore provides a sounder basis for sustainable forest management. Research reveals that NTFP cultivation can bring concrete ecological benefits, e.g. it can encourage natural regeneration and mimic natural forest ecosystems in plantations and afforestation sites.

A study was carried out in the Juri Forest Range-2, Sylhet Forest Division, to explore the existing numbers of cultivated NTFP species. The NTFPs in the study area were bamboo, cane, sungrass and *murta* (see table).

## Stock of NTFPs in Juri Forest Range-2

| Local name  | Scientific name                         | Family      | Average no. of culm/ha | Average no. of clump/ha | Average no. of culm/clump (mean±SD) | Average circumference of each clump (m) (mean±SD) |
|-------------|---|-------------|------------------------|-------------------------|-------------------------------------|---|
| Jai bamboo  | <i>Bambusa vulgaris</i> Schrad.         | Graminae    | 7 545                  | 373                     | 25(±6.016)                          | 3.02(±0.884)                                      |
| Dulu bamboo | <i>Neohouzeaua dulloa</i> (Gam.) Camp.  | Graminae    | 3 144                  | 153                     | 27(±5.422)                          | 7.13(±1.923)                                      |
| Muli bamboo | <i>Melocanna baccifera</i> (Roxb.) Kurz | Graminae    | 8 867                  | –                       | –                                   | –   |
| Jali bet    | <i>Calamus guruba</i> Ham.              | Palmae      | 4 950                  | 224                     | 25(±6.016)                          | 3.02(±0.884)                                      |
| Sungrass    | <i>Imperata arundinacea</i>             | Graminae    | 8 482                  | 534                     | 18(±5.59)                           | 4.10(±1.02)                                       |
| Murta       | <i>Schumannianthus dichotoma</i>        | Marantaceae | 710                    | 72                      | 22(±5.67)                           | 6.81(±1.98)                                       |

The study found that there were six species under three families of available NTFPs in the study area. The dominant family was Graminae, with four species, followed by Palmae and Marantaceae (one species each).

Communities living in or around the forests have been collecting various forest products, mainly NTFPs, for their subsistence as well as for commercial use. Selling NTFPs has been the most widespread way in which rural people in the study area earn a cash income and whereby new development opportunities are created.

However, NTFP resources are declining at an alarming rate because of overexploitation. Tropical countries such as Bangladesh do not have enough information on their stock of NTFPs. Therefore, in order to prepare a proper forest management strategy, assessments of NTFPs in the whole country are extremely important. (Contributed by: Md. Parvez Rana and Mohammed Salim Uddin, Department of Forestry and Environmental Science, School of Agriculture and Mineral Sciences, Shahjalal University of Science and Technology, Sylhet 3114, Bangladesh. E-mail: parvez\_200207@yahoo.com)

**Action over prayer flags**

The Bhutanese Government has warned its citizens not to cut down thousands of young trees each year to make poles for hoisting Buddhist prayer flags. It said that the felling of trees is a threat to the tiny kingdom's beauty and undermines the government's duty to promote "gross national happiness".

The flags are flown by Himalayan Buddhists to help the dead find the right path in their next life. They believe that the more flagpoles put up for the departed the better. Buddhist monks say that fresh poles must be used each time.

Government figures show that between June 2007 and June 2008, 60 178 trees – about 165 every day – were felled to meet the demand for poles. About 550 trees were felled daily for other uses.

"There's an immense pressure on the forest," Department of Forests spokesman Gopal Mahat told the *Kuensel* newspaper. "We can't stop granting permits, especially for important religious rites because it involves sentiments," he said. "The demand is for straight, young trees, which have the potential of becoming crop trees."

Many Bhutanese Buddhists believe that the ideal number of prayer flags for deceased people is 108, preferably made from freshly cut trees.

Officials warn that this approach means that most of Bhutan's forest will be gone within the next 20 years and that trees are already being cut down deeper and deeper within forests. The problem has become so serious that forestry officers in the capital, Thimpu, have restricted the number of prayer flagposts to 29.

Plans are also afoot to persuade people to switch to bamboo for prayer flags, but a similar initiative recently launched to encourage people to use steel was unsuccessful.

Bhutan's constitution, which emphasizes the importance of gross national happiness over gross domestic product, stipulates that the country must have at least 6 percent forest cover. (Source: BBC News, 11 September 2009.)

**Forest products to help alleviate poverty**

Farmers from Trongsa will no longer have to go to Zhemgang divisional forest office to ask for permission to use forest products as in the past. This time- and cost-saving measure will be made possible after the Department of Forests (DoF), with a strong focus on delivery of services through decentralization, allows the territorial forest offices to issue permits.

This move to improve service delivery is one of the sub-themes discussed at the Second Annual Forestry Conference held in Zhemgang from 29 to 31 October. "The DoF is making it simple and convenient for the farmers," said the nature conservationist, Dr Sangay Wangchuk.

With the main theme of "Managing Forestry Resources for Poverty Alleviation", forest officers will also sort out how to enhance access to forest resources, especially NWFPs, by the community. "Clear-cut guidelines and frameworks for the use of forest products and marketing will be framed," said Dr Wangchuk.

NWFPs include cane and bamboo products, various medicinal plants, *Cordyceps*, mushrooms and different species of ferns. Dr Wangchuk said that, to date, lack of guidelines and frameworks restricts people from using forest resources. "Giving farmers access to harvest forest resources would generate income to the community, which would help in poverty alleviation," he said.

The chief forestry officers, park managers, *dzongkhag* (district) forest officers, senior range officers and representatives from the World Wide Fund for Nature (WWF), Helvetas and SNV (Netherlands Development Organization), will also discuss issues such as sustainable forest management and linking conservation activities to livelihood, by developing strategies for income generation through ecotourism and urban recreational centres.

The conference will also discuss emerging issues such as the role of forest resources in poverty alleviation, payment for ecosystem/environmental services and making conservation programmes sustainable through programmes such as ecotourism and urban recreational centres.

Bhutan has 72 percent forest cover, with 64 percent tree cover and 8 percent degraded forest. (Source: Kuenselonline [Bhutan], 30 October 2009.)

### Interim framework for the collection and management of NWFPs

A central region training workshop on the interim framework for the collection and management of NWFPs was organized jointly by the Netherlands Development Organization (SNV) and the Social Forestry Division (SFD) of the Department of Forests at Tsirang *dzongkhag*. The workshop for the central region covered Tsirang, Sarpang and Zhemgang *dzongkhags*. The overall objective of the training was to strengthen the sustainable harvesting/collection, management, marketing and trade of NWFPs.

A start has to be made for the sustainable use and harvesting of these NWFPs, while at the same time resource assessments must be initiated to provide collection and harvesting guidelines for forestry field personnel and collectors. This framework is being developed for the collection/harvesting of NWFPs from Government Reserved Forests (GRFs) and from Private Registered Land (PRL). The framework for collection of NWFPs from GRFs is an interim measure for a maximum period of three years. During this time, a Community Forest Management Plan for the collection/harvesting of NWFPs should be prepared, wherever feasible.

The framework is being developed to guide NWFP collection, using a system of permits, and guide forestry personnel in the field in order to strengthen the sustainable harvesting, collection, management, marketing and trading of NWFPs. (Source: Ministry of Agriculture [Bhutan], 11 June 2009.)



BOTSWANA

### Traditional doctors are engaged in research on traditional knowledge

The Centre for Scientific Research, Indigenous Knowledge and Innovation (CESRIKI) is carrying out research in Maun that seeks to address indigenous knowledge systems (IKS) as a vital source of knowledge

adapted over centuries and strongly rooted in cultural and social relations. Maun and the Okavango Delta were selected because they represent areas of ethnic and cultural diversity, as well as an enormous biodiversity.

CESRIKI recognizes the wealth of knowledge that needs to be explored, documented and studied, as well as modernized, so that it contributes maximally to the benefit of communities in terms of development, innovation and entrepreneurship and enables traditional doctors to express their views in decision-making.

The Okavango research would also help in documenting, evaluating, validating and protecting widely practised IKS and also in identifying problems associated with their use that could serve as researchable topics to find appropriate solutions, as well as create an IKS database to ensure future access for IKS practitioners, community representatives and researchers.

Traditional doctors are involved as research partners. Activities carried out include consultative workshops, sampling of different plant medicines and testing. This will give the traditional doctors insight into how dangerous or helpful their plants could be. Ngaka Seputhe from Maun and many others will share their knowledge with researchers. Ngaka Themba said he is very happy as this showed some development and a sense of recognition and appreciation. He said this bears testimony to the fact that their profession is indeed worthy and is now given the benefit of the doubt. He said they want to build up cooperation with both the researchers and the University of Botswana.

The traditional doctors affirmed that they have learned a great deal about plant activities and their toxicity. However, they were concerned that their medicinal plants will become extinct once people learn about them from the research. They called upon the authorities to find ways to preserve endangered plant species from harvesters. Another challenge faced by these doctors is that most of them do not have a formal education.

The research exposed the need to establish contacts with IKS practitioners in various parts of the country to explore appropriate modalities for interaction as well as with community leaders and members, and to develop a solid base for long-term and mutually beneficial relationships that are transparent and respectful. (Source: University of Botswana, 22 October 2009.)



### Determinants of access to forest products in southern Burkina Faso

There is an increasing understanding that forests and the forestry sector are key elements in poverty reduction strategies in Africa. However, issues of equity between various forest users are becoming a major challenge to environmental development, forest management and poverty reduction.

A recent paper presents an analysis of household representatives' socio-economic determinants and other constraints on accessing forest products, based on data collected through a questionnaire survey of 1 865 respondents in seven districts of the Sissili province, southern Burkina Faso. Three logistic regression models were developed to examine determinants of access to the forest for collecting fuelwood, grazing livestock and collecting NTFPs.

The results showed that access to forest products is associated with individual characteristics. Age, ethnicity, occupation and sources of income were significant determinants of access to all types of forest products. Access to the forest for grazing livestock was further influenced by gender and household size, while access to NTFPs was influenced by gender, household size and education level of the respondents. The formal forest law that precludes grazing in the forest, and customary rules and regulations pertaining to land tenure, were reported to be serious constraints to forest access for women and migrant people. Understanding the factors influencing access to products from commonly owned forest resources could be the basis for developing, modifying and targeting policy instruments that promote equitable access. Policies should particularly encourage the direct involvement of vulnerable and marginalized groups (women and migrants) in forest management activities. (Source: Pascaline Coulibaly-Lingani, Mulualem Tigabu, Patrice Savadogo, Per-Christer Oden and Jean-Marie Ouadba. 2009. Determinants of access to forest products in southern Burkina Faso. *Forest policy and economics*, 11[7]: 516–524.)

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## CAMBODIA

### First rattan association in Cambodia, a step to a sustainable rattan industry

Phnom Penh. Eleven small and medium enterprise rattan owners and other community rattan processors from Phnom Penh and the provinces met on 28 September 2009 officially to form Cambodia's first rattan association.

"While the association is perceived by members as creating space and opportunity for key actors in the rattan production chain to meet and work together, this institutional initiative is described as a fundamental first step to achieve the goal of maintaining a sustainable production and supply of rattan. We are delighted to support this project and this activity in particular," said the representative of the European Commission's Delegation in Phnom Penh.

"The formation of the rattan association is critical to ensure understanding of community suppliers, processors and traders about the need to maintain a sustainable supply of rattan for a clean and better production," said Mr Lip Cheang, a founder of the rattan association and owner of the Kampuchea Samay Thmei rattan factory.

Fast growing economies elsewhere in the region are motivating the rapid expansion of processing activities, leading to a demand for rattan resources at an unsustainable level. There is an urgent need to establish a model of sustainable production that can support the continuous growth of rattan in forests, while maintaining seasonal harvesting and a sustainable supply.

"This is the right time to move forward with concrete actions that will help the development of the rattan industry of Cambodia to export clean and high-quality products into international markets, while continuing to manage rattan resources sustainably in the forest," said Mr Ou Ratanak, Rattan Project Manager from WWF.

The rattan association will first of all put a legal identity to a group of rattan suppliers and processors, which is important for their recognition by national and international societies.

"One of the project's major objectives, funded by the European Union, is to engage small and medium enterprises in cleaner production, with the aim to introduce proper techniques in processing activities

to ensure quality assurance," said Mr Thibault Ledecq, Rattan Programme Manager from WWF. (Source: WWF International, 1 October 2009.)

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## CAMEROON

### Le développement des petites et moyennes entreprises camerounaises impliquées dans la filière des PFNL de nature végétale

Avec un massif forestier d'environ 22 millions d'hectares, le Cameroun possède la deuxième plus grande surface forestière en Afrique centrale. Outre le bois d'œuvre, la forêt camerounaise fournit de grandes quantités de produits forestiers non ligneux (PFNL) qui contribuent à la vie de nombreuses populations rurales en tant que source importante de revenus, aliments, remèdes, etc.

A l'heure actuelle, les populations ont un droit d'usage reconnu sur les PFNL en vue de subvenir à leurs besoins domestiques. La commercialisation et/ou la vente des produits sont interdits dans ce cadre. Toutefois, la FAO et le Ministère de la forêt et de la faune (MINFOF) camerounais s'attellent à élargir ce droit d'usage de manière à autoriser une commercialisation limitée des PFNL. Cette démarche s'inscrit dans le processus de relecture de la politique forestière et des textes de la loi forestière de 1994.

Aujourd'hui, le Cameroun constitue un important marché de PFNL aux niveaux local, national et international. En effet, ces dernières années ont vu naître une nouvelle

approche, axée sur la création de petites et moyennes entreprises (PME) impliquées dans les filières des PFNL de nature végétale (*Irvingia* spp., *Prunus africana*, etc.). Situées généralement dans les maillons de production et de commercialisation de la chaîne de valeur, ces PME sont cependant à un état embryonnaire et leur développement se heurte encore à de nombreux obstacles. De ce fait, à travers le projet GCP/RAF/408/EC «Mobilisation et renforcement des capacités de PME impliquées dans les filières des PFNL en Afrique centrale», lancé par la FAO, l'Organisation néerlandaise de développement (SNV), le Centre mondial d'agroforesterie (ICRAF) et le Centre pour la recherche forestière internationale (CIFOR), de nombreuses actions ont été mises en œuvre pour renforcer leurs capacités.

A cet égard, nous avons effectué une évaluation de l'impact du renforcement des capacités de ces PME, dans le cadre d'une étude menée pour l'obtention du Master 2 en analyse et évaluation de projets. Il en ressort que les PME évaluées ont amélioré considérablement leur chiffre d'affaires annuel, qui est passé de 65 789 USD en 2007 à 243 421 USD en 2008. Le nombre d'emplois induits est passé de 162 en 2007 à 238 en 2008. Les difficultés rencontrées sont toutefois encore importantes, notamment:

- **L'instabilité de la production des PFNL:** Il s'agit d'un problème crucial susceptible d'entraîner le désengagement des acteurs de la filière, la perte des débouchés, etc. La domestication serait donc un facteur important du développement des filières.
- **L'exploitation illégale des PFNL:** Nombre de PME ne disposent pas d'un permis d'exploitation des PFNL. Sur 36 PME enquêtées dans cinq villes, seule l'une d'entre elles détient un permis personnel et 12 utilisent le permis de l'association à laquelle elles appartiennent.
- **L'insuffisance des capitaux d'investissement:** La majeure partie des fonds investis vient de l'acheteur, qui finance à l'avance l'achat des PFNL et impose de ce fait les conditions de marché.

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### Baka pygmy population says: "Our lives are defined by this forest"

Pauline Siembe, a Baka pygmy in southeast Cameroon, comes out of her smoky hut, licking her fingers after a meal of pounded yam and bushmeat soup. A bright smile lights up her face, revealing an array of sharp-pointed teeth, intentionally sharpened to eat bushmeat. "It always feels good eating a meal like this," she remarks, as she straps a basket on her shoulder and heads for the forest. Her husband, Daniel Njanga, wiping his mouth with the back of his hand, still savouring the meal, says: "This is what the government wants to deprive us of".

Taking on a more serious look, Njanga spits out his disdain for the government's methods of conserving the vast forest reserves of southeast Cameroon that straddle two of the country's "divisions", the Boumba and Ngoko and the Upper Nyong divisions, all in Cameroon's east region, and part of the Congo Basin rain forest. "This is our home and there is no point telling us that we should not access it."

"If we are talking about conservation, then the Bakas are the best conservationists. We have been living here since time immemorial, and the forest has not disappeared. Those who now claim they are conserving the forest are the same people pillaging our forests. We see sawmills felling large portions of our forest every day. Is it not this same government that authorizes the felling?" he asks.

Njanga is obviously angry that the forest has been gazetted into three national parks and 23 logging concessions, totalling some 760 000 ha. While logging concessions are designed to foster sustainable timber exploitation – in fact, operators are supposed to plant ten trees for every one felled, although the provision is frequently violated – national parks create even stricter restrictions, as access is forbidden. These restrictions pose a threat to the Bakas, who now have to grapple with new challenges.

By the forestry law of 1994, national parks fall under the sphere of permanent forest domain. The law explicitly states: "Public access to state forests may be regulated or forbidden". The more than 30 000 Baka pygmies who live in the region see these restrictions as an affront to their right of access to the forest that they consider their natural home.

"Our lives are defined by this forest. We harvest fruits, wild tubers, honey and medicine from the forest. And we kill animals for our basic food needs. We



destroy nothing. We get only what we need from the forest," Siembe says.

Gilbert Ngwampiel, a Baka man in Ngoyla, near the Nki National Park, says: "If the government says we should not hunt animals, it is a way of exterminating the Bakas. Eating bushmeat makes Baka men fertile. Failing to eat meat means that the Baka man will not be able to impregnate his wife, and this is dangerous".

"Of course we want these animals to continue living here," Ngwampiel says, when asked whether the Baka hunting techniques would not perhaps lead to the extinction of some species. "We kill only enough animals to eat, and we don't kill all animals. We hunt only male animals, the females and the babes are left for posterity. Those who kill animals indiscriminately are those who want to go and sell, and they are not the Bakas – they are the Bantu."

Olivier Tegomo, a junior research assistant for WWF, who was at the forefront of a study that recommends a shift in conservation paradigms, said he worked closely with the Bakas to find out what the forest really represented for them. "All this has to do with the notion of participatory forest management. We had to find out the types of products they get from the forest, where these products are concentrated, and how they could exploit those products without threatening the forest ecosystem. Along with the Bakas, we have come up with a participatory map that localizes all their interests in the forest."

Leonard Usongo, former WWF coordinator for the WWF-Jengi Conservation Project of southeast Cameroon, who supervised the study, says any conservation paradigm that does not take into consideration the sociocultural needs of the people is built on the wrong premise. "The solution that works is that which still allows the indigenous people access to forest products, although we have to encourage them to do so sustainably." (Source: AllAfrica.com, 4 October 2009.)

### Production et commercialisation des PFNL par les populations pygmées baka de la zone du Grand Djoum (sud du Cameroun)

La zone du grand Djoum dans le sud du Cameroun constitue l'un des plus importants bassins de production de PFNL tels que l'*Irvingia* spp. (mangue sauvage), le *Pentacletra macrophylla* (ebai) ou le *Ricinodendron heudelotii* (njansang). Ces produits sont exploités par les Bantu et les pygmées Baka.

En général, les Baka représentent 30 à 50 pour cent de la population dans chaque zone où ils sont établis. Ils sont de grands collecteurs de PFNL, du fait de leur parfaite maîtrise de la forêt et de ses ressources (fruits, écorces, miel, feuilles). Ils prélèvent ces dernières de manière traditionnelle, puis les réservent à l'autoconsommation ou bien les vendent à vil prix ou les échangent contre du sel, de l'huile, du savon, des cigarettes et de l'alcool. La commercialisation des PFNL par les Baka n'est pas équitable, en raison de l'absence d'organisation, de l'analphabétisme, du manque d'informations sur le marché, etc.

Ainsi, à travers le projet GCP/RAF/408/EC «Mobilisation et renforcement des capacités de PME impliquées dans les filières des PFNL en Afrique Centrale», la FAO, la SNV, le CIFOR et l'ICRAF œuvrent-ils pour intégrer les minorités Baka dans la filière des PFNL. C'est dans cette optique que, dans le cadre d'une étude menée pour l'obtention du Master 2 en analyse et évaluation de projets, nous nous sommes penchés sur 54 ménages Baka producteurs de PFNL, afin d'évaluer les impacts socioéconomiques de leur implication dans l'exploitation de ces produits.

D'après cette étude, la situation actuelle des Baka n'est pas la même qu'il y a quelques années, où ils étaient considérés comme des sortes d'esclaves et ne profitaient pas des fruits de la commercialisation des PFNL. Actuellement, ils y trouvent une opportunité de positionnement. Cela se ressent notamment dans des expressions employées par les Baka du grand Djoum, qui disent par exemple: «on nous a ouvert les yeux»; «on négligeait de l'or sans savoir»; «on ne va plus nous tromper». Le plus important pour eux est de voir leurs efforts récompensés par un achat des PFNL à des prix équitables: ainsi, le seau de 5 litres de *Irvingia* spp. est acheté entre 2 et 11 USD chez les Baka quand il est revendu entre 15 et 35 USD en ville. De même, le seau de 15 litres de

*Pentacletra macrophylla* est acheté en moyenne à 3 USD alors qu'il est revendu à 9 USD.

L'étude montre que les associations Baka sont devenues des acteurs de la filière des PFNL. Leur participation à cette dernière demande toutefois à être favorisée et accrue. D'où la nécessité de renforcer leurs capacités en matière d'organisation et de gestion, de les former davantage sur les techniques de production et de les intégrer effectivement dans le Système d'information sur le marché. (*Contribution de:* Yunchawou Ngouwouo, Conseiller en développement, Expert en analyse et évaluation de projets, Programme sur les PFNL en Afrique centrale, P.O.B. 281, Représentation de la FAO au Cameroun, Yaoundé, Cameroun. Courriel: maximemoussavou@yahoo.fr)



### Goods from the woods: Manitoba Model Forest hosts introductory NTFP workshops

In March and April 2009, the Manitoba Model Forest (MbMF) held a series of six workshops on NTFPs in communities around the model forest area. The workshops were very successful, with more than 150 people attending, and generated great interest in opportunities from the forest. The workshops represented a collaboration between MbMF, the Centre for Non-timber Resources at Royal Roads University (Victoria, British Columbia), the Manitoba Forestry Association and the Woodlot Association of Manitoba.

Participants learned about a wide variety of topics related to NTFPs, including: what are NTFPs, local and international marketing, adding value to products, and an exploration of what is in your community's backyard. They also gained some hands-on experience in growing their own *shiitake* and oyster mushrooms on logs and tapping Manitoba maple trees for sap and the production of maple syrup. There were opportunities to sample ice cream with Manitoba maple syrup, and herbal tea from the Russian Federation. Some participants attended the workshops out of interest in starting up a business, while others attended to learn about NTFPs for their own use.

The workshops are part of a longer-term plan to build capacity and expertise in NTFP businesses in the model forest area. A new curriculum on NTFPs is being developed by Royal Roads University and Dave Buck for an

intensive training course. MbMF is supporting the development of the curriculum. In addition, the training course will be piloted in the MbMF area in the autumn of 2009. (*Source:* CMFN News, 27 July 2009.)

### Canada to enhance NTFP research and production

The Honourable Denis Lebel, Minister of State for Canada Economic Development, today announced the awarding of CA\$49 826 in non-repayable funding to the Syndicat des producteurs de bois de la Mauricie (SPBM) (Mauricie Wood Producers Trade Union) to carry out research aimed at identifying ways to enhance Mauricie NTFPs.

NTFPs are native or naturalized plants other than timber (fibre). They are gathered in the forest, idle land, underbrush, natural forests or managed plantations. The contribution from Canada Economic Development will help generate a databank and set of tools aimed at mapping out effective land development and supply strategies. In addition, the setting up of a network of stakeholders should attract processing firms to the region, while creating sustainable jobs in this sector of activity.

"Wise use of our forest resources is an attractive economic development and diversification opportunity for the region. The SPBM's project will make it possible to develop the NTFP industry in a concerted and coherent manner, so as to maximize the positive economic impacts," said Minister Lebel.

Since 1967, the SPBM has supported the 5 700 or so private woodlot owners in their efforts to harness and market their unique forest products by providing advisory services and training related to forestry operations.

Canada Economic Development's funding of this project has been awarded through the Community Economic Diversification



Initiative – Vitality, a measure aimed at supporting slow-growth communities, encouraging diversification of the local economic base and reducing reliance on single-industry economies. (*Source:* Canada News Centre, 21 September 2009.)



### Medicinal plant fights Chinese desertification, brings profit

Hohhot. When Ulji sold his beloved jeep that he used in herding and spent the money on saplings and herb seeds, his father flew into a rage and shouted at him; "We are herdsmen, herding is what we do".

But Ulji never regretted his actions. In 2001, he put all he had on planting *cistanche* (*Cistanche* spp.), a kind of herb that has a symbiotic relationship with the desert plant, *saxaul* (*Haloxylon ammodendron*).

*Saxaul* is used effectively to fight against impeding erosion, but without its symbiotic partner *cistanche*, there is no monetary gain in growing it. *Cistanche* lives on the slender tendrils of *saxaul*'s root, and is often called the ginseng of the desert. As a treasured traditional Chinese herb, it has been used to treat senile dementia, constipation and infertility. It is also believed to boost immunity, improve memory and delay ageing.

Ulji began to grow *saxaul* inoculated with *cistanche* in 2003 and harvested the first *cistanche* in 2006. He couldn't wait to show it to his parents, who still had no idea how much money the humble potato-like plant would provide for the family.

In May 2006, Ulji sold half a packet of *cistanche* for 3 000 yuan (US\$440), equal to the average annual income per capita in the town. And in the spring of 2008, the family earned more than 10 000 yuan just from *cistanche*.

So far, Ulji has planted *saxaul* on 24 ha of desert and fruit trees on another 21 ha, making a small oasis in the fourth-largest desert in China.

Zhang Jianjun, a 33-year-old vendor in a small town called Bayangaole near the Ulan Buh desert, still remembers how his family had to move five times because of desert expansion a decade ago. The family has not moved since 1999, after Dengkou county, which administers Bayangaole, invested heavily in growing *saxaul*. Now the county has planted 20 000 ha of *saxaul* and inoculated *cistanche* on 2 000 ha.

To combat desertification, *saxaul-cistanche* shrubs are spread over the vast deserts of western China. The shrubs also serve as wind barriers on the singular road that runs through Tarim desert in Xinjiang, northwest China. The *cistanche*-rich barriers generate 9 million yuan revenue a year, enough to cover maintenance of the road.

*Saxaul*, a small, bushy tree 1–4 m high, has an 80 percent chance of surviving drought and barren deserts. It has a strong root that can reach more than 10 m down into the ground and hold the sands firmly. Its lush needle leaves also slow down the wind. It once faced extinction as herdsmen would overharvest the tree, digging it up by the roots. But the situation started to change once the Chinese began to cultivate *cistanche* artificially.

Every hectare of *saxaul* grown with *cistanche* can yield 150 000 yuan worth of *cistanche* products, in addition to the desertification control benefits, said Tu Pengfei, a scholar from Beijing University's Modern Research Center for Traditional Chinese Medicine. The *cistanche* and *saxaul* combination is an ideal way to combat desertification compared with growing grass and trees, said Tu.

"The locals take more personal initiatives in planting profitable herbs such as *cistanche* to prevent desertification," said Xia Ri, President of the Inner Mongolia Sand and Herbs Industry Association. "And it helps ecology, economy and social well-being," Xia added.

Jia Zhibang, Chief of China Forestry Administration, said 18.11 percent of China, or 174 million ha, is desert. China suffers an annual direct economic loss of 54 billion yuan from desertification that affects the lives of nearly 400 million people.

China's desert area has been shrinking at the rate of 128 300 ha a year, a U-turn from the annual expansion of 343 600 ha before the end of the twentieth century. [Source: Xinhua News [China], 27 July 2009.]



## COSTA RICA

### **Semillas Sagradas: an ethnomedicinal garden**

Since the beginning of time, humans have depended on seeds for survival. Seeds of many different plant species have provided essentials such as food, fibres, medicines and combustible oils. At some point, people noticed that seeds dropping from the plants they were using had sprouted, quickly multiplying the plant populations.

The development and spread of agriculture are thought to have begun over 10 000 years ago, when people began intentionally to collect and plant seeds of species they considered important. Agricultural practices developed independently in many parts of the world. Human society quickly learned how vital seeds were to feeding, fuelling and healing their rapidly evolving world. In fact, agriculture made it possible for human civilization to develop and for people to move to new regions; build settlements; feed, clothe, house and heal growing populations; store and barter or sell their surpluses.

It was the recognition of the essentiality of crop seeds that led people to create the first seed banks – these precious propagules were originally stored in earthen pots in cool areas underground or in caves protected from the elements. Great advances in seed storage technology have been made since those early days, with large international projects now under way to protect the Earth's plant diversity – sometimes in deep freezers at -20°C. At the same time as the world scientific community, using its latest technological tools, takes on the massive challenge of preserving seeds as a hedge against calamity, it is now clear that small farmers around the world are essential to seed and genetic preservation – by maintaining crop diversity through cultivation and use, and by the protection of nature habitats, including agricultural ecosystems.

Steeped in this spirit and purpose was the creation of Semillas Sagradas – the Sacred Seed Sanctuary of Finca Luna Nueva – devoted to preserving the diversity of plants so important in traditional healing and the field of botanical medicine.

A 2009 publication, *Plants of Semillas Sagradas: an ethnomedicinal garden in Costa Rica* (by Rafael Ocampo and Michael J. Balick), contains information on a small number of the more than 250 plant species currently growing in Semillas Sagradas. The senior author, Rafael Ocampo, selected these species as representative of the range

of plants he, Steven Farrell, and the staff of Finca Luna Nueva began to grow in the garden. The book is not intended as a complete guide to Semillas Sagradas, but rather as an illustration of the richness of information that exists about the many species under protection and study there. How fascinating to find that a species of plant is used for the same healing purpose in various parts of the world. One can only imagine the trial and error experimentation that led to those simultaneous discoveries – or did people disperse seeds and plants, along with knowledge of their healing properties, on their journeys? The answer, most likely, is that both scenarios occurred. We know that some plants are employed for the same medicinal uses by cultures that have never been in contact, while we have evidence of other species being dispersed to far-off places by botanically and medicinally inclined travellers and explorers.

Semillas Sagradas is a contribution to preserving and teaching traditional wisdom involving healing herbs. It honours the reverence that ancient cultures had for their seeds and plants, such as the sacred lotus, according them the highest status possible through religious symbolism, myth and legend. The information presented in an earlier version of this document was originally compiled by the senior author. The coauthor and editors expanded that version, updated nomenclature and synonyms, added local names through conversations with the San Isidro de Peñas Blancas community, and collected additional references on uses, chemistry and pharmacology.

It is the hope of the authors that perhaps some readers will find a way to create their own Semillas Sagradas, in Costa Rica or wherever they make their home, contributing both to the preservation of plant diversity and the knowledge of traditional medicines around the world.

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## CUBA

### **Se impulsa el cultivo del bambú en el oriente cubano**

La Habana. La provincia de Santiago de Cuba, en la zona oriental de la isla, promueve la siembra de bambú para la

actividad forestal, además de recuperar áreas afectadas por la deforestación. El territorio desea concretar este año la plantación de unas 400 hectáreas de esa especie vegetal.

Los especialistas destacaron la utilidad del bambú por sus variados usos económicos en la confección de muebles y objetos artesanales, muy demandados en el mercado interno. Entre los usos de esa planta resaltan la elaboración de madera prensada, la edificación de casas con distintos fines así como instalaciones para el expendio de alimentos ligeros.

Los bosques son también vitales en los planes para disminuir el impacto del cambio climático, dada su gran capacidad en captar el CO<sub>2</sub> presente en la atmósfera y sanear los terrenos dañados o con escasa vocación forestal. (*Fuente:* DTCuba, 6 de julio de 2009.)



DEMOCRATIC REPUBLIC  
OF THE CONGO

#### Atelier pour l'élaboration de la stratégie et du plan d'action national sur la viande de brousse

Un atelier visant à l'élaboration de la stratégie et du plan d'action national sur la viande de brousse s'est tenu du 23 au 24 septembre 2009 à Kinshasa.

Cet atelier était organisé par l'Institut congolais pour la conservation de la nature (ICCN), sous le haut patronage du Ministère de l'environnement, de la conservation de la nature et du tourisme (MECNT), en collaboration avec le programme TRAFFIC pour l'Afrique centrale, un programme mixte du Fonds mondial pour la nature (WWF) et de l'Union internationale pour la conservation de la nature (IUCN). Cet atelier a réuni une cinquantaine de participants, représentant de nombreux groupes ou institutions: administrations nationales coordinations provinciales de l'environnement, conservateurs des sites de l'ICCN (Parcs nationaux de la Maïko, de la Garamba, de la Salonga et de Virungas, Parc marin des mangroves, Réserve de faune d'Okapis), Commission en charge des forêts d'Afrique centrale (COMIFAC), Programme régional de l'Afrique centrale pour l'environnement (CARPE/IUCN), Programme sur la biodiversité et les forêts relevant de la coopération technique allemande, Université de Kisangani, Groupe de travail forêts (GTF), projet de recherche *Lukuru Wildlife Research Project* (LWRP), IUCN-RDC, Organisations

non gouvernementales (ONG) nationales et internationales (WWF-RDC, African Wildlife Foundation [AWF], Wildlife Conservation Society [WCS], TRAFFIC Afrique Centrale, etc.), presse écrite et audiovisuelle.

Tous ont participé activement à cet atelier de réflexion, dont les objectifs ambitieux étaient les suivants: (i) identification des différents problèmes ou facteurs à la base de la gestion non durable de la faune sauvage en République démocratique du Congo et défis à relever à cet égard; (ii) formulation, à partir des problèmes et défis identifiés, des principaux axes stratégiques susceptibles de permettre la gestion durable de la ressource faunique en République démocratique du Congo; (iii) production, pour chaque axe stratégique, d'un cadre logique qui en définit les objectifs, les résultats attendus, les actions à exécuter, les indicateurs, les sources de vérification, les responsables et les sources de financement.

Dans son allocution de bienvenue, Stéphane Ringuet, Conseiller technique pour le développement du programme TRAFFIC en Afrique Centrale, a rappelé que «TRAFFIC s'associe à cet atelier afin de soutenir un processus d'élaboration d'une stratégie et d'un plan d'action national sur la viande de brousse». Il a d'autre part souligné que «cette stratégie contribuera à orienter et canaliser les efforts futurs de la République démocratique du Congo, en vue de fixer un cadre d'actions/des axes à tous les niveaux du pays.» Ce souhait a été partagé par l'ensemble des participants.

Dans son allocution, le Dr. Petrus Ndongala-Viengele, Directeur de cabinet du Ministère de l'environnement, de la conservation de la nature et du tourisme, représentant le Ministre, s'est félicité de l'appui des partenaires. Il a en outre fait observer que cette stratégie devrait permettre au pays de préserver ce qui peut encore l'être, tout en comptant sur le pouvoir régénérateur de la nature. A cet égard, il a affirmé: «Personnellement, je me suis inquiété quant à l'avenir de nos écosystèmes naturels lorsque j'ai entendu le cri d'alarme faisant mention du 'syndrome des forêts vides', qui devenait malheureusement une réalité pour les forêts de la République démocratique du Congo, et dont les conséquences écologiques pourraient être la diminution ou l'extinction de différentes espèces de faune. Ce serait une catastrophe pour notre

pays qui abrite des espèces endémiques, notamment le bonobo, le rhinocéros blanc du nord, etc.». Il apparaissait donc que ce travail de réflexion arrivait à point.

Quant à l'ICCN, organisateur de cet atelier, il s'est exprimé ainsi par la voix de son Directeur général adjoint, M. Idi Omari India: «C'est avec empressement que l'Institut congolais pour la conservation de la nature attend que le processus d'élaboration de la stratégie et du plan d'action sur la viande de brousse, lancé par la tenue de cet atelier, aboutisse le plus rapidement possible.»

Avec l'appui du Dr Guy Mbayma Atalya, Inspecteur général auprès de l'ICCN et modérateur de cet atelier de réflexion, les participants ont pu dégager trois axes majeurs sur lesquels les futurs stratégie et plan d'action devraient s'articuler, à savoir: (i) l'amélioration de l'efficacité du cadre juridique et institutionnel, (ii) l'initiation et la promotion des activités alternatives à la consommation et à la commercialisation de viande de brousse, et (iii) la sensibilisation à cette problématique de la part de l'ensemble des parties prenantes. Les axes relatifs au suivi et au renforcement des capacités ont été reconnus comme transversaux. (*Contribution de:* Roland Melisch, Coordonnateur du programme, TRAFFIC International, c/o WWF Germany, Rebstoecker Str. 55, D 60326 Francfort, Allemagne. Télécopie: +49 69 617221; courriel: melisch@wwf.de; www.traffic.org)



EQUATORIAL GUINEA

#### Linkages between household wealth, bushmeat and other animal protein consumption

Bushmeat consumption is affected by household wealth. However, how household wealth impacts bushmeat eaten in different environmental and social settings (i.e. whether urban, rural, coastal or forest) is poorly understood.

In a recent study, the authors examined households in six contrasting localities in Rio Muni, Equatorial Guinea, in coastal (Bata, Cogo), central (Niefang, Evinayong) and eastern parts of the territory (Ebebiyin, Nsork). On average, 32.3 g of bushmeat per adult male equivalent per day were consumed, although this varied widely between sites and most households ate no bushmeat on the survey day. Fish was the most frequently recorded source of protein



and in a coastal site, Cogo, significantly more fish was consumed than in the other localities.

Overall, average protein consumption was correlated with household wealth, but the strength of this effect varied among sites. At the site where average wealth was greatest (Bata, the most urban site), bushmeat was more expensive and wealthier households ate more of it. Elsewhere, bushmeat consumption was not associated with wealth, and the cost of bushmeat was a higher proportion of household wealth. In Bata, wealthier households reported consumption of more than one meat type (most frequently bushmeat and either domestic meat or fish), and diversity of dietary items also increased with wealth. In all sites, wealthier households ate less fish.

The authors demonstrate distinct differences in relationships between urban versus rural areas, and between coastal versus inland sites, and therefore caution that general patterns of wealth-wild meat consumption must be evaluated taking into account the circumstances of wild meat consumers. (Source: J.E. Fa, L. Albrechtsen, P.J. Johnson and D.W. Macdonald. 2009. Linkages between household wealth, bushmeat and other animal protein consumption are not invariant: evidence from Rio Muni, Equatorial Guinea. *Animal Conservation*, 12[6]: 599–610.)



### Fiji's forests as carbon factories

Protecting, growing and managing Fiji's forests will help address environmental challenges such as climate change, says Forestry Ministry permanent secretary Viliame Naupoto. However, the aim was to create a road map that would help manage the forest sector climate change, he said at the REDD (reducing emissions from deforestation and forest degradation) policy scoping workshop.

"It has been known for centuries that forests are factories that provide countless economic, ecosystem and social services. The services include timber, water catchment protection, water production for agriculture, NWFPs, biological diversity, fuelwood and social recreation," Mr Naupoto said. Forests are large storehouses for carbon that is captured from the atmosphere. "We can lock the carbon by forest protection." (Source: Fiji Times Online, 31 August 2009.)



### Promotion of NWFPs may save the forests

Ghana faces the threat of losing its forest cover and becoming a desert if the current rate of deforestation continues without support from all stakeholders in an effort to switch to the use of regenerative and early maturing plant species, Mr Henry Kamel Ford, a deputy minister for the Ministry of Lands and Natural Resources warned on Friday when he interacted with members of the Greater Accra Bamboo and Rattan Association. He said that the Government was exploring ways to conserve the traditional wood species and promote the lesser-used plant varieties such as bamboo and rattan, which have very high regenerative capacities.

In a stocktaking of the forest resources of the nation, Mr Ford pointed out that forest cover, which was about 8.3 million ha in 2000, shrank to 1.5 million ha in 2006. He added that, if the current rate of depletion of 65 000 ha continued, Ghana would have no forests in 23 years' time.

Consequently, the Government of Ghana is promoting the use of bamboo and rattan as suitable alternatives to wood, not only to conserve the traditional woods, but also because bamboo has nutritional values and moreover could be used in the aviation, construction and textile industries. Mr Ford said that the Ministry had begun a capacity programme for stakeholders in the bamboo industry, and was collaborating with the governments of China and the Philippines for training to enhance bamboo use in Ghana.

Mr Ford said the government was ready to support the acquisition of land at Ayimensa, near Accra, to localize the bamboo industry there in order to make it a one-stop shop for bamboo products. Currently, most artisans in the bamboo and rattan industry are scattered throughout Accra without any proper shelter, making it difficult for them to work when it rains.

The deputy minister inspected some furniture made from bamboo and rattan by the artisans and saw how they had recycled the waste materials to mould animals such as giraffes, lions and other forest species. He said it would perhaps become possible for schoolchildren to use bamboo furniture when the industry was fully developed, in order to save the nation's traditional wood species.

Mr Vincent Mawuli Vordzi, General Secretary of the Association, said the main

problem facing its 500 members was the acquisition of land. He said the nine plots acquired so far were not large enough to accommodate all the members.

Mr Vordzi called on the government to empower the Association to issue licences for entry into bamboo enclaves for the harvesting of the plant, and also help the Association to check the illegal export of bamboo products while measures were also being taken to expand the market for bamboo products. (Source: Ghana News Agency, 2 August 2009.)



### Dependence on forest resources and tropical deforestation

In Ghana, forests provide many products on which the local population subsists. However, these resources are becoming depleted as a result of a variety of factors including agricultural expansion and overexploitation of forest resources. It is believed that at the start of the 1900s, one-third of Ghana's land area was covered by natural tropical forest; by 1989, 78 percent of this forest had disappeared.

A recent survey conducted with 431 household heads in three Forest Districts showed that forest income provides 38 percent of total household income in these areas. Household consumption and petty trading in firewood and other NTFPs – such as fodder, building materials, herbal medicines, chewing sticks, pestles, canes, nuts, wild fruits, honey, bushmeat (giant rats, grasscutters and squirrels), artifacts and other household items – are integral to lives and livelihoods. The majority of the respondents surveyed depend on wild animals such as snails and bushmeat, wild honey and wild and cultivated vegetables.

The four most highly ranked causes of deforestation are poverty-driven agriculture, lack of alternative rural wage employment other than farming, household population levels and conflict in traditional land practices. This shows a shift in the view of local people who, in the past, were quick to

blame logging companies and government policies for deforestation. Given the reasons for deforestation, much thought needs to go into agroforestry practices (e.g. snail farming, beekeeping, fish farming and vegetable production) in efforts to reduce deforestation, which are currently less promoted. [Source: Mark Appiah, Dominic Blay, Lawrence Damnyag, Francis K. Dwomoh, Ari Pappinen and Olavi Luukkanen. 2009. *Environ. Dev. Sustain.*, 11: 471–487.]

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**New tree species discovered in Guyana is rich source of oil**

Botanists have discovered a new species of tree with commercial significance in Guyana. The discovery is published in *Brittonia*, a journal issued by the New York Botanical Garden. The new species, *Carapa akuri*, had long been mistaken for *Carapa guianensis*, a tree widely dispersed across the Amazon and commonly logged for the furniture industry.

The find is significant because it is an important source of natural oil for Makushi Amerindians and the cosmetic market, according to Pierre-Michel Forget, lead author of the paper that describes the species and a researcher at the National Natural History Museum in Paris. "Akuri is an important source of sustainable development within the Iwokrama forest," Forget told mongabay.com, referring to Guyana's innovative forest reserve that has become the centrepiece for the country's efforts to protect its forests through sustainable management.

Oil from *carapa's* large seeds is used for a variety of purposes, including treatment for dandruff and rashes, as an insect repellent and as a moisturizer. When produced from *Carapa guianensis*, the oil is known as crabwood oil or *andiroba*.

The species is also endemic to the region and may be at risk from logging, providing new impetus for protecting its diverse rain forest habitat. "This single tree can save a forest," said Forget.

*Carapa akuri* is named after the red-rumped agouti (*Dasyprocta leporina*), which

is probably the main seed disperser of *carapa* in Guyana. The indigenous Makushi name for the agouti is *akuri*.

Coauthors on the paper include Odile Poncy of the Centre national de la recherche scientifique [National Centre of Scientific Research] in Paris, Rachel Thomas of Iwokrama, David Hammond of the NWFS Consultancy and David Kenfack of the Missouri Botanical Garden. [Source: mongabay.com, 9 December 2009.]

**Iwokrama Forest: conservation with social and economic benefits**

The loss of tropical forests will result in the extinction of half the world's plant and animal species, with unknown changes to the global climate. To counter the global loss of tropical forests, the Iwokrama Forest – a protected area in the Guiana Shield of northeastern South America – was established, with the idea of providing a living laboratory for tropical forest management.

Situated at the heart of one of the last four untouched tropical forests in the world, Iwokrama is home to the indigenous Makushi people, who have lived off the forest for generations. The Makushi ways of managing and using the forest have made them a critical part of the ecosystem. Today, the success of the protected area relies on the ownership of local people and the combined skills of specialists and communities.

As a non-profit institution established by Guyana and the Commonwealth, the Iwokrama International Centre for Rain Forest Conservation and Development collaborates with local people to ensure local economic and social benefits from forest use and conservation. By partnering with local communities and the private sector, the Centre combines traditional knowledge, science and business to develop "green", socially responsible and sustainable forest products and services. These include ecotourism, low-impact timber harvesting, developing the skills of forest rangers and guides, and harvesting aquarium fish.

These forest-based businesses, while providing local and national benefits and returns, also help preserve biodiversity and regulate climate. By managing the 371 000 ha of the Iwokrama Forest, the Centre aims to show how conservation need not be at the expense of local livelihoods. On the contrary, forests can be conserved and sustainably used and

provide ecological, social and economic benefits to local, national and international communities.

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**Norway to help protect Guyana's forests**

For the past year, President Bharrat Jagdeo of Guyana has travelled the world, offering to place his nation's forests under international supervision if other countries pay his citizens not to deforest the tropical landscapes. Much of Guyana's forest land is zoned for logging activities, and avoided deforestation schemes in neighbouring Brazil could push logging into Guyana.

The campaign received major support last week when Norway announced a US\$30 million commitment on Monday for the small South American nation to implement an "avoided deforestation" plan. If the programme shows success, Guyana will receive an additional US\$250 million through 2015.

"We are giving the world a workable model for climate change collaboration between North and South," said Erik Solheim, Norway's Minister of the Environment and International Development, in a statement. "It's not perfect, but it's good, and it will be improved upon as we learn and develop together." [Source: ENN Daily Newsletter, 18 November 2009.]



***Pimpinella tirupatiensis*: an endemic medicinal tuber under threat**

*Pimpinella tirupatiensis* is an endemic plant species in the Seshachalam hill ranges of Tirupati-Kadapa-Nallamalai, in the Eastern Ghats of India. Belonging to the Apiaceae (or Umbelliferae) family, the plant is generally found growing at an altitude ranging between 1 080 and 1 240 m. Commonly termed forest coriander in the West, it is known locally in the native Indian Telugu language as *konda kottimeera*. The taxon is characterized by a tuberous root stem (30–100 cm tall) and white flowers that blossom between October and December and bear fruits between February and May.

*Pimpinella tirupatiensis* grows in association with *Phoenix farnifera* var. *pedunculata* and *Decaschistia crotonifolia*. It sprouts in warm and humid climates and its aroma facilitates insect pollination. The tuberous root contains starch, carbohydrates and proteins, as well as oil globules, phenols, flavanoids, lignins, alkaloids, tannins, steroids and saponins. It is also rich in magnesium (52 percent), with traces of iron, zinc and copper.

The plant plays an important role in health care in the region, boasting several medicinal properties. It is used by locals to combat ulcers and asthma and is also known for its anti-inflammatory qualities as well as for being an aphrodisiac. Locals use the tuberous root extract in powder form, mixing it with honey to cure stomach, mouth and throat ulcers. Its fruits have diuretic properties, also helpful in treating ulcers. In raw form, the tuber is an abortifacient. It is not only valuable for curing human ailments, but those of animals as well. Mixed with pepper and onion, the tuber is given orally to oxen and buffaloes to alleviate colic pains and rheumatic diseases.

However, the species previously known in the Tirumala hills as the "queen of tuberous vegetation" now faces a real threat of extinction. As a result of the changes in microclimatic conditions, natural calamities, the introduction of monoculture practices and the short window of time in which the plant matures, the plant's distribution today is limited to small populations in a handful of rich moist deciduous and mixed dense forests. Its medicinal and economic value, moreover, has led to overexploitation by local tribes and villagers, which may be the greatest threat to the plant's survival. Identifying an alternative medicinal herb with similar properties is crucial to counter the risk of extinction currently facing the plant. (Contributed by: Prof. N. Savithramma, Department of Botany, S.V. University, Tirupati – 517 502, Andhra Pradesh, India. E-mail: prof.savithri@yahoo.in)

#### **Bamboo shoot raises hope for sweet profit**

The pungent bamboo shoot should soon become a staple ingredient for industrial growth in the underdeveloped Bodo belt. Used to season numerous dishes, the shoot has found its way on to supermarket racks in both fresh and canned versions. Despite its popularity in the northeast, the bamboo shoot has not been tapped for its commercial potential.

Bearing this in mind, the Bodoland Bamboo Development Board and the International Network for Bamboo and Rattan (INBAR), based in Beijing, signed a memorandum of understanding (MoU) to establish a bamboo-shoot processing centre in Kokrajhar on Friday, in an attempt to use the abundant grass on a commercial scale. The bamboo processing centre will be established at the Central Institute of Technology (CIT) situated at Balajan in Kokrajhar. INBAR will lend the technical support required.

Besides training youth, INBAR will emphasize the commercialization of bamboo-related edible products.

Termining the signing of the MoU as a step forward for industrial development in the Bodoland Territorial Council (BTC) area, BTC executive member Mitaram Basumatary, who is also the chairperson of the Bodoland Bamboo Development Board, said all parts of bamboo plants are useful and can be industrially processed and utilized.

"The bamboo shoot has the largest potential market, not only in the region but also outside, but it lacks commercialization and value addition. I believe the proposed bamboo-shoot processing centre will be able to bring some dramatic changes in the bamboo sector in the BTC area. The emphasis is on commercialization of bamboo-related spices and the preservation of bamboo shoots through various technologies," Basumatary said.

Experts say there is a growing market for processed and packaged shoots, providing an opportunity for entrepreneurs to explore their commercial potential. (Source: *The Telegraph* [India], 30 July 2009.)

## INDONESIA

### **Harapan rain forest raises hope amid overexploitation**

Sumatra's low-plain forests are fast diminishing, currently measuring only 400 000 ha. The main cause of the deforestation is rampant illegal logging and clear-cutting. If this situation prevails, experts warn, low-plain forests in Sumatra will probably be completely wiped out by 2010.

The Harapan rain forest, spanning 101 355 ha and located in Jambi and south Sumatra provinces, is part of the remaining low-plain forests on the island. It straddles the four regencies of Batanghari,

Muarojambi and Sarolangun in Jambi, and Musi Banyuasin in south Sumatra. The area is currently being reforested to replenish the damaged forests, formerly a timber concession. "We're currently repairing the damaged ecosystem," said Harapan rain forest agency intern head Yusuf Cahyadin recently.

As part of the reforestation efforts, the agency will issue an outright cessation on logging in the area, or at least a 20-year moratorium. This, Yusuf said, will allow the forest to be densely wooded once again.

The ban will not affect local communities that live off the forest, particularly the Anak Dalam and Bathin IX tribes, which use NTFPs such as rattan and resin.

Communities living near the forest will also stand to benefit, Yusuf says, by growing rubber, for instance. "We're currently initiating a community-based forest through an agreement between forest caretakers and local residents, in the hopes that they can also protect the forest," he said. He added that 30 percent of the forest has been damaged through clear-cutting, particularly for oil-palm plantations. "Oil-palms are not suited to the forest," he pointed out. (Source: *The Jakarta Post* [Indonesia], 25 September 2009.)

## ISLAMIC REPUBLIC OF IRAN

### **Iran's forests and their NWFPs**

With an area of about 12.4 million ha, forests in the Islamic Republic of Iran comprise 7.4 percent of the whole country. Recently, the per capita forest area was equal to one-third of the world's per capita average (0.2 ha as compared with 0.6 ha). Although Iran's forest cover is considered poor in comparison with other countries, it is unique regarding plant diversity. The country's climatic diversity has resulted in five distinct forest zones: Hyrcanian, Arasbaran, Zagros, Irano-Turanian and Khalijo-Omanian.

The Hyrcanian forest zone encompasses commercial and industrial humid forests, the dominant species of which are beech (*Fagus orientalis*), hornbeam (*Carpinus betulus*), oak (*Quercus macranthera*), poplar (*Populus caspica*), boxtree (*Buxus hyrcanum*) and Caucasian wingnut (*Pterocarya fraxinifolia*). Beech and hornbeam species comprise 70 and 60 percent respectively of the stem number and standing volume. Only in these forests

is industrial timber harvested by governmental sources, cooperatives and private companies. NWFPs are not given much consideration. Currently, NWFPs harvested from the commercial forests are sloe (*Prunus divaricata*) fruits, walnuts (*Juglans regia*), raspberries (*Rubus* sp.), hawthorn (*Crataegus* sp.) and honey. Tourism has increased as a result of the high potential of the region for attracting tourists, expanding facilities and the creation of tourist towns. This industry plays an important role in the local and national economy.

The **Arasbaran** forest zone, with semi-humid forests, has been identified as a global biosphere reserve because of its plant diversity. The most important woody plants in this region are black oak (*Quercus macranthera*), white oak (*Q. petraea*), wig tree (*Cotinus coggygria*), pliant tree (*Viburnum lantana*), cornelian cherry (*Cornus mas*) and juniper (*Juniperus foetidissima*). This is a conservation/protected zone and wood is not harvested either industrially or commercially. Local people in the region use NWFPs such as raspberries, cornelian cherries, hazelnuts, tree leaves, honey, bushmeat and acorns. They also harvest fuelwood extensively. Most products are traditionally harvested without any management plan for their utilization. Some products, such as raspberries, cornelian cherries and honey, can increase household incomes through proper harvesting, processing and marketing.

The **Zagros** forest zone, with semi-arid to temperate dry forests, has three oak species: Lebanon oak (*Quercus libani*), Lusitanian oak (*Q. infectoria*) and Brant's oak (*Q. brantii*). This is also a conservation/protected area and wood is not harvested either industrially or commercially. The high population density and many socio-economic problems have led to an extensive use of NWFPs by the local people. The main product used is fuelwood. Minor products include fruit (*Quercus libani*), leaves (*Q. brantii*) and types of gall such as *qolqaf*, *mazuj* and *sechka* (*Q. infectoria*). Gramineous flour – a kind of manna – is produced as a result of insect activity on a tannic tree (*Q. infectoria*). This product is used in pastry and has a good market. Fruits and leaves of the oak species are used in animal husbandry and for animal nutrition. Wild pistachio (*Pistacia atlantica*) is one of the most useful forest plants of the Zagros

region; the most important product of this species is turpentine. Turpentine is exported and, according to last data from the Forest, Range and Watershed Management Organization of Iran, its export value was US\$60 000 in 2000. Other products used in this region are mountain almonds (*Amygdalus* sp.), *zedu* (*A. communis*, *Amygdalus* sp.), wild pears (*Pyrus glabra*), walnuts (*Juglans regia*), myrtle (*Myrtus communis*) and *somaq* (*Rhus coriaria*).

The **Irano-Turanian** forest zone has arid forests with juniper (*Juniperus polycarpus*), wild pistachio (*Pistacia mutica*) and almond (*Amygdalus lycioides*). In this region, as in the other forest zones, wood is not harvested at all. Local people use *zedu* (mountain almond) and turpentine.

The **Khalijo-Omanian** forest zone, consisting of arid tropical forests, has a different appearance from the others. The main species of this territory are mangrove (*Rhizophora mucronata*), black mangrove (*Avicennia marina*), Arabian jujube (*Ziziphus spina-christi*), Indian mesquite (*Prosopis spicigera*) and acacia (*Acacia nilotica*). On the whole, both wood and NWFPs are rarely harvested.

All the forest zones, except the Hyrcanian, are conservation/protected areas and it is probable that the harvest of timber will not be allowed legally – or is ecologically feasible – in the near future. Therefore, the harvesting of NWFPs could play an important role in household economy. This role could be optimized through the use of operating plans; determining sustainable harvest levels; identifying usable species in all forest areas; improving harvesting methods; post-harvesting technologies; increasing participation of local communities; and

marketing. Therefore, research into NWFPs needs to explore the role of harvesting, processing and marketing of NWFPs in increasing household income.

The Islamic Republic of Iran has a high potential for tourism and agroforestry, both of which could increase the employment and income of the local people. The vast deserts of the Irano-Turanian zone have abundant attractions – signs of indigenous knowledge (nomads, aqueducts) and also geological facies (salt pans and polygon facies) – which could be promoted for tourism.

Important factors such as population growth, immigration, urbanization and the progress of technology, knowledge and awareness have effectively contributed to management patterns and changing management methods, and the conservation and utilization of forests. These factors mean that we expect more from forests than in the past. In recent decades, policies and strategies based on the conditions and needs of this sector have been recommended in order to help policy-makers and researchers to facilitate sustainable forest management (SFM). Governments must consider supporting SFM and policy-makers should actively engage the participation of rural communities in the exploitation and management of natural resources. Policies should be towards supporting small and medium forest industries. Facilitating the access of small producing factories to markets will improve the livelihoods of people who use forests and trees. Research and correct and valid information about NWFPs are extremely important for policy-makers. The demand for NWFPs will increase as a result of their role in rural development and in improving household economy. Two important and strategic approaches are recommended: the use of criteria and indicators for SFM, introduced in previous international forest processes; and adopting a so-called ecosystem approach in forest management for sustainable forestry activities.

The principles of SFM should be taken into account for forest products (both wood and NWFPs) so that we can be a model for future generations when using our natural heritage. (Contributed by: Sajad Ghanbari, M.Sc. student of Forestry, Department of Forestry and Forest Economics, Faculty of Natural Resources, Tehran University, Karaj 31585-4314, Islamic Republic of Iran. Fax: 00982612249312; e-mail: ghanbarisajad@gmail.com)



*Rhus coriaria*

 JAMAICA

**University improving life in the Cockpit Country**

The Cockpit Country, an area of forested hills that covers parts of St James, Trelawny and St Elizabeth, is highly treasured by scientists because of the vast number of plants and animals found only in that region. These plants and animals also provide food and livelihood for many of the surrounding communities.

The forests contain medicinal plants that are used in home remedies and as key ingredients in wines, "root" drinks and tonics. Among these forest plants are chainy root, *sarsaparilla*, *medina* and "strong back".

Over the years, however, the Cockpit Country has been heavily harvested for various NTFPs such as roots, bark, vines, leaves and fruits. Medicinal plants are now reported to be in short supply or available only deep in the interior.

With funding from the United States Agency for International Development (USAID) in collaboration with government and local committees, a project led by Dr Sylvia Mitchell, lecturer and head of the Medicinal Plant Research Group at the Biotechnology Centre, University of the West Indies (UWI), Mona, was launched for the micropropagation of selected non-timber forest medicinal plants.

The researchers, realizing that there is an urgent need to curtail the threat to NTFPs, have begun educating residents about how they can earn a living in a manner that does not degrade the forests. Dr Mitchell said that an important component of the education process is showing the residents how to incorporate new technology into their traditional livelihood practices.

She says: "The process starts in the laboratory where the hard-to-find forest plants are multiplied by a process called micropropagation. The rooted plantlets are then taken to the tree-hardening facilities established in the Cockpit Country at Quick Step, Troy and Bunker's Hill. At these demonstration sites, the plantlets are removed from their glass vessels and after a hardening phase, when they are strong enough, they are planted in the field plots".

Dr Mitchell noted that the Cockpit Country's endangered species, particularly these valuable medicinal plants, are now being preserved from overharvesting. In addition, large numbers of plantlets of economically important crops such as wicker, peppers, peppermint, ginger and

pineapples are also distributed free of charge to participating community members on the basis that they will collect growth data for the project.

The UWI has created a new opportunity for every rural person in Jamaica to farm and earn a living by using these disease-free plantlets to produce a more bountiful harvest. [Source: The Gleaner [Jamaica], 26 July 2009.]

 KENYA

**The livelihood potential of NWFPs: the case of Mbooni division in Makueni district**

Forestry is a productive sector with significant effects on meeting national socio-economic and environmental functions as well as the improvement of rural livelihoods. NWFPs in particular have been widely advocated by conservation and development organizations as potential alternative livelihood strategies, particularly among vulnerable forest-dependent households.

As in most tropical countries, NWFPs are relevant in the sustainable development of Kenya, which is particularly endowed with important forest resources. Kenya hosts about 17 million ha of forested land (about 3.51 percent of the total sub-Saharan Africa forest cover by 2000), of which about 16 865 000 ha are under natural forest. Outside the gazetted forests, there are other large tracts of forests in trust lands, including national parks and reserves, hill forest reserves and privately owned lands covering about 0.5 million ha. Woodlands, bushlands and wooded grasslands, mainly found in the arid and semi-arid lands, cover 37.6 million ha, while forest plantations (started in 1946) cover about 170 000 ha of land.

In most NWFP-endowed regions of the country, however, this socio-economic and environmental potential is still unrealized. The authors of a recent paper illustrate the latter by a case study of NWFP use and management in four villages in the Mbooni division of Makueni district. The division was chosen because of its relatively high NWFP availability, particularly from South Mbooni Forest, which is located at a distance of less than 5 km for an estimated 80 percent of the interviewed households. Data used for the analysis were collected through a fieldwork survey carried out on women (35+ years) in August 2005. One hundred and sixty NWFPs are harvested (from plant and animal species) and used mainly for food, income generation (supplemental) and medicinal purposes.

A number of challenges limit women's enjoyment of the full benefits from NWFP exploitation, the overriding problem being their inadequacy (in quantity and/or quality). In this paper the authors discuss these commonly utilized and managed NWFP plant species in Mbooni and their potential contribution to improved livelihoods and sustainable development in Mbooni, Kenya and sub-Saharan Africa in general. [Source: Dorcas Mbuvi and Emmanuel Boon. 2009. The livelihood potential of non-wood forest products: the case of Mbooni Division in Makueni District, Kenya. *Environment, development and sustainability*, 11[5]: 989-1004.]

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 MADAGASCAR

**Lemurs in danger from political turmoil and "timber mafia"**

The lemur, a furry primate that symbolizes Madagascar's unique biodiversity, is under renewed threat from a "timber mafia" pillaging the island's forests for profit. Environmentalists warn that a political crisis in the impoverished country is reversing conservation gains of recent years and putting "hundreds if not thousands" of species, many not yet identified, at risk of extinction. Madagascar, which has been isolated from land masses for more than 160 million years, is the world's fourth largest island and a "conservation hotspot" with thousands of exotic species found only here. These include nearly 100 species of lemur, six of which are deemed critically endangered.

Decades of logging, mining and slash-and-burn farming have destroyed 90 percent of Madagascar's forests, although the rate has slowed in the past two decades. The former president, Marc Ravalomanana, was praised for putting 6 million ha under protection and backing ecofriendly community projects and sustainable farming. But Ravalomanana was ousted in March in a violent coup that led to a breakdown of law and order and a "gold rush" of armed loggers and poachers. International sanctions have caused the suspension of environmental

programmes and could hit 45 national parks that are 90 percent dependent on overseas aid.

The natural habitat of the lemurs is under threat from accelerating deforestation. In addition, the endangered animals are being hunted for bushmeat, either to be eaten by drought-afflicted local populations or sold as a roasted delicacy in city restaurants.

Dr Hantanirina Rasamimanana, a researcher and teacher at Antananarivo University, said: "Deforestation is always a problem, but in these past five months bushmeat is also very dangerous. People are desperate because of the lack of rain". Conservationists say that armed gangs are exploiting the security vacuum to pillage rosewood and ebony from supposedly protected forests on behalf of a so-called "timber mafia".

About half of Madagascar's national budget, and 70 percent of investment spending, comes from outside assistance. But, after the coup, most international donors and lending agencies suspended or cancelled non-humanitarian assistance until a constitutional government is elected. WWF has been forced to suspend several projects. Niall O'Connor, head of WWF's Indian Ocean regional office, said: "The impact of not having funding is probably greater than the political crisis.

You start to lose the confidence of the communities. If the World Bank doesn't fund Madagascar national parks, they will run out of money very quickly".

Madagascar's US\$390 million (£230 million) a year tourism industry, of which ecotourism is the backbone, is down to just 40 percent of its normal level because of this year's instability.

O'Connor warned that Madagascar's priceless natural laboratory was in jeopardy. "We have the potential for losing hundreds if not thousands of species. There are still new species being discovered: plants, birds, chameleons, lemurs, tortoises that we might not yet know about, that could be on the brink of extinction." [Source: iplextra.com [India], 17 November 2009.]



#### Malaysia discovers huge potential in oil plants

The Sarawak Biodiversity Centre (SBC) has identified oil plants that have antimicrobial properties which can be exploited for commercial value. State Secretary Datuk Mohamad Morshidi Abdul Ghani added that these plants could be developed as health care products, and used to make hand wash, body shampoo and soap. "With such

potential, our communities can benefit economically by carrying out contract farming of these plants," he said, when opening a regional workshop hosted by the Centre yesterday.

The SBC has been nominated by the United Nations Development Programme, which coordinates the distribution of the global environmental fund, as the Asia-Pacific region's centre of excellence for traditional knowledge documentation.

Morshidi said the SBC was carrying out research and development activities on plants documented from the state's indigenous communities. He said the traditional knowledge documentation project had covered 12 indigenous communities in 40 locations statewide over the past seven years.

The state has some 30 indigenous communities spread across 3 000 villages. "From these locations, we have documented over 2 400 plants with various uses: from plants to cure ailments to plants used for crafts. Traditional knowledge has contributed significantly to modern agricultural practices as well as to the personal care, medicinal and cosmetic industries," he said, adding that many products in the market were produced based on information derived from traditional knowledge. Morshidi said if such knowledge was not documented, it risked being "lost". [Source: the star online [Malaysia], 9 October 2009.]



#### Marketing the *taiga*: political ecology of NWFPs in Mongolia

Since Mongolia's socio-economic transition and integration into the global market economy, increasing degradation of its natural environment and ongoing loss of biodiversity are taking place. Nowadays, an impoverished and marginalized rural population relies more and more on the commercialization of NWFPs, such as wildlife products or Siberian pine nuts, to sustain their livelihoods. The present situation resembles that at the beginning of the twentieth century, when Mongolia, for the first time, was driven into the world economy as a supplier of natural resources.

Following the conceptual framework of political ecology, a recent article analyses present and past utilization of NWFPs in Mongolia against its sociopolitical, economic and institutional background. The problems of transition can be illustrated with the case study of the Batshireet district on the border

#### BUSHMEAT TRADE THREATENS RARE LEMURS IN MADAGASCAR

Endangered lemur species found only in Madagascar are being slaughtered and served up in local restaurants as poachers take advantage of a security vacuum on the island after a coup earlier this year.

Pictures of the blackened remains of scores of crowned lemurs and golden-crowned *sifakas*, smoked in preparation for transport, have been released by the environmental protection group Conservation International. James Mackinnon, technical director at the group's Madagascar office, said gangs were pillaging the forests of precious hardwoods and trapping rare animals for Asia's pet market, unwinding hard-fought conservation gains on the island. "Lemurs have always been hunted on a

small, subsistence scale. This is bigger, more organized and systematic and it's typical of what we've been seeing with the breakdown in law and order," he told Reuters on Friday.

Poachers are using slingshots and traps to hunt the lemurs in Daraina, a newly protected region in the far north of Madagascar. Only 8 000 golden-crowned *sifakas*, found only in Daraina, remain in the wild and risk being wiped out in weeks. "More than anything else, these poachers are killing the goose that laid the golden egg," said Russ Mittermeier, president of Conservation International. "(They are) wiping out the very animals that people most want to see and undercutting the country and especially local communities by robbing them of future ecotourism revenue." (Source: Reuters [India], 21 August 2009.)

with the Russian Federation: the decline of a sawmill forced people to look for alternative incomes; field studies in 2003 revealed that NWFPs counted for one-third of household incomes. [Source: Jurgen Hartwig. 2008. Marketing the *taiga* – political ecology of non-wood forest products in Mongolia. [Original title: Die Vermarktung der Taiga. Zur politischen Ökologie der Nutzung von Nicht-Holz-Wald-produkten in der Mongolei.] *Geographische Rundschau*, 60[12]: 18–25. December.]

## NEPAL

### Herb farming shows way out of poverty

Jumla. The populations of ten Village Development Committees (VDCs) (local communities of villages) in a mid-western district of Nepal have taken to herb farming in a big way. This endeavour, which enjoys the support of the Ministry of Forests and Soil Conservation (MoFSC), is helping to bail people out of penury. Moreover, commercial herb farming has helped conserve medicinal plants that were endangered in the wild as a result of the unabated collection that took place up until 2005.

Medicinal plants are in high demand in the international market and fetch a good price too, says Laxmi Chandra Mahat, district project facilitator for the herb farming project. "Apart from herb conservation, this project will be instrumental in raising the living standard of local people," says Mahat.

According to statistics of the district project office, farmers have cultivated at least ten kinds of herbs in some 1 500 ha in Jumla. "Cultivating crops, we used to find it hard to meet day-to-day expenses even for six months. Now that we have taken to herb farming, we hope to get a better return," says Kali Bahadur Thapa of Patmara VDC.

In the fiscal year 2008/09, the people of Patmara sold 120 kg of herbs and earned about NPR130 000. The profit motivated them and they planted herbs in some 300 ha in their village.

Taking a leaf from Jumla, the MoFSC plans to expand the herb farming project in 11 districts of four zones in three phases by 2014. The International Fund for Agricultural Development has loaned NPR1.5 billion to the ministry for the NPR2.17-billion project, according to Mahat. [Source: Ekantipur.com [Nepal], 2 August 2009.]

## PERU

### Peru to pay Indians for conservation of Amazon jungle

Lima. The Peruvian Government will pay Indian communities for their work in preserving the Amazon jungle as part of an ambitious programme that seeks to protect 55 million ha of rain forest in the country, Environment Minister Antonio Brack told EFE (Spanish news agency).

"One of the worst problems about global warming is that mankind in the last 500 years has destroyed 50 percent of the forests on the planet and that is a very serious problem indeed," the Minister said, adding that in Peru 10 million ha of tropical forest have been destroyed. Up to now development has consisted of the woodland practice of slash-and-burn to clear land for crops and livestock, but that has given mediocre results because of the 10 million ha where that has been carried out, 8 million ha are unproductive. "It's shameful and we can't keep doing it," Brack said.

The Peruvian administration's programme is not limited to compensating native communities economically, but will also initiate other actions such as employing 600 Indians as forest rangers to protect these areas, and to award scholarships so that natives can be trained in activities such as ecotourism and beekeeping. [Source: Latin American Herald Tribune, 9 August 2009.]



## PHILIPPINES

### Plans to raise awareness of medicinal plants

The Philippines should undertake initiatives to conserve native medicinal plants amid the increasing global trade in herbals now estimated at US\$120 billion. In a statement released by the Philippine Exporters Confederation Inc., BiomartAsia-Philippines noted that the increasing

demand for local medicinal plants could result in overharvesting.

"Recognizing that our medicinal plants are so important, we must protect them, especially the endemic plants. The commercial demand for local medicinal plants may cause overharvesting from the wild," said Gina Mangalindan of BiomartAsia-Philippines. Biomart, a firm specializing in herbal skin care products, makes use of locally grown natural herbs known for their unique properties.

Mangalindan said that the creation of a Medicinal Plant Working Group, which may include representatives from industry, government, academia, tribes and environmental organizations, is needed. Its goal should be to create a framework action on behalf of medicinal plants. She said the group must raise awareness of native medicinal plant issues and needs among partner agencies and cooperating organizations also to promote the sustainable production of native medicinal plant products.

Mangalindan said that those who want to go into the medicinal plant industry could also take note of a number of trends that include the rising demand for certified "organic" raw material and value-added products such as teas, soaps, juices, cosmetics and extracts. "The health food sector is also increasing, so natural alternatives to artificial flavours, sugar and salt are being looked at," she said.

Mangalindan said the global herbal market comprises pharmaceuticals, spices and herbs and cosmetics. The global market today is mainly divided among Germany (28 percent), Asia (19 percent), Japan (17 percent), France (13 percent), rest of Europe (12 percent) and North America (11 percent). The major suppliers of crude medicinal products to European markets are China, the United States of America, Germany, Singapore, India, Chile, Egypt, Albania, Bulgaria, Morocco, Mexico and Pakistan. [Source: Business Mirror [Philippines], 7 September 2009.]

### Sustaining traditions to safeguard the future of forests in the southern Philippines

In the small community of Mintapod, nestled on the slopes of Kimangkil Mountain Range in Bukidnon province, Mindanao, live the Higaonon Indigenous Peoples, whose lives and livelihoods have long depended on the natural resources in their mountain habitat. Their time-

honoured knowledge and traditions play a central role in protecting the local forests. Earlier this year, five Higaonon ancestral domains, represented by their traditional leaders called *datu*, signed the Mintapod Declaration. The agreement represents over 5 000 Higaonon families and aims to protect the health of the local mountains.

The Declaration was the highlight of the Kimangkil Indigenous Peoples Corridor Conference held at Cagayan de Oro City from 1 to 3 April 2009, which attracted over 80 participants from Higaonon indigenous communities, support groups and government institutions. The Conference is part of a larger project called "Building Forest Corridors through Sustainable Ancestral Domain Management", supported by the European Commission. The initiative aims to contribute to forest conservation by strengthening indigenous peoples' communities. Crucial community needs – such as tenure security and skills building in legal affairs, livelihood enterprise, reforestation and sustainable forest management – are addressed through the project.

The leader of the initiative, Amy Matangilan, emphasized that recognizing the Higaonon Peoples' right to continue practising their traditional skills will help preserve over 70 percent of the local forests. (*Source: Voices from the forest*, NTFP Exchange Programme for South and Southeast Asia, Edition No. 17, September 2009.)

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### Honey – again – grows on trees

Spala. Perched in a lofty pine tree 12 m from the forest floor, Tomasz Dzierzanowski carefully removed a clump of dry grass from a hole in the wood and wafted smoke into a bees' nest. Using a wooden spatula, he delicately cut out the gleaming slices of honeycomb, and the dark, shining liquid ran down his fingers. After climbing down, he tore off a waxy chunk and tasted the powerfully flavoured honey.

Dzierzanowski is one of a group of Polish enthusiasts reviving a form of beekeeping stretching back thousands of years but abandoned more than a century ago. "There used to be thousands of bees' nests in Poland's forests, tens of thousands even," Dzierzanowski told AFP (Agence France-Presse) in the Spala forest, about 100 km south of the capital, Warsaw.

"For now, we've set up around 20," added Dzierzanowski, whose day job is with the local environmental department.

After initially collecting honey from purely wild bees' nests, ancient hunter-gatherers gradually learned how to give the insects a helping hand by cutting holes in trees and leaving honeycomb to attract a swarm. Under that ancestral method, the subsequent nest was opened just twice a year: once in the spring to check how well the bees had survived the winter, and again in the autumn to harvest the honey.

The practice persisted in Poland until the end of the nineteenth century, gradually losing ground because honey from the growing number of beehive farms was cheaper and the forests were hit by large-scale felling. A natural mishap in the 1980s wiped out the remaining wild bees buzzing around Poland's forests – a disease of Asian origin carried by a parasitic mite called *Varroa destructor*.

The current revival then is also a total reintroduction of the insect after a three-decade absence. It comes thanks to a meeting of minds between the global environmental group WWF, two Polish national parks, enthusiasts such as Dzierzanowski, and a group of beekeepers from Bashkortostan, a region of the Russian Federation near the Ural Mountains.

"We discovered that they still harvested honey from trees in Bashkortostan," said Przemyslaw Nawrocki, who is in charge of the project at WWF. "We got in touch with the Bashkir beekeepers who hosted us there and patiently taught us their craft. Last year, they came to Poland to set up the first hives," he added. The Poles also spent their time trawling through museums to learn about the ancient method, making precision copies of the tools of their ancestors.

"According to the archives, they used to harvest between 6–10 kg of honey per tree. Our maximum is around 3 kg. But it's only our second year of harvesting, so we need to wait a while longer," said Dzierzanowski.

Tree honey is distinctive – Dzierzanowski's harvest had a deep-gold colour, an initial



smoky taste and was not oversweet – and is traditionally eaten mixed with remainders of pollen and chewy wax. "Forest honey is much better than other kinds because it contains seven times more micronutrients," said Nawrocki.

In addition, it is a delight for organic food fans: the forest nests and the bees' pollen-gathering territory lie far from the fertilizer- and pesticide-strewn fields of agribusiness. Besides tickling the palate, bringing back honey harvesting has a broader ecological goal.

"In the past, bees were an integral part of the forests, and played a role in their biodiversity," Nawrocki explained.

While the amount of honey harvested is still tiny, the enthusiasts dream of a day when there will be thousands of such nests across the country. Another long-term goal is to get Polish tree honey inscribed in a European Union register of produce that is rooted in specific regions of the 27-nation bloc. (*Source: Agence France-Presse, 3 October 2009.*)



### Farmers to benefit from bamboo fraternity

Kigali. Rwandan farmers have been fronted as a priority group to benefit from a bamboo planting fraternity spearheaded by the International Network for Bamboo and Rattan (INBAR). This was revealed early last week by the visiting INBAR Director General, J. Coosje Hoogendoorn, who said that Rwanda has all it takes to gain from the immense environmental and economic benefits of bamboo trees. "I am struck by the tremendous potential in this country. The soil and weather are favourable for the growth of bamboo trees and I am impressed that people here have realized the importance of bamboo," Hoogendoorn said.

Bamboo is one of the most productive and fastest growing plants on Earth and it



offers the possibility of annual selective harvesting and removal of about 15–20 percent of the total stock productivity. Over 90 percent of bamboo carbon can be sequestered in durable products such as boards, floors, furniture, buildings, cloth, paper and charcoal.

Bamboo trees play an important role in controlling soil erosion, which is one of the most outstanding problems faced by farmers in Rwanda. According to Hoogendoorn, INBAR is partnering with China to provide the capacity for bamboo processing. She said INBAR is looking at conserving the already existing bamboo trees as well as introducing new species. INBAR has a membership of 34 countries and Rwanda is its current chair.

Fredrick Munyansonga, the official charged with bamboo planting in the forestry department, revealed that this partnership is likely to change the lives of many people, especially farmers. "Bamboo planting has two inherently important causes, conserving the soil and alleviating poverty. This cause should be taken seriously because it's a total win-win undertaking," he said.

Around 1.5 billion people around the world depend on bamboo in some way. [Source: *The New Times* [Kigali], 23 August 2009.]



## UGANDA

### Communities establish forest enterprises while protecting their local habitat

Local communities in Uganda have long depended on forest resources in the Bwindi Impenetrable National Park for weaving materials, medicinal plants, hunting, honey collection, fruit gathering and building poles. In 2001, FAO began assisting local men and women to develop small forest enterprises, making sure not to interfere with the park's conservation efforts.

With the help of FAO, nearly 200 women and over 100 men were assisted in establishing small-scale enterprises on the outskirts of the park. These activities are managed entirely by local men and women and consist of beekeeping; handicrafts; mushroom, passion fruit and potato cultivation; and ecotours. The Buhoma village walk was one of the first successful ecotourism enterprises established; tourists are guided through the park for gorilla watching, with the tour stopping at a local handicrafts centre run by women.



Between January 2003 and August 2005, 2 295 tourists took part in this enterprise. In addition, locals' access to credit has also been facilitated and community camp grounds improved.

This initiative is an example of how measures to protect and conserve forests can work in tandem with those aiming to alleviate poverty. [Source: *Bridging the gap*. 2009. FAO's Programme for Gender Equality in Agriculture and Rural Development.]

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### Turning honey into money

Beekeeping is a venture that has not attracted many investors. However, the demand for this product locally and internationally explains the dire need for more investors to engage in its production.

Dickson Biryomumaisho, Director, Western Region, the Uganda National Apiculture Development Organization (TUNADO), describes apiculture as the science of bees and art of keeping bees to produce honey and other hive products, using different techniques. This art can be carried out with or without land. "One may need as little as 10 x 10 m of land, unlike other ventures," he says, adding that the undertaking is a low-cost investment open to all classes of people since little or no capital is needed. "Hives and other equipment can be made locally and bees are freely available and depend on beekeepers for food," he says.

Traditional hives include broken pots, woven twig hives or log hives that are hung on trees. However, Biryomumaisho says that it is advisable for bee farmers to graduate to modern Langstroth hives where, unlike traditional hives where honey is extracted

naturally, a honey extractor is needed to harvest honey. Top bar hives are referred to as transitional hives since they bridge traditional bee farming with Langstroth bee farming. Langstroth hives are reusable, which could lead to an increase in honey production.

Traditional hives yield between 8 to 15 kg per harvest whereas 20 to 30 kg can be harvested from the modern Langstroth.

Since a great deal of expertise is not required, beekeeping can be practised by all – the educated and the uneducated – and irrespective of age, gender and economic status. Any entrepreneur would be suited and beekeeping could be a source of employment for many.

In areas where beekeeping is predominant, people generate income by making beekeeping equipment; processing, packaging and selling bee products; and extension work. Traditional hives sell at between 10 000 to 20 000 shillings (UGX), the top bar hive from UGX40 000 to 55 000, while the Langstroth sells from UGX100 000 to 150 000. A beehive maker can therefore earn a reasonable income. Farmers today sell 1 kg of honey at UGX6 000 to 10 000.

Beekeeping enhances biodiversity and increases crop yields through pollination of crops. The busy bees also contribute to natural resource conservation. This renders beekeeping a non-destructive and sustainable activity.

Biryomumaisho adds that beekeeping can be used as a tool to reduce threats to Uganda's vegetation, particularly natural habitats. "(For instance) national parks, forests and woodlands are an alternative source of livelihood to communities," he says. [Source: *Daily Monitor* [Uganda], 8 October 2009.]

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**FOR MORE INFORMATION, PLEASE SEE:**  
**[www.greenresources.no](http://www.greenresources.no)**



### Chestnut tree restoration

A tree orchard recently set up at the Tennessee Army National Guard Lavinia training site will examine the American chestnut tree, which was decimated by a fungus that arrived more than 100 years ago.

The Tennessee National Guard is working on a programme with the American Chestnut Foundation, which began the restoration project more than 20

years ago. The fast-growing trees were valued for their integral roles in the ecosystem, as food sources and as a lumber source for furniture.

Today, more than 500 chestnuts at the Volunteer Training Site Milan orchard are being tested for ways to fight off the blight disease. The method of "back-crossbreeding" American chestnuts with their blight-resistant predecessors is being used.

The goal is to have a hybrid Chinese and American chestnut tree able to cross back to the American versions, which once numbered in the billions in the United States of America. The trees would then provide pollen and seeds to create a new generation of highly resistant trees, according to the National Guard.

As of 2007, there were only 117 known American chestnut trees in west Tennessee, mainly in Hardeman and Fayette counties, according to a study by Joe Schibig, a professor at Volunteer State Community College. (Source: Jackson Sun, 27 July 2009.)

**USDA proposes label for biobased products**

Washington, DC. The United States Department of Agriculture (USDA) has proposed a labelling system to identify products made with renewable plant, animal and other biobased materials.

The BioPreferred labelling proposal is an outgrowth of the federal government's BioPreferred purchasing programme, which was created in the 2002 Farm Bill. The 2008 Farm Bill expanded the programme further to promote the sale of biobased products outside the government.

The proposal would set up a system in which companies could voluntarily apply the BioPreferred label to their products. USDA has already identified more than 15 000 biobased products in about 200 categories.

USDA hopes that a labelling system for biobased products will help consumers, businesses and governments easily identify biobased products, and also act as a marketing tool for the product makers and vendors.

USDA defines biobased products as items that are made up entirely or mostly of biological ingredients such as plant, animal, marine and forestry materials. A product would be able to use the BioPreferred label if it meets or exceeds USDA's minimum content requirements. (Source: GreenBiz.com, 5 August 2009.)

**Honey standard**

Florida recently passed a honey standard and is the first, and only, state to have done so. The standard is the first step towards getting adulterated honey off the store shelves and sets limits for, among other things, the amount of fructose, glucose, sucrose and moisture content defining honey.

Anyone selling honey in the state of Florida who violates this standard is subject to a US\$500 fine. The Florida Department of Agriculture is depending on consumers to help enforce their new honey standard. (Source: examiner.com [United States of America], 31 August 2009.)



**Árboles utilizados como PFM: Zona Central Reserva Forestal Imataca**

Un reciente trabajo presentado en el XIII Congreso Forestal Mundial (véase página 63) se realizó con el objetivo de caracterizar los productos forestales no madereros (PFNM), según el uso dado a las especies arbóreas por la población criolla que habita en la cuenca alta del Río Botanamo. Dicha cuenca está localizada en el borde oriental de la Reserva Forestal Imataca, la cual está habitada por diferentes grupos humanos asociados con ecosistemas boscosos de alta complejidad. Sus habitantes utilizan los PFNM como parte de sus recursos de subsistencia. Un total de 310 hogares fueron seleccionados aleatoriamente, encuestando una persona por hogar.

Las especies arbóreas fueron clasificadas por categoría y frecuencia de uso. El tamaño de la muestra fue definido con un nivel de confianza del 95 por ciento y un margen de error del 5,4 por ciento, (22 545 habitantes y 4 509 hogares). La identificación taxonómica de las especies arbóreas utilizadas fue hecha a partir de muestras recolectadas empleando métodos fitotaxonómicos tradicionales en el Laboratorio de Botánica y Dendrología de la Universidad Nacional Experimental de Guayana (UNEG).

El uso de las especies arbóreas se distribuye en seis grupos: medicinal (35 por ciento), alimento (32 por ciento), fibra y artesanía (13 por ciento), forraje (11 por ciento), colorante (7 por ciento) y ornamental (2 por ciento). Se destacan los usos medicinales y de alimentos. Las

especies de mayor uso en la categoría de alimento son: *Mangifera indica*, *Inga* sp., *Spondias mombin*, *Psidium guajava* y *Persea americana* y en la de medicina: *Angostura trifoliata*, *Protium* sp., *Brownea* sp., *Mangifera indica*, *Spondias mombin*, *Annona muricata*, *Couratari multiflora*, *Cecropia peltata*, *Anacardium occidentale*, *Bixa orellana*, *Copaifera officinalis* y *Xylopia aromatica*.

El 76,6 por ciento de las especies arbóreas utilizadas como PFM son nativas de los bosques de la localidad, lo cual refleja un alto grado de conocimiento y uso del bosque natural por parte de las comunidades criollas que habitan en el sector.

El nivel de ingreso promedio del 49 por ciento de las personas entrevistadas oscila entre \$232,55 y \$ 65,11 por mes. Con respecto al nivel educativo, el 33 por ciento sólo alcanza el grado de primaria, el 17 por ciento el nivel básico de bachillerato, el 23 por ciento el grado de bachiller y el 27 por ciento técnicos y otras profesiones. (Fuente: XIII Congreso Forestal Mundial, www.wfc2009.)

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**Even if I knew that tomorrow the world would go to pieces, I would still plant my apple tree.**  
*Martin Luther*