

non-wood

news

EDITORIAL

Anniversaries are times of reflection, and reflections provide a good opportunity to look back in order to move forward with continued commitment. This edition of *Non-Wood News* is the twentieth issue I have been involved in: my involvement started with issue 3 in March 1996. Changes have obviously taken place during this time, but important issues still remain. For example, issue 3 included an article on "Bioprospecting or biopiracy?", covering plant-based pharmaceutical potential, a topic that is still relevant today and a regular feature in our News and Notes section for many years. Much progress has been made in this area since 1996, as can be seen from the recent historic Nagoya Protocol on Access and Benefit Sharing. In acknowledgement of this, in the present issue we have a Special Feature on "Recognition of traditional knowledge", which includes articles on bioprospecting and benefit sharing, as well as information on how countries are developing policies to protect traditional knowledge from biopiracy.



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Over the years, we have strengthened our reporting on the role of people, their communities and their use of NWFPs. Mindful that "Forests for People" is the theme of the International Year of Forests 2011, we have reflected this focus throughout this issue. For example, we provide information on how NWFPs are used in Amazonian life (Special Feature); how people are using rattan in a sustainable way in the Greater Mekong (International Action); how a project in Central Africa is helping communities achieve greater food security (Country Compass, International Action); and how edible

insects – important food sources in many forest communities – are now being considered as an alternative solution to livestock in feeding a hungry world (Products and Markets, and Country Compass).

A strong feature of the 1996 issue was its Country Compass section. This emphasis has been maintained over the years and throughout the current issue, which includes news reports and readers' contributions from 34 countries: in fact, you will find diverse stories ranging from wildlife in Afghanistan and the economic value of NTFPs in Canada, to the impacts on beekeeping of the earthquake and tsunami in Japan, as well as the ecological and financial impacts of the bushmeat trade in Zimbabwe.

NON-WOOD NEWS

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Non-Wood News is open to contributions by readers. Contributions are welcomed in English, French and Spanish and may be edited to fit the appropriate size and focus of the bulletin.

If you have any material that could be included in the next issue of *Non-Wood News* for the benefit of other readers, kindly send it, before 31 January 2012, to:

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The use of the Internet has also brought changes, with more readers now contacting us – and each other – through e-mail (non-wood-news@fao.org). In fact, one of the aims of *Non-Wood News* is to enable networking among readers. Contributions from readers in this issue cover a variety of subjects, including the potential of nettles in the Indian Himalayas, conservation ethnobotany in the North Atlantic, reconciling selective logging with the livelihood importance of NWFPs, and pine resin extraction in southern Europe. Contacts with readers have also led to joint initiatives; for example, we have entered into a copublishing agreement with CIFOR to produce a book on the Amazon, and our next issue will help the Rainforest Alliance celebrate 20 years of their Kleinhans Fellowships (see Readers' Response).



So, thank you to all readers for your contributions. Whether it is an article or highlighting an event or publication on NWFPs, these contributions have played an integral part in putting together *Non-Wood News*. Reader feedback is always useful and much appreciated so please do continue to contact us.

Finally, our reflections on the past 20 issues demonstrate that we here at *Non-Wood News* need and will take every opportunity to move forward in our efforts to promote the importance and potential income-generating aspects of NWFPs, as well as the recognition that many people depend upon them – whether for their livelihoods, their health or as a source of food.

Tina Etherington

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Non-wood forest products (NWFPs) are goods of biological origin other than wood, derived from forests, other wooded land and trees outside forests. Non-timber forest products (NTFPs), another term frequently used to cover this vast array of animal and plant products, also include small wood and fuelwood. However, these two terms are used synonymously throughout this bulletin. Other terms, such as "minor", "secondary" or "speciality" forest products, are sometimes used to keep original names and/or titles. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.



UN urges greater appreciation of culture and creativity of indigenous peoples

Secretary-General Ban Ki-moon today urged the world to recognize the right of indigenous peoples to control their intellectual property, saying they needed help to protect, develop and receive fair compensation for their cultural heritage and traditional knowledge.

"Indigenous peoples face many challenges in maintaining their identity, traditions and customs, and their cultural contributions are at times exploited and commercialized, with little or no recognition," the Secretary-General said in a message to mark the International Day of the World's Indigenous People.

"I encourage all Member States to take concrete steps to address the challenges facing indigenous people – including marginalization, extreme poverty and loss of lands, territories and resources. Countries should also commit to ending the grave human rights abuses that indigenous peoples encounter in many parts of the world," he said.

He noted that there were 5 000 distinct groups of indigenous peoples in some 90 countries, who make up more than 5 percent of the world's population – around 370 million people in total. They are custodians of valuable and often fast-disappearing cultural heritage, the Secretary-General said.

In her statement to mark the Day, Navi Pillay, the UN High Commissioner for Human Rights, noted that indigenous peoples around the world have lost, or are under imminent threat of losing, their ancestral lands, territories and natural resources as a result of unfair exploitation for the sake of "development". She said natural resource extraction projects such as mining are both land- and water-intensive and often directly affect the collective rights of indigenous peoples to their lands and territories.

Achim Steiner, the Executive Director of the United Nations Environment Programme (UNEP), said the agency was partnering with indigenous peoples in various places – including the Arctic, Africa and so-called Small Island Developing States – to highlight the fact that more than two-thirds of the Earth's biological resources are also the traditional territories of most indigenous peoples.

The Executive Secretary of the Secretariat of the Convention on Biological Diversity,

Ahmed Djoghlaif, and Jan McAlpine, Director of the Secretariat of the UN Forum on Forests, also highlighted the important role that indigenous communities play in global conservation efforts. (Source: UN News, 9 August 2011.)

New project in Eastern Europe to protect traditional knowledge in plant trade

TRAFFIC recently launched a project to gather information about the use, harvest and traditional importance of wild plants and their significance in the cultural heritage of Eastern Europe. The project, which will run for three years in the Czech Republic, Hungary, Poland and Slovenia, is entitled "Promoting traditional collection and use of wild plants to reduce social and economic disparities in Central Europe".

It is supported by the European Regional Development Fund and aims to introduce a pilot model by 2012 for the collection, processing and use of wild plants that is socially and culturally acceptable, economically viable and environmentally sound.

"The use of herbs as medicine has been almost universal since ancient times, but collecting the plants requires specific knowledge of how to identify them correctly and where to find them. Such information is often passed down from generation to generation, but in today's urbanized society, much of this traditional knowledge is unfortunately being lost," said Anastasiya Timoshyna, TRAFFIC's Medicinal Plant Officer, based in Hungary.

The lack of knowledge can lead to unsustainable trade in certain species, which can affect livelihoods, and remove important sources of income from particular groups, including ethnic minorities, women and the elderly.

Central Europe is still a major exporter of plant products, including medicines and spices to processors in Western Europe. Wild collection represents 30–40 percent of medicinal drug production.

In Europe it is estimated that about 2 000 plants are traded commercially, of which 60–70 percent are native species. Up to 90 percent of these are still collected from the wild, creating an important market and genetic base for many essential drugs.

"With continued growth in the wild-collected medicinal plant sector, it is important for countries in Central Europe to join forces to develop a coherent approach to plant supply in order to ensure that this demand does not exhaust natural stocks and

the traditional knowledge base is preserved," said Timoshyna.

The new project is led by Corvinus University of Budapest (Hungary) and includes nine partners from the four Central European countries: Czech Republic, Hungary, Poland and Slovenia, which range from local authorities to NGOs, agrarian chambers and universities. (Source: TRAFFIC Web site, 23 May 2011.)



Traditional medicine should be embraced

Traditional medicine needs to be embraced so that it finds expression through combating diseases, says South Africa's Department of Science and Technology. "If it is to play a strategic role in combating the heavy burden of disease, it will need to be mainstreamed so that it can benefit from advances in the other sciences," said Director-General Molapo Qhobela. He was speaking at an African traditional medicine and intellectual property workshop held in Pretoria. Qhobela said South Africa should learn from China and India, which had effectively integrated traditional medicine into their health systems. He further emphasized the need to preserve African medicine.

"One way of securing the future of indigenous knowledge and research on traditional medicine is the advancement and refinement of regulatory regimes," he said.

The drafting of ethical guidelines for researchers and research institutions had already been completed. The Department planned to conduct research on medicinal plants, a move that the Traditional Healers Organization wanted to involve traditional healers themselves. Its spokeswoman Phephisile Maseko said that while the organization was not objecting to research, healers believed that leaving government to do research on its own, and excluding them, would undermine their own work done so far. She highlighted that 72 percent of South Africans made use of traditional medicines. Of the known plant species in the country, 3 000 of them have medicinal potential. (Source: www.timeslive.co.za, 14 July 2011.)

Bioprospectors probe Aboriginal lore

When Aboriginal elder John Watson was bitten by a crocodile while fishing in the remote Australian Kimberley region, there was no doctor he could call and no medical kit on hand to stem the blood. So he resorted to the traditional knowledge of his people, passed down over the centuries from generation to generation, to help stop the bleeding from the injury to his hand, which had removed part of his middle finger. Watson knew that if he chewed the bark of a native tree known as *mudjala*, and spat the mixture on to his finger it would both numb the pain and stop the bleeding. And it did.

The plant is one of many avidly studied by researchers and so-called bioprospectors around Australia seeking to derive the next great medicine from the country's unique flora.

As the hundreds of Aboriginal languages that were once spoken around the vast nation quickly fade, and traditional knowledge is lost after two centuries of Western settlement, the race is on to preserve native lore, including that related to the medicinal use of plants.

"The information is being lost, irrespective of whether it is being used or not," says Professor Michael Heinrich, a researcher at Australia's Southern Cross University and the School of Pharmacy at the University of London. "We need ... to find a way where we can pass the indigenous knowledge on to future generations."

Heinrich said indigenous communities were rightly concerned about the handling of their traditional knowledge, some of which is sacred to their beliefs, and worried that their generosity would not be recognized or rewarded. This meant it was very difficult to get information on the plants used by Aborigines to treat illness and disease, he said.

Australia has a unique plant and animal life, some of which has adapted to extreme conditions such as drought and it is, to a certain degree, unexplored by Western scientists – all of which makes it deeply alluring to bioprospectors.

For elder Watson's Jarlmdangah Burru community in Australia's remote far northwest, ownership has been resolved through an intellectual property arrangement hailed as a breakthrough example for other communities. The Australian Government is hoping to help other indigenous communities and businesses protect their intellectual property through its Dream Shield project, and Watson's community is now seeking to commercialize the treatment, possibly as a

topical herbal product. [Source: AFP in *Traditional Knowledge Bulletin*, 7 June 2011.]

Botswana to develop policy to protect traditional knowledge

Botswana is developing a policy to protect, preserve and promote its indigenous knowledge and mainstream it into the country's macro-economic framework. Development of the policy will involve identifying, documenting and gathering local traditional knowledge practices from areas including agriculture, health, culture and religious beliefs, and then feeding them into a legislative framework.

The project, which started in February but was formally launched in June, has received nearly US\$1 million from the government. "The initiative is intended to bring economic empowerment through benefit sharing and [providing] royalties to communities rich in indigenous knowledge," said Oabona Monngakgotla, the project's manager. He said that Botswana has realized the importance of indigenous knowledge, such as using traditional herbal medicines to improve health and generate income.

Creating awareness through education about the importance of indigenous knowledge to research, particularly global

medical research, will benefit both professionals and communities, he added.

Botswana has no specific laws on indigenous knowledge systems. Instead, it has isolated policies on natural resources, such as the National Policy on Natural Resource Conservation and Development and the National Policy on Culture, which fit within international frameworks including the Nagoya Protocol, an international agreement to combat biopiracy and share benefits from national resources research fairly.

The African Regional Intellectual Property Organization is also developing a protocol to protect holders of traditional knowledge from any infringement of their rights and the misappropriation, misuse or exploitation of their knowledge.

"After the development of policy, an implementation plan will be developed, detailing execution of the policy and making recommendations," said Monngakgotla.

Mogodisheng Sekhwela, the project's team leader, will lead the University of Botswana's Centre for Scientific Research, Indigenous Knowledge and Innovation in compiling the information, which is due to be completed in June 2012. [Source: SciDev.Net, 24 August 2011.]

ANALYSIS OF THE NAGOYA PROTOCOL ON ACCESS AND BENEFIT SHARING

An analysis of the Nagoya Protocol on Access and Benefit Sharing (ABS) – "Towards a People's History of the Law: Biocultural Jurisprudence and the Nagoya Protocol on Access and Benefit Sharing" – featured in the July issue of the *Law, Environment and Development Journal* and comes from an understanding of the law as a "site of struggle" where different groups lobby for their interests. Some of these groups are clearly more powerful than others, which explains the reticence of state law regarding the rights of indigenous peoples and local communities. However, the authors consider it critical to acknowledge that power begets resistance and that indigenous people and local communities have not just been passive victims of the law but on the contrary have fought strategic and

pitched battles to stem and sometimes turn the legal tide.

In this context, the authors (Kabir Bavikatte and Daniel F. Robinson) analyse the Nagoya Protocol with the aid of three guiding questions: what was the status quo prior to the Nagoya Protocol; what did indigenous peoples and local communities seek to achieve through the Protocol and how did they go about doing this; and what is the outcome of these community efforts in the Nagoya Protocol. In answering these questions, they also attempt to map the emerging biocultural rights of indigenous peoples and local communities under the Convention on Biological Diversity (CBD), as well as their struggles specifically within the CBD Working Groups on ABS and on Article 8(j), aiming to trace the trajectory of the activism of indigenous peoples and local communities in the CBD processes. [Source: *Traditional Knowledge Bulletin*, 26 July 2011.]

Namibia's indigenous people help draft biopiracy law

Namibia has kicked off a series of meetings with rural and indigenous communities to feed into the country's first bill on access to genetic resources and traditional knowledge. The first such meeting took place in the south of the country from 28 to 30 June. The bill has been in development since 1998. It should be finalized by the end of the year so that the country can sign the Nagoya Protocol before the February 2012 deadline. To be ratified, the Nagoya Protocol needs 50 nations to sign up, which 38 have done so far.

The bill will prevent exploitation of indigenous resources, such as devil's claw (*Harpagophytum* sp.) a plant used by the San people to treat rheumatism and arthritis, and *hoodia* (*Hoodia gordonii*), which is used for suppressing hunger.

Pierre du Plessis, a genetic resources expert and Namibian negotiator for the Nagoya Protocol, said that investments made to bring some of these plants to the market have not given much back to local communities. "In the case of *hoodia*, an investment in the region of US\$70.7 million over the past 12 years has, so far, yielded virtually no sustainable benefits, although some opportunists have enjoyed windfall profits," he said, citing attempts to market *hoodia* products for weight loss.

"Communities will benefit if their associated traditional knowledge is involved, or if they are the direct legal providers of the resources in question," said du Plessis.

Namibia was one of the main architects behind the 2010 Nagoya Protocol, which secured access and benefit-sharing rights for communities under the UN Convention on Biological Diversity. "Nagoya is a big step for the conservation and sustainable use of natural resources," said Dietlinde Nakwaya, the manager of a programme called "Strengthening Capacity Enhancement to Implement the Global Environmental Conventions" in Namibia, at the Ministry of Environment and Tourism – a project that builds capacity to implement international environmental agreements.

The meetings are an opportunity to strengthen people's "environmental literacy" – knowledge about their natural resources. "But we also need their expertise to prevent any loopholes in the bill," Nakwaya said. "After all, communities have used these resources for a long time."

Konrad Uebelhör, biodiversity and sustainable land management expert with the German Company for International

THE ROAD TO AN ANTI-BIOPIRACY AGREEMENT

A recent book – *The Road to an Anti-Biopiracy Agreement* – is a compilation of articles from Third World Network publications following the difficult progress of the CBD negotiations that resulted in the adoption of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising out of their Utilization on 29 October 2010 during the tenth meeting of the CBD Conference of the Parties.

The book contains reports starting from the early days of the negotiations in Kuala Lumpur in 2004, up to the last round of talks in Nagoya in 2010, as well as some preliminary analyses of the Protocol and the extent to which it can effectively combat biopiracy. (Source: *Traditional Knowledge Bulletin*, 29 June 2011.)

Cooperation (GIZ), said that, even if local communities do not manage to derive benefits from the intellectual property (IP) relating to their knowledge, they can still benefit from the spillover effects of developments and investments surrounding traditional knowledge. (Source: www.SciDev.Net, 15 July 2011.)



Harpagophytum sp.

Developing policy guidelines to handle genetic resources and traditional knowledge

The Ghanaian Deputy Minister of Health, Dr Gladys Ashitey, has said that Ghana is developing policy guidelines for the handling of genetic resources and traditional knowledge. She said the policy guidelines, which would give special references to their application in health and agriculture, would also focus on the documentation of traditional knowledge and the related genetic resources, conditions of access, benefit-sharing arrangements and institutional arrangements for administration and enforcement.

Speaking at the opening of the Second Global Summit on HIV/AIDS, Traditional Medicine and Indigenous Knowledge in Accra, the Deputy Minister said the guidelines would help foster research and development, innovations and capacity building for optimal and sustainable use of traditional knowledge and plant genetic resources.

Dr Ossy M.J. Kasilo, World Health Organization Africa Regional Office Adviser on Traditional Medicine, commended Ghana for being the first in Africa to develop a strategic plan for the development of traditional medicine. She said Ghana was also the first in developing a traditional medicine research plant at the Centre for Plant Medicine and developing a Code of Ethics in traditional medicine, among other achievements, and urged other countries participating in the workshop to follow Ghana's example. (Source: allAfrica.com, 6 September 2011.)

Micronesia: blending science knowledge with ancient traditions

On Yap, a Pacific island that is part of Micronesia, the native people fish the traditional way. They construct kites made of breadfruit leaves, the spines of the *Pandanus* plant and coconut fibre rope, and fly them over the reef, dropping their lines to attract long-nose needlefish. These are the only fish the islanders want, and the only ones lured by this unusual gear.

"It is ecologically sound and sustainable, and they have been doing it for generations," says Robert H. Richmond, a research professor at the University of Hawaii at Manoa. "More importantly, no Western scientist could teach them a better way."

Richmond tells this story to make the point that marine and environmental science training must be relevant to the region, and include not just current science and technology, but an awareness of the unique cultural aspects of the communities that will benefit, in this case, Pacific Islanders.

Richmond directs the Partnership for Advanced Marine and Environmental Science Training for Pacific Islanders, a programme for local students that aims to blend up-to-date scientific knowledge with the ancient traditions that have served the islanders well over thousands of years. The hope is that by training local people in up-to-date scientific skills, they will become more invested in their homeland's environmental future. (Source: National Science Foundation in *US News*, 7 July 2011.)

Green economy needs respect for indigenous rights

Nations must pay more than lip service to the idea of indigenous rights if they seriously hope to address problems such as species loss and climate change, say delegates at the Permanent Forum on Indigenous Issues, a UN body created to safeguard the rights of the world's 370 million indigenous people, at the Tenth Session of the UN Permanent Forum on Indigenous Issues in New York.

"They present very good studies and information, but not for us," said Marcos Terena, a prominent leader of Brazil's indigenous people, about the officials running UN projects on environment and development across the world. In his view, the transition to a so-called "green economy" will not work as long as humanity does not respect the rights of Mother Earth.

Indigenous peoples' traditional knowledge has been widely acknowledged as vital to conservation and efforts to fight climate change. "Nature conservation is at the heart of the cultures and values of traditional societies," said Ahmed Djoghla, Executive Secretary of the UN Convention on Biological Diversity, which recognizes the significance of traditional knowledge and calls for actions to promote it.

UN researchers note that one-third of the world's 370 million indigenous people are condemned to live in poverty in as many as 70 countries around the world. World Bank estimates put their share of global poverty at 60 percent.

In reflecting upon UN efforts to enhance understanding between indigenous communities and the outside world to fight climate change and reverse the loss of biological diversity, Terena said his people did not think it was working in a meaningful way. "I hope the UN will understand and listen to the indigenous people, and not only produce papers," he said about the UNEP-led session at the forum meeting. [Source: IPS, 21 May 2011.]

India's digital library to the rescue of traditional patents

Success achieved in India in staving off attacks on its traditional knowledge is in part due to efforts by the Council for Scientific and Industrial Research in initiating the Traditional Knowledge Digital Library (TKDL) project.

TKDL is an Indian digital knowledge repository of traditional knowledge, especially medicinal plants and formulations used in Indian systems of medicine. Indian traditional knowledge dates back a good

10 000–12 000 years and is slowly fading away because of the lack of documentation, said V. Prakash, former director of the Mysore-based Central Food Technological Research Institute (CFTRI). TKDL has succeeded in digitizing at least 30 percent of this knowledge.

CFTRI is one of 19 national science laboratories in India that are on board the TKDL project. Prakash said the project is aimed at scientifically documenting India's traditional knowledge base. This database will help put an end to the indiscriminate rush to patent items.

The database compiled so far is made available to lawyers in Europe and the United States of America for a fee, so that they do not recklessly apply for patents. It is better to stop the process before it starts, rather than challenge it in courts outside India at a later stage, as happened in the case of turmeric, he said.

Digitizing traditional knowledge for TKDL is a painstaking effort. But it is worth it, given that it is providing leverage to India to defend itself in case of attempts to patent products that are indigenous to the country.

Information is digitized in various formats – orally, through video – and the gaps in knowledge are filled with help from science. Even information given by individuals on traditional knowledge backed by scientific proof is acknowledged. [Source: *The Times of India*, 8 August 2011.]



Indonesia's pledge to forest people welcomed

Forest groups on Wednesday welcomed an Indonesian commitment to protect the rights of indigenous people who have long complained that their land is being stolen in the name of conservation schemes. With billions of dollars in foreign aid and carbon offsets potentially on the table, tribal groups have accused internationally backed efforts to tackle deforestation of pushing them off their ancestral land.

Presidential adviser Kuntoro Mangkusubroto told a forestry conference on

Lombok Island this week that Indonesia would address the issue by implementing a decade-old land law recognizing the rights of forest communities. It will also develop a land tenure map identifying the location and size of forests and how they are used, as well as defining the legal status of the country's vast forested areas.

"Indonesia is committed to longer-term forest and land tenure reform," he said. "All should be implemented based on the principle to recognize, to respect and to protect customary rights," he added.

Forest groups hope the government will fulfil its obligations to inform and consult with indigenous groups whose lives could be dramatically altered by UN-backed measures to prevent deforestation.

"We are very pleased with Indonesia's commitment," said Victoria Tauli-Corpuz, a board member of Rights and Resources Initiative, a global coalition of forest research groups. "It is not a matter of recognizing who the indigenous people are and their rights, but developing a legal framework to recognize their ownership over forests. We are very hopeful that changes will come about."

Indigenous Peoples Alliance Secretary-General Abdon Nababan said forest people were in danger of being forced off their land and denied their customary livelihoods in the name of conservation. "The basic point is that if you want to protect the forests, you must protect the people who protect the forests," he told AFP.

The alliance last month demanded a halt to conservation schemes worth billions of dollars on Borneo Island, saying they could be a form of "cultural genocide" if not handled properly. [Source: AFP, 13 July 2011.]



Amazonía o petróleo

La deforestación en el mundo se ha reducido en la última década más de un 30 por ciento. Es una buena noticia, si no fuera porque continúa a un ritmo galopante en muchos países o en zonas imprescindibles para la salud del planeta como la Amazonía.

Una cuarta parte de la población mundial depende de las grandes áreas forestales. Pero hay más: en los bosques, entre sus plantas, posiblemente se hallen remedios a graves enfermedades o la solución al cambio climático. La necesidad de proteger estos espacios es acuciante, pero a veces se

cruzan otros intereses amenazantes, como las grandes bolsas de petróleo que yacen bajo el manto verde de los bosques.

Esto es lo que sucede en el Parque Nacional Yasuní, en Ecuador, en plena Amazonia. Sus habitantes viven como hace siglos y preservan un bien universal. Pero las petroleras no están muy lejos. *Informe Semanal* ha navegado por uno de los lugares más conservados del planeta y ha dialogado con las comunidades que viven de los recursos de esa selva en la que nacieron y en la que quieren seguir viviendo. Lamentablemente, la situación económica de diversas poblaciones empuja a las mismas ha migrar o extraer recursos con valoraciones inmediatas sin tener en cuenta las perspectivas de los mismos.

Es necesario, por lo tanto, un trabajo conjunto donde se conjuguen los intereses de las comunidades y la protección a la inmensa biodiversidad existente. Se debe unir la conservación y el respeto por la biodiversidad, el conocimiento de los antepasados junto a los beneficios de prácticas útiles. Este proceso lo está desarrollando un proyecto de cooperación técnica de la FAO. (*Fuente: Programa de la Televisión Española [TVE] Informe Semanal*, 18 de junio de 2011.)

Videos on the Amazonian forests of Ecuador

A series of lectures on the Amazonian forests of Ecuador have been released on video as part of the educational series "Voices for Sustainable Forests", produced by TRAFFIC. The Spanish-language broadcasts, by 17 specialists in areas critical to the conservation and sustainable forest management of the Amazonian forests of Ecuador, are aimed at community radio, schools and the media.

It is wonderful to hear these experts speaking colloquially about the problems and solutions. What dilemmas do people face in their forests? What about indigenous territories, forest governance and the law? What ecosystem services do the forests provide? The videos cover the key topics, including the best policies and programmes of the Government of Ecuador today.

Moreover, the information contained in the videos is relevant to countries across the region as many of the challenges experienced in Ecuador are the same in other countries where the Amazonian forest is under threat. One of the next steps is to produce short online courses for members of the media who may know little about forests. Another is to seek inclusion of the videos in the National Teacher Training Programme: the Ecuadorian Ministry of Education has already purchased

400 copies of the two DVDs to be used in the programme.

The videos are available from: www.youtube.com/user/ConservacionEquidad#g/c/94EA7829C11139B8/ (*Source: Traffic Bulletin*, 23(2), April 2011.)

Forest fund to reward forest-dwelling communities

At the Amazonas Sustainable Foundation (FAS) centre in Tumbira – six hours by boat from Manaus, capital of the Amazonas state in Brazil – Professor Virgilio Viana and his colleagues are running a state-wide scheme called Bolsa Floresta (forest fund). The idea is to sign up and reward forest-dwelling communities for responsible, sustainable use of the rain forest. It provides the average participating family with BRL1 360 (about US\$850) of value/year. Nearly half of this is a monthly cash payment to housewives, another part goes to promote sustainable harvesting for forest products – Brazil nuts being the best known – and part is spent on health and education for local communities. A small amount is spent on building rudimentary business infrastructures so that forest communities can profit from sustainable business.

So far, over 8 000 families have benefited from this forest fund. It can and should be scaled up. But it is threatened by the faltering city economy of Manaus, which may see industry invading the Amazon rain forest. Declining opportunities and competing subsidies may move money and entrepreneurship back to the old ways, seeking resource-extracting profits and jobs. The cost of such a reversal would be huge – to Amazonas, Brazil and the world. (*Source: The Guardian* [United Kingdom], 28 June 2011.)



Pirapitinga

Giant fish help the Amazon rain forest grow

While researchers have studied the seed-dispersal capacity of such species as birds, bats, monkeys and rodents, fish are often overlooked.

Jill T. Anderson, a post-doctoral associate at Duke University (United States of America) is one of few researchers who have begun to connect the dots between massive fruit-

eating Amazonian fish, such as the weighty *tambaqui* (*Colossoma macropomum*), and the diversity and health of the Amazonian rain forest. In a 2009 study, Anderson and her colleagues studied two species of frugivorous (fruit-eating) fish in Peru, the *tambaqui* and the *pirapitinga* (both known as *pacu* fish). Picking through over a million seeds, they documented 44 species of seeds, including 36 from trees and lianas, from the guts of 195 individual fish.

A paper published by Anderson and other researchers this year outlines that the *tambaqui* are truly long-distance dispersers. "In our study, fish can carry seeds up to 5.5 km, although it is likely that larger (older) fish can disperse seeds much farther than that," says Anderson. According to research, the older the fish, the more effective it is at dispersing seeds; younger fish consume fewer fruits and disperse fewer viable seeds. Of course, this finding has implications for conservation, since older fish are vanishing from ecosystems because of overexploitation by locals. "[*Tambaqui*] is very important commercially. Fish is the primary source of protein for human populations throughout the Amazon, so it is not surprising that people would overfish a massively large fruit eater," Anderson says.

While humans have likely fished for *tambaqui* and other *pacu* for millennia, rising populations in the Amazon and increasingly easy access to once impenetrable places have pushed big fruit-eating fish into treacherous territory. A significant drop in the population or a loss of older individuals has the potential of impacting the diversity and abundance of the Amazonian rain forest. (*Source: Amazon News*, 12 April 2011.)

Partnership reinforces *copaiba* oil production chain in Brazil

July 2011 marked the beginning of a promising partnership in the municipality of Apuí, 408 km from Manaus, capital of the state of Amazonas. The Brazilian branch of the Swiss company Firmenich, which manufactures fragrances and aromas, has ordered its first purchase of *copaiba* oil produced in the interior of the municipality under a regime of sustainable forest management. The agreement, with the Aripuanã-Guariba Agri-extractive Association, negotiated in the first semester of 2011, was mediated by WWF-Brazil.

Copaiba is a stimulant oleoresin obtained from the trunk of several pinnate-leaved South American leguminous trees from the genus *Copaifera*.



La producción de la castaña amazónica en Bolivia

El árbol de la castaña (*Bertholletia excelsa*) es una especie no maderera de alto valor ecológico, cuya altura asciende a más de 20 m. Produce semillas comestibles, las cuales se conocen como castaña amazónica o "Brazil Nuts", mismas que en el país son extraídas y exportadas en un 99 por ciento.

La actividad de la explotación de la castaña representa más del 75 por ciento del movimiento económico de la zona norte de Bolivia. La importancia de la castaña no sólo radica en su aporte a la economía de la mencionada región sino también por su componente ecológico en la preservación de la selva amazónica, ya que su explotación permite frenar la depredación de los bosques.

La castaña amazónica es el fruto del árbol de la castaña que se encuentra en forma natural y silvestre solamente en los bosques amazónicos de Bolivia, Brasil, Perú, Guayana y Colombia; sin embargo, solamente en los tres primeros países se encuentra la castaña que se comercializa. En Bolivia existen condiciones aptas para el desarrollo del árbol de la castaña en un área extensa de la Amazonía que abarca más de 100 000 km² (un 10 por ciento de la superficie total del país). Bolivia ha mejorado paulatinamente la productividad de la castaña en el mundo.

El árbol de la castaña produce desde el mes de noviembre, en el que se encuentran los primeros frutos, pero es recomendable iniciar la zafra recién en la segunda quincena de diciembre. A pesar de las condiciones adversas, más de 15 000 familias se internan en el bosque y no vuelven hasta febrero o marzo. Desde marzo hasta diciembre se procede al beneficiado, la mano de obra que participó en la recolección se traslada a las plantas beneficiadoras, donde se requiere más de 5 000 puestos de trabajo. El proceso de recolección consiste en recoger y recolectar los cocos que se encuentran bajo los árboles, los cuales se desprenden de los árboles por maduración natural.

Posteriormente, se procede a cortar la parte superior de cada coco por donde se extraen las semillas; el corte se hace a mano con la ayuda de un machete. Una vez terminado este proceso se reúnen las castañas con cáscaras y se colocan en bolsas para ser transportadas a los payoles, que son precarios y rústicos galpones que sirven para protegerlas de la lluvia.

La castaña se transporta por diversos medios y lo antes posible a depósitos y silos de las beneficiadoras que reúnan condiciones de almacenamiento controladas.

Uno de los principales problemas que ocasiona la mala recolección y acopio es la contaminación con aflatoxinas que son metabolitos del hongo llamado *Aspergillus flavus*. Según estudios preliminares se cree que en ciertas concentraciones son cancerígenos y dañinos para la salud.

Áreas de aprovechamiento

La zona castañera de Bolivia se encuentra ubicada en el norte del país, comprende una superficie aproximada de 100 000 km², equivalente al 10 por ciento de la superficie total del país. Históricamente el Brasil ha sido el mayor productor de castaña, por lo tanto, el nombre con el que se conoce y comercializa en el mundo es "Brazil nuts" "paranuss" o "castaña do Pará". A partir del año 1996, Bolivia se convierte en el primer productor mundial de castaña, superando al Brasil. En 1999, Bolivia exportó 10 880 t contra 2 500 t del Brasil, representando el 73 por ciento del mercado mundial de la castaña. Prácticamente, el 99 por ciento de la producción nacional está destinada al mercado de exportación. En términos monetarios la producción de castaña pasó de 15,6 millones de dólares en 1990 a 31,3 millones en el 2000. La castaña se utiliza también en la industria pastelera como glacé (mazapán). (Fuente: Sitio de Amazonia Boliviana: www.amazonia.bo/)

Producción de carbón activado utilizando los productos forestales no madereros (PFNM) en alianza con comunidades de la Amazonía del Perú

Los objetivos de la industria de producción de carbón activado es: producir el mismo utilizando frutos de palmeras amazónicas que serán aprovechadas legalmente por comunidades organizadas. El aprovechamiento es sostenible a partir de los frutos de las tres palmeras sin valor comercial (no incluidas en CITES), en asociación con comunidades de la Amazonía, generando ingresos en las mismas por

abastecimiento de los frutos y demanda de mano de obra con participación de género.

El carbón activado, es de origen vegetal, el mismo viene activado a alta temperatura y retiene por absorción moléculas de compuestos diversos en su gran superficie interna. Este material se usa en recuperación de oro, para purificar alimentos, agua, alcoholes, cosméticos, etc.

Este carbón se produce usando las semillas de las palmeras amazónicas aguaje (*Mauritia flexuosa*), shapaja (*Scheelea* sp.) y shebón (*Attalea* sp.), apoyando la conservación de la Amazonía y el desarrollo sostenible en las comunidades socias. Se formalizará el aprovechamiento del bosque amazónico mediante la formación de una cadena productiva sobre la base de especies no madereras.

En el Perú existe demanda de las empresas, especialmente las mineras, las cuales deben demostrar su compromiso con la conservación del medio ambiente directa e indirectamente y al comprar carbón activado en los almacenes en Lima o en Iquitos adquirirán derecho al uso de los atributos comerciales del producto como son: apoyar la conservación de la Reserva Nacional Pacaya Samiria, el desarrollo sostenible de comunidades en la Amazonía y el comercio justo en la cadena productiva. Entre los compradores se encuentran la minería aurífera nacional, que consume el 91,5 por ciento de la demanda del Perú y que es abastecida por 5 empresas importadoras; la industria de purificación de agua, la agroindustria y otros que demandan el 8,5 por ciento restante.

El total de la demanda nacional es de 1,354 t, de las cuales se importan el 95 por ciento. (Fuente: BiD network foundation.)

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If we do not change our direction, we are likely to end up where we are headed.

Chinese proverb

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

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

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

(FAO's working definition)

BARCODING

Barcodes gather evidence to combat illegal trade in Kenya

The Kenya Wildlife Service (KWS) is already stretched thin protecting the elephants and big cats that draw the tourists. But even when it does manage to apprehend hunters and dealers in bushmeat, it is near impossible to obtain a conviction without irrefutable evidence. “KWS has been getting increasingly frustrated. It is just their word against the suspects who often claim they were only selling goat meat,” Iregi Mwenja, Kenya Country Director of the Born Free Foundation said.

But now, Mwenja says, DNA technology is being used to create barcodes from genetic material to facilitate the positive identification of wild meat, and ivory, using a database with samples of meat, hair or bone collected from a wide variety of animals in the region.

“The direct cause of wildlife decline is illegal hunting due to increasing population,” he said. Born Free and KWS recently carried out a study in butcher shops along a 200-km stretch of Kenya's main highway that runs from Nairobi to the Indian Ocean. Through the use of barcodes, they found that between 5 and 8 percent of the meat on sale was bushmeat.

The International Barcode of Life project and the University of Guelph in Ontario, Canada are sponsoring the data banks, and Kenya is supplying samples from its wildlife. Mwenja said the identification is so precise that it is possible to determine from which

area and herd the animals come. [Source: CIFOR, 13 June 2011.]

Mexico: barcoding biodiversity not free of risks, activists say

As the Barcode of Life project continues the work of sequencing specific segments of genes in Mexican animals and plants, there are some concerns about how to safeguard the biological samples collected from the threat of commercial exploitation.

Supporters of the initiative argue that the information gathered can lead to the discovery of new varieties, and to the better protection of biodiversity. But critics say big pharmaceutical and synthetic biology companies, which produce organisms with specific functions through genetic engineering, could exploit the data in the service of their own economic interests.

“The barcoding project is helping to document the country's biodiversity, so that better conservation management plans can be designed. If we do not know what species exist, we will not know what to protect,” said researcher Lidia Cabrera of the Biology Institute at the state National Autonomous University of Mexico (UNAM), who is also on the thematic network committee of Barcode of Life in Mexico (MexBOL).

Mexico is one of the five most biodiverse countries in the world, yet less than 1 percent of species have been barcoded. The project has already produced barcode sequences for about 20 percent of fish species, 70 percent of birds and close to 10 percent of plant species. Mexican scientists barcoded 6 000 samples in 2010.

“There are no safeguards whatsoever that apply to this area,” she complained to IPS. She was referring to the fact that the 1992 Convention on Biological Diversity lacks any regulations about artificial creations based on biological materials. [Source: International Press Service [IPS], 28 July 2011.]

The International Barcode of Life project (www.ibol.org) was launched in 2003 by the Biodiversity Institute of Ontario at the University of Guelph, Canada. The following year, a consortium for the project was created, made up of organizations from 43 countries. Mexico joined in 2009.

INSTANT TREE IDENTIFICATION IS NOW POSSIBLE

Botanists from the Smithsonian Institution (Washington, DC, United States of America) have helped develop a smartphone application that can identify tree species within seconds, using visual recognition software, and then share the location with a growing database of tree populations. After a user takes a photo of a leaf with his or her smartphone device, the so-called Leafsnap application (<http://leafsnap.com/>) searches a library of leaf photographs compiled by the Smithsonian Institution and almost immediately delivers high-resolution photographs of the likely species, along with information on flowers, fruits, seeds and bark.

In addition, the geographic data of that query is shared with a community of scientists tracking flora across the United States of America. The application will eventually provide a database of trees nationwide, said John Kress, a Smithsonian research botanist who developed the application with engineers from Columbia University and the University of Maryland. [Source: Yale Environment News 360, 9 June 2011.]

Wales (United Kingdom) to DNA “barcode” plants

Wales is set to be the first place to produce a DNA barcode for every one of its native flowering plants, scientists claim. The “Barcode Wales” project will aim to catalogue all 1 143 species of native flowering plants based on each plant's unique gene sequence.

This would mean that the tiniest fragment of leaf or pollen grain could be used to identify any plant in Wales. It would also allow scientists to understand better the plant's genetics. The information will help biologists to track the status of pollinating insects, such as bees. And the database itself could be used to test the authenticity of Welsh products, including honey, and help identify plant fragments in forensic examinations.

Dr Natasha de Vere from the National Botanic Garden of Wales is leading the study along with her colleagues, Dr Tim Rich from the National Museum Wales and Professor

Mike Wilkinson from Aberystwyth University. The team is taking on the substantial task of collecting samples from every species of Welsh flora. Using a combination of freshly picked plants and dried specimens housed in the National Museum Wales collections, they have gathered examples of all the "floral heritage" of Wales. The scientists have extracted and sequenced a section of the DNA code from each plant.

By comparing the DNA barcodes of modern-day plants with specimens from the Wales Natural History Museum, the team will be able to determine whether plants are losing their genetic variation. The results of the Barcode Wales project are due to be published this summer; the findings will be used to establish tailored conservation programmes for Welsh plants. The scientists hope eventually to extend the project to include the rest of the United Kingdom. (Source: BBC News [Wales], 7 April 2011.)



CONGO BASIN: CAN'T SEE THE WOOD FOR THE TREES? LOOK AGAIN

Export products such as timber dominate any superficial glance at the forests of the Congo Basin. Recent studies, however, argue that there is more to the forest – in this case of the second largest tropical forest in the world – than just its trees as export products.

A spate of recent publications highlight that massive hidden economies, mainly for domestic and regional consumption, are largely hidden or ignored. The latest *Forests of the Congo Basin: State of the Forest 2010*, an exhaustive biannual appraisal of the state of the region's forests, ecosystems, biodiversity, population and socio-economic situation, devotes a whole section to looking deeper into the forest and uncovering the large scale of commerce in four hidden products: fuelwood, bushmeat, NTFPs and domestic timber.

The chapter on NTFPs indicates that the vast majority of NTFPs used across the Basin provide important contributions for household food and medical needs, as well as for cultural use and as multiple tools. The sector is also a major employer, for example in Cameroon, where more people work in the trade of a handful of the major products than in the industrial timber sector.

Bushmeat is another lucrative trade. While exports to a hungry diaspora in Europe may previously have been underestimated, the domestic market in the Basin appears

much larger and remains largely unquantified. Many of the popular species of bushmeat traded are not captured either in national statistics or by international trade conventions such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Like other hidden forest products, bushmeat provides a vital source of nutrition, as well as providing significant employment and revenue for those involved in the trade. These conflicting aspects, however, have formed a contradictory crisis for conservation and development circles. (Source: CIFOR, 10 May 2011.)



CONSERVATION ETHNOBOTANY IN THE NORTH ATLANTIC

A survey was conducted across the Faroe Islands and Iceland with wild collectors, gardeners, farmers and chefs, with the support of the Partridge Foundation's Trans-Atlantic Partnership between the College of the Atlantic in the United States of America, the University of Kassel in Germany and the Organic Research Centre in the United Kingdom. The aim was to determine the extent, composition and function of uses of native species of terrestrial plants, algae and fungi in the region through the use of quantitative ethnobotanical methodology. By identifying culturally significant native species of terrestrial plants, algae and fungi, researchers in the study hope to show that the potential for conservation also increases.

The survey identified a total of 130 native species with cultural significance from 88 genera, including 99 native species of terrestrial plants (65 species of annual and eight species of perennial herbs, 15 species of perennial shrubs and 11 species of perennial trees), 20 native species of algae, ten native species of fungi, and one native

species of lichen. In Iceland, 109 native species were cited as culturally significant (CI [Cultural Importance] Index), whereas 57 were identified in the Faroe Islands. All respondents collected some wild species and 50 percent grew some native species in home gardens or commercially.

The proportion of all potentially usable native species with CI in the Faroe Islands and Iceland could, however, be much greater. Nevertheless, some native species of plants are known ubiquitously. Those most commonly used are *Angelica* spp. and *Betulla* spp., traditionally used for food and medicine and still used today for these purposes. A strong possibility for sustainable management of wild collection of these native species exists through expansion of organic certification.

The identification of cultural keystone species is hence paramount in their conservation. Looking at ways to increase the cultural importance and the number and types of uses by people living in an area will increase the likelihood that the natural areas where these species exist will be preserved. Culture and knowledge are dynamic, and this survey attempts to look at cultural uses of native plants while being mindful of the dynamism of cultural knowledge and the changes that are taking place in both ecology and culture.

Through the interviews and sample collections, it became apparent that there exists a conservation mentality in the culture of native plant collection and usage in the Faroe Islands and Iceland. People who tend to use native biodiversity also tend to have an appreciation and a conservation attitude towards that biodiversity. Many of the wild collectors are also activists and politically active change agents in the Icelandic and Faroese politics related to natural resources management.

A chef in Tórshavn in the Faroe Islands said that wild collection by his kitchen staff and others around Scandinavia is leading to a new paradigm of food in the North Atlantic. The movement is called the "Nordic Kitchen" and is leading to conservation efforts by chefs and food enthusiasts around the region to learn, preserve and utilize native species for traditional and innovative local dishes.

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Angelica spp.

ELEPHANTS, THE GARDENERS OF ASIAN AND AFRICAN FORESTS

Recently, researchers have begun to document the seed dispersal capacity of the world's largest land animal, the elephant, proving that this species may be among the world's most important tropical gardeners.

"In our paper we show that African forest elephants are the ultimate seed dispersers – they disperse vast numbers of seeds of a high diversity of plants in a very effective way [...] Asian and African savannah elephants also disperse many seeds [...] but seem to be less frugivorous [i.e. fruit-eating]," said Ahimsa Campos-Arceiz, coauthor of a recent paper in *Acta Oecologica* on African and Asian elephant seed dispersal.

Stephen Blake, the other coauthor, says that the behaviour of different elephant species, in this context, has more to do with habitat than species' preference.

Blake and Campos-Arceiz highlight in their study that some plant species may depend entirely on elephants for their dispersal, much as some orchids depend wholly on a single insect pollinator for propagation. "The best documented case is the relationship of *Balanites wilsoniana* and savannah elephants in Uganda. Several studies have found that elephants consume and disperse lots of *Balanites* seeds, and that no other animal disperses these seeds," explains Campos-Arceiz.

However, Blake adds that the "cumulative impact of elephant dispersal" is more important than their connection to one species: "a few trees declining because an elephant disappears is of course detrimental, but *Balanites* going extinct will be unlikely to have a massive impact on the forest ecosystem. However, elephants going extinct means that the competitive balance of many species, arguably over 100 in Central Africa, will be tipped in favour of species poor abiotically [i.e. wind-dispersed species]. That is the key point from an ecological perspective."

According to the researchers, Asian elephants spread seeds from 1 to 6 km, while in the Congo, forest elephants are capable of spreading seeds as far as 57 km.

Despite their ecological importance, elephants in Asia and Africa are threatened. While some populations of savannah elephants in Africa are stable, Blake says Africa's forest elephants – the world's biggest frugivores – are in "steep decline due to poaching". [Source: www.mongabay.com, 25 April 2011.]

EXPANSION OF PEOPLE-CENTRED FORESTRY

The Second Regional Forum on Community Forestry, Key to Solving Current and Emerging Challenges, which took place earlier this month in Bangkok, Thailand, discussed the further expansion of people-centred forestry in the years ahead. A broad range of social and community forestry issues were addressed, from the origins of the movement and government decentralization to gender equity and REDD+. In a keynote speech, the Association of Southeast Asian Nations (ASEAN) Social Forestry Network Secretariat Chairperson Haryadi Himawan emphasized the important role of local people in sustainable forest management and the importance of supporting the livelihoods of some of the poorest and most vulnerable populations in Asia.

Francisco Chapela from Rainforest Alliance reported that nearly all remaining forestland in Mexico and Guatemala is managed by indigenous people, who have an incentive to conserve their forest resources.

A "Knowledge Fair" highlighted local and country-specific experiences and lessons learned in community forestry. Forum participants drafted a call for action, which will be released soon for action at other fora to mark the International Year of Forests and at the Durban climate conference. [Source: *Traditional Knowledge Bulletin*, 16 August 2011.]

FORESTS AND FOOD SECURITY: WHAT WE KNOW AND NEED TO KNOW

The importance of forest-based emissions as a driver of climate change is one of the most indirect and hard-to-prove causal pathways linking forests and food security; most linkages between forests and food security are more direct and more easily grounded in empirical research.

We know, for example, that forests and trees make significant direct contributions to the nutrition of poor households. A 2008 review of the literature on bushmeat – conducted by the Center for International Forestry Research (CIFOR) and the Secretariat of the Convention on Biological Diversity – affirmed that rural communities in Central Africa obtain a critical portion of protein and fat in their diets through hunting wildlife in and around forests. The



5 to 6 million tonnes of bushmeat eaten yearly in the Congo Basin is roughly equal to the total amount of beef produced annually in Brazil – without the accompanying need to clear huge swathes of forest for cattle. Globally, forested watersheds, wetlands and mangrove ecosystems support the freshwater and coastal fisheries on which many communities depend. And that is in addition to the many fruits, nuts, grubs, mushrooms, honey and other edibles produced by forests and trees.

Equally important, forests provide an essential source of cash income to purchase food, especially during poor harvests. Results from CIFOR's Poverty and Environment Network project – which has recently published a database of income survey results from some 6 000 households – confirm that families living in and around forests derive on average between one-fifth and one-fourth of their income from forest-based sources.

But my feeling is that the most underappreciated – and perhaps most under-researched – linkages between forests and food security are the roles that forest-based ecosystem services play in underpinning sustainable agricultural production. Forests regulate hydrological services including the quantity, quality and timing of water available for irrigation. Forest-based bats and bees pollinate crops. Forests mitigate impacts of climate change and extreme weather events on the landscape scale.

The nature and significance of many of these linkages remain contested; one of the most controversial studies ever published by CIFOR was the 2005 report in collaboration with FAO that questioned the linkage between forest cover and major floods. Tantalizing findings on the impact of native pollination services on the size, quality and/or stability of harvests for 70

percent of global crops suggest the potential significance of forests on agriculture at the farm level. Projections of the potentially devastating consequences of reduced rainfall on Brazil's booming agricultural sector because of deforestation in the Amazon are sufficient to focus the attention of national policy-makers with or without REDD+ revenues.

Reports produced by the Economics of Ecosystems and Biodiversity (TEEB) initiative are only the most recent in a series of attempts to assign price tags to ecosystem services, including those provided by forests.

Reasonable people may disagree over the relative priority of further empirical valuation studies versus research on shaping institutions to govern payments for such services and allowing markets to determine prices. And the potential of REDD+ payments to improve climate security, the focus of much current forestry research attention, is certainly relevant to this challenge. Faced with rising food prices, political instability and the impending need to feed an estimated 3 billion more people by 2050, we also urgently need to accelerate the complementary research agenda on the relationship between forests and food security. (Source: Frances Seymour, CIFOR Director-General, 20 April 2011.)

GENERATING INCOME FROM FORESTS AND TREES

Food insecurity is generally related to poverty and limited opportunities for employment or income generation. Income from forests and from trees on farms can make a significant contribution to rural households and their food security. Some households in Mozambique, for example, obtain 30 percent of their income from unprocessed forest products such as fuelwood, fruits, mushrooms, insects, honey and medicinal plants.

Women play an important role in the processing of tree and forest products. Given their responsibilities for ensuring food security at the household level in many parts of the world, income generated from such activities is often an important means of providing food for the family.

Ironically, in many cases the tropical areas that are richest in forest resources are the poorest, because of their

remoteness and low levels of external investment. The collection, processing and sale of forest products (or activities involving non-consumptive use of forests such as ecotourism) are often among the few income-generating opportunities available in these areas.

The creation of small or medium-sized forest-based enterprises can help secure better market access and share, or add value to harvested products. Many small-scale enterprises are based on NWFPs. They are particularly important in arid and semi-arid areas where agricultural production is more vulnerable to external threats such as drought or extreme weather events.

The collection and sale of gum arabic (from *Acacia senegal* and *A. seyal*) in 17 countries across dryland Africa is an example of how NWFPs are increasingly integrated into global markets. Four processors in the United States of America and Europe account for about 70 percent of world trade in raw gum, which is then processed and resold as additives for the food and drinks industry. Between 2003 and 2007, the European Union imported 200 000 tonnes, valued at close to US\$432 million. Establishing local processing and value-addition measures could help producer countries realize an increased market share of this lucrative trade.

Harvesting of NWFPs must be managed and regulated in order to be sustainable. However, regulations governing the harvesting of forest products, as well as related permits, licences and taxes, are often complex, and in order to compete effectively, small enterprises may be forced to operate without the required paperwork. Weak or selective enforcement of existing regulations can foster unsustainable harvesting of NWFPs and create unfair competition for small enterprises.

Small-scale forest enterprises generally operate in the informal sector, and their contribution to the economy is often "hidden", in contrast with larger-scale private-sector activity such as timber harvesting. National reporting and statistics on forestry or trade rarely capture the contribution of NWFPs. *FAO's Global Forest Resources Assessment 2010* reports that the value of NWFP harvesting was about US\$18.5 billion in 2005, but notes that this is probably a significant underestimation of its true value. (Source: FAO, 2011. *Forests for improved nutrition and food security*. Rome.)

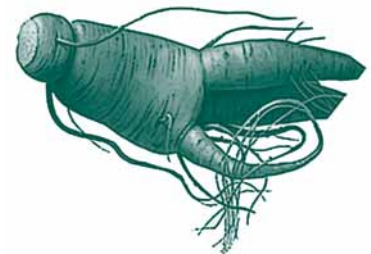
HERBAL CUISINE

Few would like the idea of adding medicine to food but, for the Chinese, sometimes food is medicine, and adding natural herbs to dishes may mean the creation of a gourmet dish with healthy benefits.

Some of the ingredients often used this way include ginger, ginseng and angelica root. For instance, ginger is often infused in boiling water to create a home cure for mild throat infections or to prevent the onset of a cold. Ginseng is slowly stewed with chicken to replenish energy (or *qi*) deficiency. Angelica is a popular tonic herb, often added to a ginger and mutton stew to make a warming winter soup. *Rou cong rong*, or *cistanche*, is a parasitic root plant produced in the deserts of Xinjiang and Inner Mongolia. Locals dub it "desert ginseng", and cook it with mutton and beef to strengthen the kidneys, as a natural aphrodisiac for men.

Such healthy cooking has given rise to a genre of restaurants that specialize in herbal cuisine. At Herbal Cuisine Kitchen, for instance, there is fungus on the menu, including the celebrated lacy bamboo fungus, slowly braised with turtle skirts and *ganoderma*. *Ganoderma* is credited with all sorts of health-giving properties from just good-for-you to anticarcinogenic. It is a tonic soup very suitable for every season.

The use of herbs in food has generated some recent controversy. For example, wild ginseng may be too strong a tonic for some, and pregnant women should avoid saffron. (Source: *China Daily*, 17 July 2011.)



IN THE MANAGEMENT OF FORESTS, GENDER MATTERS

At the recent Poverty and Environment Network (PEN) Conference in London, "Counting on the Environment", some interesting results related to the gender differentiation of roles related to rural livelihoods were presented. Aggregating global data from 36 long-term studies of

forest-proximate communities in 25 countries, representing more than 8 000 households, it was possible to determine just who does what in contributing to the family's well-being and what value forest products represent in the livelihood strategies of local people.

There are many assumptions about the role of men and women in contributing to the household economy in rural societies. The first of these is that men are more likely to be engaged in the generation of cash income from NTFPs, while women tend to collect forest products for direct household use. As such, it is therefore assumed that women rely far more on forest products than do men. But is this really the case?

In order to understand the importance of gender, the PEN global data set was used to assess within-household gendered differences: (i) in the consumption and sale of forest products; and (ii) in the reliance of processed and unprocessed forest products.

This was able to be done accurately because during the data collection process, information was gathered on who collected what (e.g. male, female, child) and what forest product was actually harvested. To check whether patterns of forest product use are consistent across regions, the analysis was conducted at the global and regional levels. Taken together, the results are somewhat surprising.

Almost without exception, the most able-bodied members of the household (men, women and children) do indeed participate in the collection and processing of forest resources. These include a wide range of products from rattan to resin, fruits to forage, medicines to matting. However, what is surprising is the level of gender specialization in the collection and processing of forest products: put simply, men and women tend to collect different forest products.

Contrary to popular wisdom, the value of forest products collected by men surpasses the value of those collected by women. It was also found that women tend to specialize in the collection and processing of forest products that are used for subsistence, whereas men tend to specialize in the harvest of forest products for sale.

There are important regional differences in this overall pattern. In the Latin American cases, the value of unprocessed forest products collected by men considerably surpasses the value of those collected by women. In the Asian cases, the value of unprocessed forest products collected by

men and women is less marked and in the African cases, the value of unprocessed products collected by women is larger than the value of those collected by men. On all three continents, however, men tend to play a more predominant role in the processing and sale of forest products and generate the greatest income. Despite assertions to the contrary, the male members of rural households really are doing their bit for the household economy!

So what does this all mean? The regional differences suggest there is no neat "one size fits all" policy for gender-oriented research or NTFP-focused development interventions. The highly specialized gender differentiation evident from this research suggests that locally focused gender-responsive forestry policies and programmes should explicitly take into account the opinions, needs and interests of both genders. [Source: Terry Sunderland in CIFOR Forests Blog, 23 July 2011.]



LES EXPERTS EN PRODUITS FORESTIERS NON LIGNEUX D'AFRIQUE CENTRALE SE SONT RÉUNIS DANS LE CADRE DE L'ANNÉE INTERNATIONALE DES FORÊTS 2011

«Des forêts pour les populations», tel est le thème principal de l'Année internationale des forêts, qui met en évidence la relation dynamique entre les forêts et les personnes dépendant de celles-ci. Les forêts fournissent des produits forestiers ligneux et des produits forestiers non ligneux (PFNL), aussi les dialogues multipartites proposés dans le cadre de cette année à leur enseigne s'inscrivent-ils dans les missions du Sous-groupe de travail PFNL (SGT-PFNL), créé en mars 2011 par la Commission en charge des forêts d'Afrique centrale (COMIFAC) au sein

du Groupe de travail biodiversité de l'Afrique Centrale (GTBAC).

En vue de contribuer à l'Année internationale des forêts, à travers le SGT-PFNL/GTBAC et avec l'appui de la FAO, la COMIFAC a regroupé du 25 au 28 juillet 2011, à Boali, République centrafricaine, des acteurs d'Afrique centrale concernés par les PFNL. La rencontre a ainsi rassemblé des experts en PFNL provenant du Gabon, du Cameroun, du Congo, de la République démocratique du Congo et de la République centrafricaine, affiliés à des institutions de développement et de recherche gouvernementales et non gouvernementales, telles que la Communauté économique des États d'Afrique centrale (CEEAC), le Centre mondial d'agroforesterie (ICRAF), l'Organisation néerlandaise de développement (SNV), le Centre pour la culture en pépinière et la propagation de l'éru (CENDEP), Bioversity International, TRAFFIC ou DONAVAL, ainsi que des producteurs et commerçants locaux, et des représentants de populations autochtones.

Cette première réunion du Sous-groupe de travail PFNL a permis de capitaliser les expériences visant à renforcer la contribution des PFNL dans la lutte contre la pauvreté et l'accroissement de la sécurité alimentaire, notamment à travers (i) la domestication des espèces, (ii) l'introduction d'un système d'information sur les marchés au Cameroun, (iii) le développement des petites et moyennes entreprises forestières, (iv) la formulation de *Directives sous-régionales relatives à la gestion durable des produits forestiers non ligneux d'origine végétale en Afrique Centrale* de la COMIFAC et (v) l'élaboration de stratégies nationales et de plans d'action sectoriels. Les participants ont reconnu qu'il revient à toutes les parties prenantes de vulgariser les approches existantes, afin de les rendre plus visibles et de les mettre en œuvre dans divers pays du bassin du Congo.

Dans l'orientation politique définie pour les pays membres, le Plan de convergence de la COMIFAC met un accent particulier sur les PFNL et leur importance dans la lutte contre la pauvreté et l'insécurité alimentaire, et ce à travers huit de ses 10 axes stratégiques. Or, l'examen critique des Plans de travail annuel (PTA) des ministères en charge des forêts des pays représentés à la réunion a fait ressortir un manque de prise en compte des PFNL dans la plupart des PTA, ainsi que l'absence de plans d'opérationnalisation du Plan de convergence. Les participants ont ainsi recommandé l'élaboration de ces derniers.

Enfin, l'importance politique des PFNL devrait aussi se refléter dans les organigrammes des ministères, que ce soit au niveau des Directions comme au Gabon ou au niveau des Services comme au Cameroun et au Congo.

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(Please see page 59 for more information on this project.)



NON-PROFIT ORGANIZATIONS AND NGOS

Rainforest Alliance

The Rainforest Alliance works to conserve biodiversity and ensure sustainable livelihoods by transforming land-use practices, business practices and consumer behaviour. The organization believes that the best way to keep forests standing is by ensuring that it is profitable for businesses and communities to do so. This means helping farmers, forest managers and tourism businesses realize greater economic benefits by ensuring that ecosystems within and around their operations are protected, and that their workers are well trained and enjoy safe conditions, proper sanitation, health care and housing. Once businesses meet certain environmental and social standards, the Rainforest Alliance links them up to the global marketplace where demand for sustainable goods and services is on the rise.

The Rainforest Alliance supports NTFP research through its Kleinhans Fellowship for Non-Timber Forest Products, and by certifying a broad range of NTFPs to the standards of the Forest Stewardship Council.

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FOR MORE INFORMATION, PLEASE CONTACT:

Rainforest Alliance, 665 Broadway, Suite 500, New York, NY 10012, United States of America. E-mail: info@ra.org; www.rainforest-alliance.org/ (Please see page 71 for more information on the Kleinhans Fellowship.)

WildlifeDirect

WildlifeDirect, a Kenya and United States of America-registered charitable organization, was conceived as a non-profit conservation organization along the lines of an Internet

start-up company. The organization was built to secure efficient conservation management in parks, reserves and other conservation areas throughout the world.

In 2004, a group of committed conservationists, led by Dr Richard Leakey, became convinced that current developments on the Internet provided the best opportunity for securing a future for wildlife: an approach that could harness the collective energy of countless good conservationists and combine it with millions of individuals around the world who have a genuine concern for the future of the planet's wildlife and unique habitats. These people would connect through the Internet to create a movement powerful enough to produce a virtual endowment capable of reversing the catastrophic loss of habitats and species.

WildlifeDirect was thus established in 2006 to provide support to conservationists in Africa directly on the ground via the use of blogs, which enable anybody, anywhere to play a direct and interactive role in the survival of some of the world's most precious species.

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FOR MORE INFORMATION, PLEASE CONTACT:

WildlifeDirect Inc., 306 5th St SE, Washington, DC, United States of America 20003 or Africa Conservation Fund (Kenya), PO Box 24467, Karen 00502, Nairobi, Kenya.

E-mail: info@wildlifedirect.org;

<http://wildlifedirect.org/>



NON-WOOD GOODS IN EUROPEAN FORESTS

Temperate and boreal forests are a traditional source not only for timber but also for many products that have been extracted from forests, including resin, tannin, fodder, litter, medical plants, fruits, nuts, roots, mushrooms, seeds, honey, ornamentals and exudates. In many parts of central Europe, forest sites became subject to nutrient imbalance because they were used for grazing and for extracting litter. Over time, the utilization of non-timber products became marginalized as management objectives shifted to timber production. The shift has been driven by different processes: the increasing estrangement of local people by an increasing disregard of subsistence use and small-scale rural industries, technological substitution, intensification of agricultural production and prosperity development.

Today, there is an institutional rediscovery of the value of forest products and services

other than timber. The socio-economic contribution of forests to livelihoods and the impact of their use on the environment are essential components of modern concepts for sustainable forest management. The integration of the assessment of non-wood goods (NWGs) in extensive forest surveys causes problems as most NWGs are site specific, depend on spatial distributions and may be of only local importance.

Indicator 3.3 Non-wood goods in the *State of Europe's Forests 2011* covers the value and quantity of marketed NWGs from forest and other wooded land. For reasons of consistency, NWGs harvested for self-consumption and other forms of uses are excluded, even if they could represent a substantial part of the total amount of harvested NWGs. In the available data sets, the main NWGs identified are as follows: Christmas trees, mushrooms and truffles, fruits and berries, cork, medicinal or colorant products, ornamental plants, seeds of forest tree species, game products and honey.

The total value of NWGs reported has almost tripled since the 2007 assessment. This is partly because of improved reporting. However, NWGs are an important source of income and their share of the total economic value generated by forests is increasing. In 2010, Christmas trees, fruits and berries, and cork were the most important NWGs. The total value of marketed NWGs represented 15 percent of the roundwood value when comparing countries reporting both values.

Status and trends

Quantities and/or values of marketed NWGs were provided by 33 countries. The available data sets are fragmentary for several reasons: the utilized assessment measures for quantity are not harmonized and render it difficult to compare data; collecting data on NWGs is costly; and most countries collect data only for specific NWGs that are of local significance. As the importance of NWGs differs among countries, a holistic view of all types of NWGs across Europe is difficult to obtain. However, the reported data clearly show that NWGs can be an important source of income at the local level (see Table 1).

TABLE 1. QUANTITY AND VALUE OF MARKETED NWGS: MARKETED PLANT PRODUCTS

Region	Christmas trees		Mushrooms and truffles		Fruits, berries and edible nuts		Cork		Resins, raw material for medicine, aromatic products, colorants and dyes		Decorative foliage, incl. ornamental plants (mosses ...)		Other plant products
	Quantity 1 000 pcs	Value €1 000	Quantity tonnes	Value €1 000	Quantity tonnes	Value €1 000	Quantity tonnes	Value €1 000	Quantity tonnes	Value €1 000	Quantity tonnes	Value €1 000	Value €1 000
Russian Federation	6	4	9 332	21 006	49 053	105 501	-	-	5 059	7 861	-	2 240	3
North Europe	17 162	132 104	4 428	12 493	52 231	15 107	-	-	882	182	400	58 824	-
Central-West Europe	38 850	733 900	732	14 550	239	883	1 550	775	145	32	1 581	7 202	55 231
Central-East Europe	1 542	2 830	29 935	10 587	61 362	28 132	-	-	957	1 621	350	1 802	106
South-West Europe	-	110 828	366 873	124 161	208 236	299 574	167 665	323 850	7 351	2 364	-	-	7 997
South-East Europe	631	377	17 398	11 283	5 056	10 296	-	-	17 368	12 476	37	921	408
Europe	58 193	980 043	428 699	194 081	376 178	459 494	169 215	324 625	31 762	24 536	2 368	70 989	63 745
Europe without Russian Federation	58 187	980 039	419 367	173 075	327 125	353 993	169 215	324 625	26 703	16 675	2 368	68 749	63 742

Because of the differences in reference units (e.g. weight, volume, number or price), the following remarks relate not to quantity but to the value of NWGs. The total value that was reported for NWGs reaches almost €2 763 million for the entire FOREST EUROPE region, of which €2 116 million are marketed plant products and €648 million are marketed animal products. The need for further processing differs significantly among individual NWGs; as a consequence, for some products, the marketed value of NWGs generates only marginal income for the forest owners as most of the marketed value is related to processing.

"Christmas trees", "fruits, berries and edible nuts", and "cork" are the three categories of NWGs for which the highest total values were obtained. In 2010, the reported values for these NWGs represented 83 percent of the total value of marketed NWGs in the FOREST EUROPE region.

The highest shares in the value generated by NWGs are tied with the Central-West (€813 million) and the South-West Europe region (€869 million). Lowest shares are reported for the South-East (€35 million) and the Central-East (€4 million) Europe region.

In 2010, €980 million were realized by the marketing of Christmas trees, with highest values reported for Central-West Europe (€734 million) and North Europe (€132 million). Christmas trees account

The State of Europe's Forests 2011: Status & Trends in Sustainable Forest Management in Europe provides an overview of the status and trends of forests and sustainable forest management in Europe in the period 1990–2010. The report covers the 46 FOREST EUROPE signatory countries and the European Union. Major parts of Europe's forests are located in the Russian Federation, accounting for almost 80 percent of the region's total forest area. The Russian Federation is therefore presented as a separate country group.

for 34 percent of the total reported value of NWGs; 25 countries reported data on Christmas tree production. In Croatia, Denmark and Germany, harvested quantities exceeded 10 million pieces; the whole production in FOREST EUROPE countries amounted to 58 million Christmas trees. Values above €100 million from Christmas tree production were realized in Denmark, France, Germany and Spain.

Data on mushrooms and truffles were provided by 24 countries and account for

9 percent (€194 million) of the total value generated by NWGs. Central-East Europe shows the lowest value obtained for mushrooms and truffles but the second highest quantity (30 million tonnes) after South-West Europe (367 million tonnes). Italy is by far the most important producer of mushrooms and truffles, with a share of 357 million tonnes or 83 percent of the total quantity.

Information on the quantity of fruits, berries and edible nuts was reported by 23 countries, and on their value by 17 countries. In the reporting countries, harvested fruits, berries and edible nuts amounted to 376 000 million tonnes, or €459 million. The main producers in quantitative terms were Italy (116 million tonnes), Spain (70 million tonnes) and the Russian Federation (49 million tonnes); in terms of value, the main producers were Italy (€187 million), the Russian Federation (€106 million), Spain (€60 million) and Portugal (€34 million).

Data on cork production, which is limited to the Mediterranean region, were provided by France, Italy, Portugal and Spain. Portugal was the most important producer of cork and reports a production of 100 million tonnes with a value of €203 million. The production in Spain (62 million tonnes; €111 million), Italy (6 million tonnes; €9 million) and France (1.6 million tonnes, €0.7 million) was considerably lower.

TABLE 2. QUANTITY AND VALUE OF MARKETED NWGS: MARKETED ANIMAL PRODUCTS

Region	Game meat		Living animals		Pelts, hides, skins and trophies		Wild honey and beeswax		Raw material for medicine, colorants		Other animal products
	Quantity tonnes	Value €1 000	Quantity 1 000 pcs	Value €1 000	Quantity 1 000 pcs	Value €1 000	Quantity tonnes	Value €1 000	Quantity tonnes	Value €1 000	Value €1 000
Russian Federation	16 945	16 945	16 945	16 945	16 945	16 945	16 945	16 945	16 945	16 945	16 945
North Europe	33 535.2	5 791	-	-	47 316	345.5	-	-	-	-	-
Central-West Europe	42 264	217 505	-	-	28 700	6 738	10 150	25 616	-	-	1 340
Central-East Europe	23 903.4	15 117	3 117	1 221.2	50 358.6	2 136	-	-	160	1 115	2 461.1
South-West Europe	2 634	149 537	-	-	-	-	37 869	101 088	-	-	-
South-East Europe	2 368.31	4 266.5	-	-	6 526.3	8 439.16	4 275	3 660	-	-	-
Europe	121 650	409 162	20 062	18 166	149 846	34 604	69 239	147 309	17 105	18 060	20 746
Europe without Russian Federation	104 705	392 217	3 117	1 221	132 901	17 659	52 294	130 364	160	1 115	3 801
EU-27	121 650	394 457	3 117	1 221	126 032	16 679	47 469	119 704	160	1 115	1 366.1



Data on the three categories "Resins, raw material–medicine, aromatic products, colorants and dyes", "Decorative foliage, incl. ornamental plants", and "Other plant products" were provided by 23 countries ("Resins, etc.": 13 countries; "Decorative foliage": nine countries; "Other plant products": ten countries). The total value of these three categories comprised approximately €160 million. Among the countries reporting, the highest values were generated for decorative foliage in Denmark (€58 million), for other plant products in Germany (€54 million) and for resins, raw material – medicine, aromatic products, colorants and dyes in Turkey (€10.6 million) and the Russian Federation (€7.9 million).

The quantity and value of different types of marketed animal products are presented in Table 2.

Game comprises all hunted birds and mammals, such as partridge, pheasant, hare, deer, wild boar and chamois. The figures presented include game whose habitats are forest related or forest dependent. Excluded is game roaming on farms. Data on game harvest, meat and hides were reported by 23 countries for the quantity and 19 countries for the value. In many countries, the commercial sale of game meat is an important economic activity. Among the reporting countries, Germany was by far the highest producer of game meat in terms of value (€180 million). Of the reported value of non-wood products, game made up €409 million (14 percent of NWGs) for all responding FOREST EUROPE countries.

Honey and beeswax production was mentioned by nine countries for quantities.

The other categories of marketed animal products contributed approximately 3 percent to the total value generated by NWGs.

The value of NWGs has almost tripled since the last *State of Europe's Forests* report in 2007. However, this increase is partly an artefact due to the rising information needs on NWGs and respective increase of assessment activities. Thus no trend for NWGs is presented. (Source:

Forest Europe, UNECE and FAO, 2011. *State of Europe's Forests 2011: Status & Trends in Sustainable Forest Management in Europe.*)

(Please see page 69 for more information.)

RECONCILING SELECTIVE LOGGING WITH THE LIVELIHOOD IMPORTANCE OF NTFPS

The potential for combining timber and non-timber forest product extraction has been examined in the context of diversified forest management; a new study reviews this question from the livelihood perspective.

Many tropical forests are exploited both commercially for timber and by forest-dependent communities for NTFPs. Divergences between these two uses may have significant implications for forest-dependent livelihoods. Existing examples of conflicts and complementarities between selective logging and non-timber uses of forests were assessed from the livelihood perspective. Case studies from Brazil, Cameroon and Indonesia were also used to examine by what mechanisms, and to what extent, logging impacts forest resources of livelihood importance, as well as to consider how factors such as logging regime and forest management system may mediate such influences. The study identifies four

specific mechanisms, with conflict of use and the indirect impacts of logging being those most commonly implicated in negative effects on livelihood-relevant NTFPs.

The majority of reviewed studies highlighted negative impacts on NTFP availability with examples of positive impacts restricted to light-demanding species that respond to the opening of forest structure. Such species typically represent a small subset of those of livelihood value.

Despite considerable impacts on livelihoods, in all three case studies there was evidence to support the potential for enhanced compatibility between timber extraction and the subsistence use of NTFPs. The results of the studies have significant implications for reconciling timber and non-timber uses of tropical forests with recommendations generated for research, policy and management implementation. (Source: L. Rist, P. Shanley, T. Sunderland, D. Sheil, O. Ndoye, N. Liswanti and J. Tieguhong. *The impacts of selective timber harvest on non-timber forest products of livelihood importance. Forest Ecology and Management*. (in press) **Contributed by:** Lucy Rist, Ecology and Environmental Sciences, Umeå universitet, SE-901 87 Umeå, Sweden. E-mail: lucy.rist@emg.umu.se; www.futureforests.se/)

REFORMING FOREST TENURE SYSTEMS

Reforming forest tenure systems and securing forest ownership rights can significantly improve peoples' livelihoods and enable them to gain income from forest products, FAO stated in a newly published guide, *Reforming forest tenure*.

"The continuing demand for land, weak governance in many countries, and emerging global challenges such as climate change increase the urgency of addressing forest tenure reform," said Eva Muller, FAO's Chief Forest Policy Officer.

The guide was launched at the Forest Tenure, Governance and Enterprise Conference taking place in Lombok, Indonesia, from 11 to 15 July. Attended by around 200 representatives from international and regional organizations, the private sector, NGOs, civil society and researchers, the conference was coorganized by the Indonesian Ministry of Forestry (MOF), the International Tropical Timber Organization (ITTO) and the Rights and Resources Initiative (RRI).

In recent years, FAO has carried out extensive assessments of forest tenure systems in Africa, Southeast Asia, Latin America and Central Asia and their impact on sustainable forest management and poverty reduction. Based on this analysis, the guide offers practical guidance for policy-makers involved in forest tenure reforms.

According to FAO, around 80 percent of the world's forests are publicly owned, but forest ownership and management by communities, individuals and private companies are increasing, more in some countries than in others.

In the Bolivarian Republic of Venezuela and French Guiana, for example, almost all forests are under public ownership, whereas in Paraguay, Honduras, Guatemala, Costa Rica and Chile more than 30 percent of forests are under private ownership. In Peru, Guyana and Costa Rica, more than 10 percent of forests are owned by indigenous people.

"A more diversified tenure system could result in improving forest management and local livelihoods, particularly where state capacities to manage forests are weak," said Muller. (Source: FAO News, 13 July 2011.)

WORLD SACRED FORESTS MAPPED OUT

A team of scientists from the University of Oxford, United Kingdom, are working on a world map that shows all the land owned or revered by various world religions. This "holy map" will display all the sacred sites from Jerusalem's Western Wall, to Masjid al-Haram in Mecca, to St Peter's Basilica in the Vatican City. Just as interesting, the map will also show the great forests held sacred by various religions. Within these protected lands exist a wide variety of life and high numbers of threatened species.

The sacred land mapped out by the Oxford researchers is not necessarily owned by a certain religious community, but rather contains sacred connotations. They estimate that about 15 percent of all land on Earth is "sacred land", and 8 percent of all land is owned by a religious community. Much of the land held sacred is forest.

The Oxford researchers – from the Biodiversity Institute in the Oxford Martin School – are focused on determining the value of this land in terms of biodiversity.

Many of the sacred forests are managed by the local community, yet receive no formal protection. The researchers hope that their scientific study will help guarantee official protection from regional and national governments.

Initially, efforts were only made to map out land controlled by the large mainstream religious groups. Teaming up with the Alliance of Religions and Conservation (ARC), the Oxford researchers decided to investigate religious land controlled by all groups. The new initiative is already under way, since the team has planned visits to areas in India, Ghana, Japan and elsewhere.

The first step in the team's research is to delineate the location of the sacred land by investigating the boundary lines. The status of the land and its borders must be known before a biodiversity assessment can take place. The researchers will also assess the land's value in carbon dioxide absorption and its abundance of medicinal plants, as well as the value to the local people.

"We urgently need to map this vast network of religious forests, sacred sites and other community-conserved areas to understand their role in biodiversity conservation," said Dr Shonil Bhagwat, on the research team. "Such mapping can also allow the custodian communities, who have protected these sites for generations, to secure their legal status." (Source: Environmental News Network, 1 August 2011.) 🌿



Enthusiasm is the inspiration of everything great. Without it no man is to be feared, and with it none despised.

Christian Nevell Bovee



Regional housing forum hears how bamboo can build disaster-resilient homes and livelihoods

A major regional gathering of government leaders, policy-makers, academics, activists and community groups has heard how bamboo can play an important role in protecting and safeguarding the homes and communities of those most vulnerable to natural disasters and a changing climate. The 3rd Asia Pacific Housing Forum brought together over 700 participants from governments, NGOs, the private sector, academia and civil society to share knowledge and best practices.

"Bamboo is highly renewable, immensely strong, lightweight, pliable and affordable," said Nripal Adhikary, from the International Network for Bamboo and Rattan (INBAR), speaking at the forum in Bangkok, Thailand. "It is also abundantly available all over the Asia-Pacific region, so bamboo has enormous potential to provide safe, affordable, disaster-resistant housing for those who need it the most."

However, Adhikary warned that there are still significant gaps in knowledge and technical challenges to overcome if bamboo is to offer a genuine solution to the global problem of substandard housing. He pointed specifically to the need for sustainable harvesting, proper treatment, appropriate joinery and craftsmanship, and supportive policies.

But housing is not the only way this woody grass can reduce vulnerability. "Bamboo builds livelihoods," said Adhikary. "It can be cultivated with minimal agricultural inputs and be processed into many hundreds of products, often with little capital investment. So building bamboo supply chains can offer a diverse, reliable and sustainable source of income for farmers, processors, artisans, construction workers and entrepreneurs."

"With nearly 70 percent of people affected this year by natural disasters located in the Asia-Pacific region, and 60 percent of the world's slum population living here, safe and secure housing has to be a number one priority," said Charlie Ayco, Habitat for Humanity International's Asia-Pacific Director for Program Development and Support. "Building with bamboo can enable local action and provide a good example of the innovative thinking that's needed to deliver quality housing for the poor," he added. For example, INBAR has been working with partners in Sichuan province, China, to strengthen the local bamboo industry in the wake of the 2008

earthquake (see Box). (Source: INBAR, 8 September 2011.)

FOR MORE INFORMATION, PLEASE CONTACT:

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HOW BAMBOO IS HELPING TO REBUILD SICHUAN PROVINCE, CHINA

Almost three years to the day since China's Sichuan province was hit by one of history's most devastating earthquakes, the President of the European Council, Herman Van Rompuy, has experienced first-hand the important and innovative role that bamboo is playing in helping to rebuild shattered communities.

On Sunday 15 May, President Van Rompuy visited a bamboo production forest in Hongguang village, Dujiangyan, and a bamboo training and demonstration centre at the Dujiangyan campus of Sichuan Agricultural University. Dujiangyan is one of eight sites for the project, "Eco-Friendly, Pro-Poor Bamboo Production", which is strengthening the local bamboo industry in order to build socially and environmentally sustainable economic growth in the region. The project aims, moreover, to revive local livelihoods in post-disaster Sichuan, through the promotion of economic, sustainable and ecofriendly consumer goods and construction materials.

Because of bamboo's exceptional strength and its shock-resistant characteristic, the project aims to promote the use of bamboo instead of timber and other non-renewable building materials in the reconstruction of Sichuan. "Bamboo is locally available, easy to process and highly versatile, so it can provide affected communities in Sichuan with many long-term livelihood opportunities," said Dr Lou Yiping, Programme Director for INBAR, who is leading the project. "It is hugely encouraging for us that President Van Rompuy has seen our work first-hand, as it is just this kind of investment in local action and innovation that can help communities all over the world to prepare for, and recover from, natural disasters," he added.

On 12 May 2008, a massive earthquake hit Sichuan, leaving 80 000 people dead, 5.5 million homeless and 1.15 million deprived of a means of agricultural production. Since then, INBAR has been working with partners, including the Sichuan Provincial Forestry Department (SFD), the Benelux Chamber of Commerce (BenCham) and the EU Project Incubation Centre (EUPIC), to harness the social, environmental and economic benefits of bamboo.

"Sichuan has around 17 percent of China's bamboo resources, but a much lower share of China's bamboo market. So bamboo has great potential for driving green growth in the region," said Guo Hengxiao, Deputy Director-General of SFD. "After the earthquake, Sichuan has worked hard to strengthen the local bamboo industry, by improving bamboo harvesting, processing and marketing, building pro-poor supply chains, attracting investment and promoting improved policies. This project helps shattered communities build a new way of life for the future. We will continue to utilize Sichuan's abundance of bamboo resources, and to make the industry a pillar of sustainable growth and recovery in the region."

The project is part of the European Union's Switch-Asia programme, which aims to promote sustainable consumption and production among small and medium-sized enterprises in Asia. (Source: INBAR, 15 May 2011.)

For more information, please contact:

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New initiative in Latin America will use bamboo to tackle poverty and climate change

INBAR, together with its funding partners, launched a major initiative aimed at strengthening the use of bamboo in Latin America to enhance economic growth while simultaneously adapting to the adverse effects of climate change that trouble the region.

INBAR's Regional Initiative for Economic Development and Adaptation to Climate Change will focus initially on coastal regions of Ecuador and Peru. These regions are some of the poorest and most vulnerable to the adverse effects of climate change in Latin America and suffer from recurrent floods, landslides and other natural disasters.

One major aspect of INBAR's new initiative is to help those communities vulnerable to climate change build elevated bamboo houses that can withstand floods, storms, landslides and earthquakes.

But while the challenges of poverty and vulnerability are immense and complex, the solutions do not always have to be. "Simple things like elevated bamboo houses can make a real difference," said Tatiana Garcia Alfaro, Project Manager at the Delegation of the European Union to Peru. "Ecuador and Peru's long tradition of building with bamboo provides a strong foundation for local action, which is highly relevant for the initiative's design and implementation. This initiative is an excellent example of how to make local bamboo houses safer, stronger and more affordable." [Source: INBAR, 28 April 2011; www.inbar.int]

WORLD BAMBOO DAY

World Bamboo Day (18 September) is a day of celebration to increase the awareness of bamboo globally. The World Bamboo Organization aims to bring the potential of bamboo to a more elevated exposure – to protect natural resources and the environment, ensure sustainable utilization, promote new cultivation of bamboo for new industries in regions around the world, and promote traditional uses locally for community economic development.

For more information, please visit: <http://worldbambooday.org/>

Ajiro bamboo bike grown from the ground up

The bamboo Ajiro concept bicycle rethinks both our means of transportation and the ways we manufacture our vehicles. Designed by Australia's Monash University design student Alexander Vittouris, the Ajiro utilizes a production process that removes emissions instead of releasing them into the Earth's atmosphere. This is because the bamboo structure of the vehicle is grown straight out of the ground into a preformed mould.

Vittouris envisions fields of bamboo gardens growing these human-powered bicycles, which need only small modifications, once mature, to hit the streets.

"Consumption of raw materials has lasting implications – economically, socially and environmentally. This vehicle is about rethinking our approach to both design and ecological sustainability of the products we create and use," said Vittouris. Instead of depending on the energy of factories to shape material into the form of a car, Vittouris' design relies on nature for that energy.

The Ajiro is not only powered by the driver, but also has an energy storage system that allows for excess power to be stored and used at a later time. It provides a canopy of shelter for the driver and a reclining seat of woven bamboo stalks.

After the Ajiro is grown, the skeletal structure that was used to form the base can be reused to grow future generations of this human-powered, low-energy cycle. [Source: www.inhabitat.com, 23 July 2011.]



Go for goji

An overwhelming body of research has now firmly established that dietary intake of berry fruits has a profound impact on human health and disease prevention. As a result, there has been a surge in the consumption of "berry-type" fruits such as pomegranates, blueberries, raspberries, gooseberries, strawberries, Leh berry (sea buckthorn), goji berries and several others.

While most of these are well known, goji berries (*Lycium barbarum* and *L. chinense*), known as wolfberries, are native to Southeast Europe and Asia. In China, goji is part of traditional medicine and has been known in other Asian countries, including Viet Nam, the Republic of Korea and Japan, for more than 2000 years. The popularity of goji has grown globally since the beginning of the century, owing to its nutritive value and

antioxidant content. It has been termed a "superfruit", which has led to its use in several food products.

Traditional Chinese medicine makes use of the root, bark, leaves, flowers and fruit of the plant. Dried goji berries are traditionally cooked before consumption. They are added to rice congee, jellies and Chinese soups, and boiled as herbal teas. Goji berries are also used in wine production along with grapes. [Source: www.indianexpress.com, 2 July 2011.]

THE HIMALAYAN BERRY SEA BUCKTHORN HELPS BOOST BRAIN FUNCTIONS

The sea buckthorn berry, *Hippophae rhamnoides*, which is grown in the Himalayan mountains, among other areas, has hit shop shelves as a new superfruit to rival broccoli, apples and blueberries. The berry, which contains vitamins A, B₁, B₂, E and up to ten times the amount of vitamin C found in oranges, is said to boost brain functioning.

Antioxidants in the berries help to fight obesity, teeth problems, acne, poor digestion and constipation. The berry is also said to keep the heart healthy.

Aside from the berry, the leaves and stem can be used to treat skin diseases. [Source: *The Times of India*, 14 June 2011.] (Please see page 32 for more information.)

Maqui berry defeats famous açai berry in antioxidant battle

During the official launch of MaquiBerryz.com, recent research that has shown maqui berry (*Aristotelia chilensis*, also known as the Chilean wineberry) to have nearly twice the antioxidant content of açai berry has been discussed. Compiled research from numerous health organizations around the world has been put together to share the findings on Chilean maqui berries.

Medical researchers from Chile to Japan have all had positive results from a variety of studies. The most notable studies have recorded the record-breaking antioxidant content and similar studies reveal anti-inflammatory, free radical elimination and detoxification properties.

What made *açaí* berry so valuable was its vitamins, minerals and antioxidants. Because of these healthy properties and its taste, it was easy to incorporate into many products and develop new ones. *Maqui* berry tastes great and has more health benefits than the *açaí* berry.

Antioxidant values for *açaí* berry per 100 g of fruit are around 16 000, which is a very high number. For a while, this put *açaí* at the top of the charts for superfruits, until now. To put into perspective how much more powerful *maqui* berry is, its antioxidant value is rated at over 27 000 per 100 g of fruit, which is almost twice that of *açaí* berry. These numbers were completely unexpected. The scientific community had estimated that there were plants in nature that had higher antioxidants than *açaí*, but nowhere near what *maqui* has shown.

Maqui berry has even caught the attention of billion dollar pharmaceutical and biotechnology companies. Because of the natural chemical composition of *maqui* berries, some companies have invested in research and product development. This research could be used to develop new medicines to fight disease and has already been used to develop new natural supplements.

Very few people are aware of the benefits of *maqui* berries; however, *maqui* berry juice has been very popular in Chile where the berries are also used as a food. Only in the past few years has information on the health benefits gone global. With the recent success of *açaí* berry, *maqui* berry is expected to go much further. [Source: FreshPlaza.com, 7 September 2011.]

Mulberry: the new anti-ageing "superfood"

Experts have indicated that mulberry, the latest fruit to be hailed a "superfood", after blueberries, blackberries and cranberries, is packed with anti-ageing properties that could give skin back its youthful bloom and even reduce the onset of wrinkles and grey hair.

Researchers at Brunswick Laboratories in the United States of America found mulberry juice contains more than twice as many antioxidants as orange and cranberry juice, or a handful of blueberries.

"Mulberries have been used since ancient times to protect people from colds and other ailments, so I am not surprised the fruit is a rich source of antioxidants," Paul Green, the spokesman of the Progressive Food Company, which commissioned the research, said.



"Antioxidants are known for aiding the immune system which protects the body against germs and viruses. But they are also a viable alternative to botox and other medical procedures thanks to their anti-ageing properties," added Green. [Source: *The Times of India*, 21 May 2011.]

BUSHMEAT

Threatened species on the menu worldwide

Brown bear kebabs, bear meat goulash and bear chops – all were on the menu at an Italian banquet broken up by police earlier this month. Organized by Italian Prime Minister Berlusconi's northern separatist coalition partner, the Northern League, the banquet cooked bear meat imported from neighbouring Slovenia to protest against the reintroduction of bears to Italy's Alpine Dolomite region. Some locals blame heavy livestock losses and a new danger on forest paths, because of the region's 35-strong bear population, even though bears generally shun human contact.

The country's Foreign Minister, Franco Frattini, commented that the banquet was distasteful at a time when Italy's bears are "almost extinct and we are trying with great effort to bring them back to the mountains that have hosted them for centuries".

Unfortunately, Europe's brown bears are not the only threatened animals being dished up worldwide. Around the world, animals considered desirable or delicacies are regularly poached so their parts can be eaten or used to make medicine. In the process, they are pushed closer to extinction. Here are some of the most vulnerable.

Pangolins. The unusual skin of this breed of anteaters, the only group of mammals known to possess scales, has long been eaten in tropical Africa and Asia. Pangolins

are being killed across Southeast Asia in larger numbers than ever for import to China, where many believe the scales have medicinal properties. The size of the illicit trade is staggering. According to Richard Thomas of TRAFFIC, one illegal syndicate alone in Malaysia sold more than 22 000 animals from May 2007 to January 2009. Some Chinese customers, who also eat the meat and blood, prefer pangolins shipped live, but the animals' low stress tolerance means that many die en route from stomach ulcers. Such is the pressure on wild populations that many species in the pangolin family are now endangered or threatened.

Tigers. It is not tigers' beautiful pelts alone that make them vulnerable, explains Thomas. "Some people in East Asia believe eating tiger meat imparts strength," he says. A recent development is using the cat's bones to make tiger-bone wine – a tonic made by steeping tiger carcasses in rice wine. While a number of tiger farms have been exposed in the press, many of the tigers used in this way come from the wild. According to Thomas, numbers are worryingly high. "Within the tiger range states, parts belonging to up to 1 220 different tigers have been seized in the last decade. This sort of trade pushes species' decline, with rare animals like the

FRENCH CUSTOMS AGENTS SEIZE BUSHMEAT

During an operation from 17 to 26 May 2011, customs officials at Paris Charles de Gaulle airport seized some 460 kg of meat, 260 kg of which came from protected species, according to a government statement. Several types of bushmeat were discovered, including antelope, snake, crocodile and pangolin. The French office responsible for monitoring environmental and public health threats (OCLAESP) said flesh from primates, elephants and desert rats was also seized.

Trafficking in exotic meat can spread serious illnesses, including Ebola, avian flu and foot-and-mouth disease as well as insects carrying vector-borne diseases, the official statement said. [Source: www.expatica.com, 27 May 2011.]

Sumatran tiger now down to a few hundred animals."

Apes. While many rare species feed into the African trade in bushmeat – crocodiles, elephants and porcupines among them – few are as vulnerable as the great apes. Gorilla, bonobo monkey and chimpanzee carcasses form only 1 percent of the total African trade in bushmeat, but their low reproduction rates make them especially threatened. [Source: *The National* [Abu Dhabi, United Arab Emirates], 16 July 2011.]

Taking action to stop the illegal bushmeat trade

Dr Jane Goodall, the renowned conservationist, has launched a new campaign, *Count Me in for Conservation*, to fund projects and raise awareness about the scourge of the bushmeat trade, which is emptying forests of endangered species, especially chimpanzees. The multimillion dollar trade in bushmeat is one of the greatest threats to tropical wildlife. Chimpanzees are on the front line of this devastating trade with fewer than 300 000 animals in the wild.

Through the Jane Goodall Institute, chimpanzee orphans whose parents have been killed for food will be rescued and rehabilitated. The orphans will be used to educate people about chimpanzees. Dr Goodall said that most locals never eat a monkey again once they see chimps embracing, holding hands and kissing.

To support the campaign to stop the illegal commercial bushmeat trade, please visit: www.janegoodall.org.uk/count-me-in/ [Source: *The Ecologist*, 1 June 2011.]

Rats, bees to protect African wildlife

Beekeeping and breeding animals such as cane rats for food are needed to help tackle the unsustainable trade in bushmeat in Central Africa, conservation experts said on Friday at a joint meeting of the Convention on Biological Diversity (CBD) Liaison Group on Bushmeat and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Central Africa Bushmeat Working Group.

Local populations rely on birds, reptiles and mammals, including apes, in the vast Congo Basin for food, but overhunting for bushmeat is leading to "empty forest syndrome", according to a statement issued by a panel of environmental experts following the meeting on the issue in Nairobi, Kenya.

"Tackling the impact of unsustainable and illegal trade in bushmeat is critical for

protecting the livelihoods of rural people and conserving wildlife in biodiversity-rich areas," said John Scanlon, Secretary-General of CITES.

Legitimate subsistence hunting is being replaced by commercial hunting and trade in endangered species including elephants and primates, said Ahmed Djoghla, Executive Secretary of the Convention on Biological Diversity (CBD).

The statement said that replacing bushmeat with locally produced beef would require up to 80 percent of the Democratic Republic of the Congo to become pasture. "Therefore, there is no alternative to making the use of wildlife for food more sustainable." The Democratic Republic of the Congo, which is the size of Western Europe, is home to more than 150 million ha of forest, one of the largest stretches left in Africa. Experts say overhunting is undermining food security and also poses a threat to the forest itself, as 75 percent of tropical tree species depend on animals to spread their seeds.

Measures proposed by the experts include the promotion of beekeeping to produce honey for trade and subsistence, the introduction of community wildlife management programmes, and farming cane rats for food. Cane rats, also known as grasscutters, are large herbivorous rodents that are already farmed in some parts of Africa.

Approximately 55 experts representing 43 governments and UN agencies, international and national organizations and indigenous and local community organizations attended the meeting, which convened from 7 to 10 June 2011. [Source: Reuters, 10 June 2011.]



Cinnamon may delay, cure Alzheimer's: Israeli study

Cinnamon, a spice usually associated with sweet foods, contains properties that may delay the onset of Alzheimer's disease, and possibly offer a cure, according to a new Israeli study.

A research team, headed by Michael Ovadia from Tel Aviv University's Zoology Department, recently isolated one of the ingredients in cinnamon, CEppt, and used it in a series of tests conducted on two-month-old laboratory mice that were raised with five aggressive strains of Alzheimer's-inducing genes. The results of

the experiment, recently published in the *PLoS ONE* scientific journal, were impressive. Fed drinking-water containing a CEppt solution over four months, researchers found that the development of the disease in the mice was delayed, with additional trials showing that existing amyloids had been dissolved.

Ovadia cautioned against excessive consumption of cinnamon, which can damage liver functions, and recommends consuming no more than 10 g/day. [Source: Xinhua [China], 9 June 2011.]



Cinnamon

Cinnamon: the spice of life?

Scientists are undertaking an ambitious study to find out whether cinnamon can help treat multiple sclerosis (MS). The common spice has a long history as a medicine to treat a variety of disorders including arthritis and sore throats. It may also help tame blood sugar in diabetics and reduce the risk of heart disease by lowering bad cholesterol. It is now being investigated as a possible treatment for MS.

"Cinnamon powder is decreasing clinical symptoms of MS in mice," said Dr Kali Pahan, a neurological scientist at Rush University Medical Center (Chicago, Illinois, United States of America). With a two-year, US\$750 000 grant from the National Institutes of Health, Rush University Medical Center is evaluating whether cinnamon can stop the destructive process of MS in mice. What they are seeing so far almost seems too good to be true. Researchers provided a video of mice with an MS-like disease showing the difference in the mice before and weeks after receiving cinnamon powder. It is still early days, but Pahan says the changes are dramatic. "I did not believe initially we would get this result with just the powder," he said.

Rush University Medical Center neurologist Dr Roumen Balabanov warns

that what may seem to work in animals may do nothing for humans. "Active intake of cinnamon for the purposes of controlling the disease – I think that this would be wrong and a premature thing to do," said Balabanov.

The hope is that cinnamon can be used alongside traditional medications as an inexpensive adjunct to help control the disease, but there are still a lot of unknowns. (Source: ABC News [United States of America], 11 August 2011.)



CINNAMON

There are two main varieties of cinnamon. Sri Lankan cinnamon (derived from the *Cinnamomum verum* tree) also known as Ceylon cinnamon or true cinnamon, has a very thin, smooth bark and a highly fragrant aroma. In 2006, Sri Lanka reportedly produced 90 percent of the world's cinnamon. The *Cassia* genus of cinnamon (*Cinnamomum aromaticum*), also known as Chinese cinnamon, is a close relative of Sri Lankan cinnamon; it is native to China, Bangladesh, India and Viet Nam. Indonesia produces 40 percent of the world's *Cassia* genus of cinnamon. While cinnamon trees are native to Southeast Asia, the main exporting countries are Sri Lanka, China and Indonesia; the tree is also grown commercially in the southern Indian state of Kerala, Bangladesh, Java, Sumatra, the West Indies, Brazil, Viet Nam, Madagascar and Egypt.

Cinnamon is harvested by growing the tree for two years and then coppicing it. In the following year, about a dozen shoots will form from the roots. The branches harvested in this way are processed by scraping off the outer bark, then beating the branch evenly with a hammer to loosen the inner bark. The inner bark is then prised out in long rolls, called quills. The bark is processed immediately after harvesting, while still wet.

The spice has long been used in both cooking and medicine. Since Egyptian times, cinnamon's healing abilities have been recognized and utilized. Chinese medical journals record cures with cinnamon dating back to 2800 BC.

Chinese medicine records the use of cinnamon, called *dwai*, for a wide variety of ailments, including colds, diarrhoea and difficult menstruation.

Cinnamon has also been used in Ayurvedic medicine in India to aid digestion and soothe nerves. Cinnamon was used as far back as 100 AD and valued 15 times more than silver. The Romans utilized cinnamon for spiritual healing powers as well as to treat coughs and colds. In religious ceremonies, cinnamon was burned to purify the air and as an offering. The Egyptians utilized cinnamon to embalm bodies and also to dry and preserve meat.

Cinnamon is a known antibacterial and antifungal agent and has anti-inflammatory properties. Additionally, it helps boost brain function and is an excellent source of the trace mineral manganese, as well as a good source of dietary fibre, iron and calcium. It also has unique healing abilities, thanks to three basic components found in the essential oils in its bark, which contain the active components cinnamaldehyde, cinnamyl acetate and cinnamyl alcohol. These components have anti-clotting properties and antimicrobial benefits and also help regulate blood-sugar levels, which is why cinnamon appears to help people significantly with type 2 diabetes. Researchers in Sweden have in fact investigated its healing properties in treating diabetes. Although the study had a small group of participants, further research has continued to show cinnamon's effect on lowering blood glucose. (Sources: various.)

ECOTOURISM

Ecotourism in Africa: the future is bright, the future is green

Ecotourism has been grossly misunderstood partly because of its vague and ambiguous definition. Sustainable tourism guidelines and regulations should be enforced by government agencies and stakeholders in the tourism industry to ensure ecotourism growth in Africa.

Many species in Africa's varied ecosystem were on the verge of extinction in 1980.

Efforts to preserve species such as the mountain gorilla in Uganda, Rwanda and the Congo were hampered not only by unstable political systems, but also by tourism and conservation policies that excluded local and indigenous people. This was solved by the emergence of many successful community-based tourism enterprise models in eastern and southern Africa that have contributed to the drastic improvement in conservation of wildlife and other natural resources through direct involvement of local people in tourism. By 1987, tourism was Kenya's number one foreign exchange earner, surpassing both agriculture and the manufacturing industries. By the 1990s, no other country was earning as much as Kenya from wildlife tourism and Kenya was being hailed as the "world's foremost ecotourism attraction".

Since then, Africa has developed a style of ecotourism that plays to its natural attributes. But poor planning and management of tourism in popular wildlife parks and reserves has led to environmental degradation arising from habitat destruction and animal harassment from vehicle congestion, lodge construction and off-road driving.

Despite the internal political conflicts and security problems, Kenya is emerging as a leader in ecotourism, with the continent's first certification programme, the oldest and most successful national ecotourism society and a growing array of innovative community-run ecotourism developments.

The creation of community-owned wildlife and forest reserves has accelerated ecotourism development in Africa, where local people are improving their social, economic and environmental conditions as they benefit directly from tourists attracted by exceptional and pristine natural resources. In Namibia, for example, conservancies that are communally owned and managed – such as the Okarohombe Campsite in Marienflüss Conservancy and Salambala Campsite in the Salambala

Conservancy – have put structures in place that decide how to spend income from ecotourism and pay dividends to individual households or use the income for community development projects.

The growing trend in Africa is community/private investor management partnerships in running community-based tourism enterprises where many community groups have entered into management agreements with private investors. This has enhanced ecotourism development, with classic examples from Il Ngwesi in Kenya and Oliver’s camp in the United Republic of Tanzania, which is a privately owned tented camp on the edge of Tangangire National Park that has successfully negotiated written agreements with the Maasai communities that own the land. The owners signed agreements with two Maasai villages to pay US\$12/night for each overseas tourist and US\$6 for tourists from the United Republic of Tanzania. The funds generated go into a wilderness conservation fund and are split evenly between the two villages.

Ecotourism presents an opportunity for Africa to support local communities, while presenting a highly positive alternative for livelihood diversification and economic, environmental and social benefit for development in the continent. (Source: GTGlobalTrader.com, 20 September 2011.)

Certification programme for sustainable tourism

GREAT Green Deal, the sustainable tourism certification programme in Guatemala, is an independent certification programme that offers the tourism sector a voluntary, third-party evaluation of sustainable performance. This is done through a methodology based on continuous management auditing, certification and monitoring, which aims to recognize businesses whose practices are economically, socially, culturally and environmentally responsible. The name of the programme has its own meaning: GREAT is an acronym for the words Green, Responsible, Exclusive, Amazing, Tourism.

GREAT Green Deal’s certification of tour operators is helping to support Guatemala’s tourism strategy in terms of quality of service, as promoted by the Guatemalan Tourism Institute (INGUAT).

In Guatemala and in Central America in general, the concept of certification in tourism is still new and consequently voluntary acceptance is low. Major efforts are still required to raise awareness and provide effective training to tourism

businesses on sustainability issues. (Source: Eco-Index Monthly Update, August 2011.)

Ecotourism to save ethnic group from extinction in Brunei

The Iban longhouse community deep in the forests of Bukit Teraja in Brunei could disappear in two decades without a necessary intervention, said members of the environmental group Panaga Natural History Society (PNHS). This was among the reasons the group appealed to authorities to classify the forests of Bukit Teraja in Belait as a conservation area. “This community might die in 20 years if jobs are not provided [there],” said Peter Engbers of PNHS, noting that many have opted to find jobs in other parts of the country.

Gazetting Bukit Teraja forests as a conservation area will allow small-scale development that will provide jobs for members of the ethnic community.

PNHS carried out a survey last year within an area roughly half the size of the adjoining 5 000 ha Teraja Protection Forest. Approved recently by Brunei’s Heart of Borneo (HoB) National Council and the Ministry of Industry and Primary Resources (MIPR), the new conservation forest boasts 39 waterfalls as well as an array of plants and animals, some of them potentially undocumented and rare.

On the central fringes of the proposed area is the Iban longhouse. Many of its occupants are gone on weekdays to find work in urban areas.

PNHS said that gazetting the currently unprotected area as a conservation forest instead of being closed off to development as an extension of the existing Teraja Protection Forest was a more viable option for the locals. He explained that in conservation areas, the primary or untouched forests are protected while controlled activities can be carried out there for scientific, educational or ecotourism purposes. The latter could provide the means to keep the Teraja natives living there and attract the others to come back.



Income-generating opportunities for the locals include working as tour guides and hosting home stay programmes. (Source: The Brunei Times, 4 August 2011.)

EDIBLE INSECTS

Insect diet may be the solution for a hungry world

Mexicans eat deep-fried grasshoppers. The Japanese love wasp cookies. Leafcutter ants are considered a delicacy in Colombia, as are some caterpillars in South Africa. And in Thailand people cook everything from water beetles to bamboo worms. Even though eating insects has often been dismissed as a cultural eccentricity, it might soon become one of the answers to pressing global problems such as hunger and environmental destruction.

Eating insects, or entomophagy, is practised in more than half the countries in the world. There are an estimated 1 462 species of edible insects worldwide, ranging from beetles, dragonflies and crickets to ant eggs and butterfly larvae, according to research by Wageningen University in the Netherlands. More than 250 species are eaten in Mexico alone.

But more than tasty snacks, insects could become a protein-rich, green and global source of food, according to FAO. The UN Organization says the projected growth of the world’s population – around 2.3 billion more people by 2050 – will require a significant increase in food production. As a result, demand for livestock is expected to double during the next four decades. However, almost 70 percent of the land in use for agriculture in the world is for livestock, meaning that the need for more grazing land would bring further deforestation. Agriculture also contributes significantly to greenhouse gas emissions and puts a strain on valuable resources such as water. Finding alternative protein sources other than livestock is therefore crucial.

FAO and scientists around the world are suggesting that insects could be a serious alternative. To begin with, insects have about the same nutritional value as beef, chicken or fish. They are easily raised in a sustainable way, since they require less land and water than cows, pigs or goats. They also reproduce more quickly than mammals. What is more, people in developing countries can harvest insects without owning vast properties of land or making huge financial

investments. Currently, FAO is promoting sustainable cricket farms in the Lao People's Democratic Republic (*please see page 44*). (Source: France24, 17 August 2011.)

Les insectes comestibles d'Afrique de l'Ouest et centrale sur Internet (LINCAOCNET)

Le projet LINCAOCNET, qui concerne 10 pays d'Afrique francophones, a pour objectifs essentiels: (a) la diffusion accrue d'informations sur les insectes comestibles, notamment via Internet; (b) la production systématique de données sur le rôle de la consommation d'insectes – considérés comme PFNL – dans l'apport alimentaire, la protection de la biodiversité, et sa signification culturelle; et (c) la contribution à une meilleure conservation des insectes comestibles.

Six des 10 pays sont en Afrique de l'Ouest (Bénin, Burkina Faso, Mali, Niger, République de Guinée et Togo) et quatre en Afrique centrale (Cameroun, Congo, République centrafricaine et République démocratique du Congo).

Nombre d'espèces d'insectes comestibles observées dans ces pays

Pays	Nombre
Bénin	19
Burkina Faso	16
Cameroun	17
Congo	23
Mali	9
Niger	7
République centrafricaine	14
République de Guinée	15
République démocratique du Congo	22
Togo	15



Ces insectes sont riches en fer, zinc, calcium et phosphore, ainsi qu'en vitamines B et D. Leur consommation peut contribuer à réduire des carences en protéines. En effet, tandis que la teneur en protéines n'excède pas 23 pour cent pour le poulet, 18 pour cent pour le bœuf, 24 pour

cent pour les crevettes et 17 pour cent pour le porc, la teneur en protéines des sauterelles varie quant à elle de 50 à 75 pour cent et celle des termites est de l'ordre de 35 pour cent. Cela illustre bien comment les insectes constituent un potentiel essentiel dans la lutte contre la faim dans le monde, tandis qu'ils sont encore négligés, voire méprisés.

Les prix des insectes comestibles diffèrent d'un pays à un autre. L'espèce la plus chère est *Rhynchophorus phoenicis* F. Les autres espèces (*Oryctes* spp. et certaines grosses chenilles) se vendent à partir de 25 francs CFA (0,039 euros) l'unité. Les termites, criquets et certaines chenilles se vendent à partir de 100 francs CFA (0,16 euros) le tas. Les chenilles sont également exportées dans divers pays tels que la Belgique ou la France pour répondre à la demande des diasporas africaines.

POUR EN SAVOIR PLUS, CONTACTER:

Séverin Tchiboza, Centre de recherche pour la gestion de la biodiversité (CRGB), 04 BP 0385 Cotonou, Bénin. Courriel: tchisev@yahoo.fr; www.crgbbj.org; www.arccona.com/tchiboza_fr.htm/

The hunt for gourmet ants in Colombia

Emerging from the soil this time of year is something Colombian farmers covet more than anything they can grow: "big-butt" ants. Known in Spanish as *hormigas culonas*, the brown, cockroach-size insects are roasted, salted and eaten like peanuts. Considered a delicacy, they can fetch more than ten times the price/lb (454 g) of Colombia's world-famous coffee.

In the northern Santander department, about the only place in Colombia where they flourish, the ants are sometimes used as pizza topping. One enthusiastic chef serves beef tenderloin and pork cutlets drizzled in ant sauce.

"The more you eat, the more you want to eat," said farmer Miguel Angel Paez, 25, who has been gathering ants since he was a boy.

Colombia's ants are a species of winged leafcutter ants and are divided into castes. In March, April and May, when seasonal rains soften up the ground, the princes and princesses in the colony crawl out of the ground and fly towards the sun to mate.

Indigenous groups in and around Santander have been eating ants for centuries. They passed on the tradition to the Spanish conquistadors and the habit stuck. "A lot of people think it is repulsive

but in Santander eating ants is something you learn as a child," said Jorge Diaz, who owns a restaurant in the town of Barichara that specializes in ant-based dishes. "It is our version of caviar."

Strange as it sounds, caviar is an apt comparison. That is because the princess ants are bloated with eggs and are the ones people try to snatch, roast and eat. It is not easy. Wearing ankle-high rubber boots for protection, people must work fast since smaller soldier ants, tasked to protect the princesses, can inflict painful bites that draw blood.

"You can earn a day's wage by selling a few pounds of ants," said Edgar Vargas, 27, as he and his friends worked their way through a case of beer purchased with the proceeds from ants they had gathered that morning near the town of Oiba.

The ants must be either frozen or kept alive until the moment they are roasted, otherwise they can taste bitter. In the off-season when there are shortages, aficionados such as Diaz, the restaurant owner and chef, will pay up to US\$40 for a pound of the insects.

Although Diaz has never cooked with any other bugs besides ants, he finds the notion intriguing. "Once you start eating insects," he said, "it is a whole new world to explore." (Source: www.globalpost.com, 11 May 2011.)



Frankincense may help treat arthritis

Researchers at Cardiff University in Wales, United Kingdom, say frankincense – long used in traditional medicine – may help alleviate symptoms of arthritis. Study leader Dr Emma Blain and Vic Duance, both from Cardiff University, and Dr Ahmed Ali of the Compton Group, say England and Wales have a long-standing connection with the Somali community, whose members have used extracts of frankincense as a traditional herbal remedy for arthritic conditions. "What our research has focused on is whether and how these extracts can help relieve the inflammation that causes the pain," Blain said in a statement.

The Cardiff scientists say they demonstrated that treatment with an extract of *Boswellia frereana* – a rare frankincense species – inhibits the production of key inflammatory molecules, helping to prevent the breakdown of the cartilage tissue that causes arthritis.

"The search for new drugs to alleviate the symptoms of conditions such as inflammatory arthritis and osteoarthritis is a priority area for scientists," Ali said. "What our research has managed to achieve is to use innovative chemical extraction techniques to determine the active ingredient in frankincense." (Source: United Press International, 22 June 2011.)

Sustainable production of frankincense

Gum olibanum (frankincense) from *Boswellia papyrifera* has been collected and traded for centuries. Although production levels in Ethiopia fall far short of the country's potential, export volume and earnings from frankincense have been increasing significantly since the late 1990s. But knowledge regarding the biology and ecophysiology of the tree, the frankincense collecting process and post-harvest handling remain largely inadequate.

A recent management guide on the sustainable production of frankincense contributes towards filling this gap by providing technical information in three specific areas: how to manage the species better, how to tap the tree properly for increased and sustainable production and how to improve and maintain product quality through improved collection and handling. Effective use of information in the guide can help in sustaining the supply of frankincense by increasing the income of producers and enhancing the responsible management of *Boswellia* forests in Ethiopia. (Source: M. Lemenih and H. Kassa, 2011. *Management guide for sustainable production of frankincense. A manual for extension workers and companies managing dry forests for resin production and marketing*. Indonesia, Bogor, Center for International Forestry Research [CIFOR]. [abstract])

 **GNETUM SPP.**

La domestication de *Gnetum* spp. avance en Afrique centrale

Sur une trentaine d'espèces du genre *Gnetum* existant dans le monde, deux espèces sont exploitées dans le bassin du Congo pour un usage alimentaire: *Gnetum africanum* et *Gnetum buchholzianum*, localement appelés okok ou eru (Cameroun), koko (Congo), fumbwa (République démocratique du Congo), nkumu ou mfumbu (Gabon) et koko (République centrafricaine).

Gnetum spp. est une liane sempervirente qui pousse dans des habitats forestiers ombragés et grimpe sur des arbres suspenseurs. Il n'est pas facile de distinguer les deux espèces, dont les feuilles opposées varient en couleur et en forme. Afin d'identifier chaque espèce avec certitude, l'examen des organes reproducteurs est indispensable.

Figurant parmi les aliments consommés traditionnellement par les communautés dépendant des forêts du bassin du Congo, *Gnetum* spp. constitue une source importante de protéines et d'éléments minéraux. Les feuilles sont utilisées à des fins curatives, et sont utiles pour soigner la constipation, les inflammations de la gorge et les blessures ainsi que pour faciliter l'accouchement.

Les feuilles de *Gnetum* spp. font l'objet d'une commercialisation non seulement à l'intérieur des pays du bassin du Congo mais aussi entre pays de la région et vers l'Europe et les États-Unis, afin de satisfaire la demande de la diaspora africaine. Les récolteurs utilisent quatre techniques pour la collecte des feuilles, consistant notamment à (i) récolter toutes les feuilles en laissant la tige nue, sur laquelle des nouvelles feuilles apparaissent rapidement, (ii) couper la partie supérieure de la plante, une nouvelle croissance se faisant à partir du bas de la plante, (iii) déraciner la plante entière, sans possibilité de renouvellement de la plante, et (iv) abattre l'arbre suspenseur de la liane.

Une forte demande et une exploitation commerciale anarchique et abusive effectuée avec des techniques de récolte non durables ont provoqué un amenuisement du stock de *Gnetum* spp. dans certains pays du bassin du Congo, notamment au Congo et en République centrafricaine. Les communautés rurales vivant dans les principaux bassins d'approvisionnement de Brazzaville, Pointe-Noire et Bangui parcourent plusieurs kilomètres dans la forêt pour s'en procurer. Une étude participative menée par la FAO en 2010 a confirmé que les stocks de *Gnetum* spp. sont épuisés autour des villages, notamment à Abala dans la région des Plateaux et à Madingo-Kayes dans la région du Kouilou au Congo, ainsi que dans la Lobaye au sud-ouest de la République centrafricaine. Pour répondre à ce problème, la FAO a organisé en mai et juin 2011 trois formations sur la domestication de *Gnetum* spp. destinées aux communautés de base, facilitées par le

Centre pour la culture en pépinière et la propagation de l'éru (CENDEP – www.cendep.org) de Limbe, Cameroun.

Plus de 80 participants ont ainsi été formés sur les techniques de récolte durables, la construction et l'entretien des propagateurs et pépinières-écoles et la commercialisation du produit. Le suivi est assuré par des organisations locales qui ont bénéficié d'une formation approfondie sur le développement entrepreneurial.

POUR EN SAVOIR PLUS, CONTACTER:

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 **HONEY AND BEES**

Beehives stop elephant crop raids

Innovative beehive fences have helped a community in Kenya to protect crops successfully from elephants, according to research. Scientists found the hives to be a very effective barrier; elephants turned away from them in 97 percent of their attempted raids.

Over the past 20 years, elephant numbers in Kenya have grown to around 7 500 and the population boost is widely heralded as a conservation success story. However, conflict between elephants and humans, especially farmers, is an ongoing problem. Elephants frequently "raid" farms searching for food such as ripe tomatoes, potatoes and maize. To protect their livelihoods, some farmers have resorted to extreme measures including poisoning and shooting elephants.

Previous research into natural deterrents showed that elephants avoided

African honey bees. In 2009, experts from the University of Oxford, United Kingdom, and the charity Save the Elephants set up a trial project to test whether beehives could prevent conflict on farmland boundaries. After two years of observations, the full results of the trial have now been published in the *African Journal of Ecology*.

"Finding a way to use live beehives was the next logical step in finding a socially and ecologically sensitive way of taking advantage of elephants' natural avoidance behaviour to bees to protect farmers' crops," said Dr Lucy King, the University of Oxford biologist who led the study.

In Kenya, the bees (*Apis mellifera scutellata*) are small with short tongues and swarm frequently. Bees cannot sting through elephant hide, but they can and do sting around elephants' eyes and inside trunks.

The beehives were suspended on wires between posts with a flat thatched roof above to protect from the sun in the traditional Kenyan style. The team created boundaries for 17 farms, incorporating 170 beehives into 1 700 m of fencing. "The interlinked beehive fences not only stopped elephants from raiding our study farms but the farmers profited from selling honey to supplement their low incomes," Dr King explained. "The honey production and consequent income has really incentivised the farmers to maintain the fences."

Conservationists now hope to roll out the scheme to other farming communities. (Source: BBC, 15 July 2011.)

Promoting medicinal honey

A consortium of commercial beekeepers has been formed to promote medically active honeys and hive products from Tasmania (Australia). The association, called the Tasmanian Active Honey Group, focuses on honeys with medicinal properties such as those with antioxidant, antimicrobial and anti-inflammatory activity.

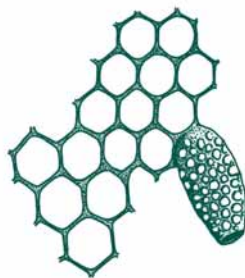
Julian Wolfhagen, from the Tasmanian Honey Company, one of the six businesses involved, says he wants to build consumer confidence in Tasmanian active hive products. "Particularly in this case, where New Zealand has established itself clearly as the market leader, we need to get some group energy and pooling finances to launch the existence of a Tasmanian manuka." (Source: www.abc.net.au, 6 June 2011.)

New Zealand beekeepers warn of "honey laundering"

Beekeepers fear "honey laundering" – allowing inferior or diseased honey from around the world into New Zealand – may jeopardize their industry if new rules allow honey into the country through Australia. At present, no overseas honey is allowed into New Zealand, but the Agriculture and Forestry Ministry is close to a decision expected to allow Australian honey imports. Wellington Beekeepers Association spokesman John Burnet said that if Australian honey import rules were relaxed, new diseases could be introduced by "honey laundering".

"The Government is saying we have adequate protection, adequate controls. There is no risk of disease coming in," says Burnet. However, scepticism reigns as memories of the Varroa mite infestation are fresh. Varroa mite is an eastern Asian parasite that has killed large numbers of New Zealand's managed and feral bee population. For food safety, honey must meet requirements set by Food Standards Australia New Zealand, a binational agency that does not require country-of-origin labelling.

Codes regulate for purity of honey but Wellington beekeeper Frank Lindsay said that laundered honey could still meet the standard by using lesser sugars. "Rice sugars are very close to natural sugars so they use that and put some enzymes in and it comes out looking like honey," he said. (Source: www.stuff.co.nz, 16 June 2011.)



IMBE (GARCINIA LIVINGSTONEI)

The varied uses of *Garcinia livingstonei*

With sap that makes arrow poison, leaves that contain antibacterial compounds, and fruit as tasty as its cousin mangosteen, the uses of *imbe* (*Garcinia livingstonei*) are as varied as the places visited by its namesake David Livingstone. One of about 400

varieties of *Garcinia*, *imbe* is the best-known relative of the mangosteen in Africa.

The fruit is eaten raw, cooked with porridge, seeded and dried, or crushed like grapes to create a drink. It can also be fermented to make a purplish wine or soaked in alcohol and mixed with syrup to make liqueur.

Although the fruit is tasty, the plant is more often used as an ornamental in landscaping than as a source of food. The tree decorates Mozambique's capital and can be seen near Victoria Falls in Zambia and Zimbabwe. Hardy, somewhat salt tolerant, and drought resistant, the tree occurs naturally in landscapes as varied as the sand dunes of the Tana Delta in Kenya, open woodland in South Africa, the Okavango Delta in Botswana and termite mounds in Zambia. The tree provides forage for wildlife such as elephants as well as material for building canoes, although the latex produced by the tree can make the wood difficult to carve.

In one of few studies regarding *imbe*, an antibacterial compound was isolated from the leaves. The bark and root of *imbe* are currently used in Namibia to treat various ailments from cryptococcal meningitis to tuberculosis, and the fruit contains compounds with potential anticancer effects.

The tree is also potentially a good candidate for intercropping with other species, and its drought-tolerance and attractiveness to insects and birds may make it useful in ecological restoration of degraded landscapes. Despite its potential and current uses, the tree has yet to be domesticated. Little documentation of production under cultivated conditions exists, and virtually no studies have been carried out to try to improve plant characteristics through genetic selection. (Source: Worldwatch Institute, 9 May 2011.)

MEDICINAL PLANTS AND HERBS

Preserving cures

Over half of the world's prescription drugs are derived from chemicals first discovered in plants. These include common medications such as oral contraceptives, antibiotics and painkillers, as well as lifesaving anticancer treatments and heart disease medications. But these medications and their plant derivatives are at risk of disappearing.

Overharvesting, habitat degradation and agricultural expansion all threaten these valuable plants; their loss is especially devastating for those who depend on them for their livelihoods and health-care needs.

It is estimated that there are 10 000 plant species throughout the world with medicinal properties. While some of them are rare, others are common garden plants such as *Vinca* (*Vinca rosea* or *Catharanthus*, the English periwinkle), which is used to make chemotherapies that treat leukaemia, lymphoma and other varieties of cancer. Many drugs such as these can still only be derived from the original plant.

ENDANGERED PLANTS

Prunus africana*, *Pygeum, African cherry. The bark of this tree is harvested and used to treat malaria, fever, kidney disease, urinary tract infections and prostate enlargement. The medicinal retail trade for *P. africana* is estimated to be roughly US\$220 million per year. One tree can yield up to US\$200 worth of bark.

Hoodia gordonii*, *hoodia. A slow-growing, spiny, succulent plant found throughout southern Africa, traditionally used by the San bushmen as an appetite suppressant. Today, it is used to treat obesity. Of the 12 known types, only one is found in abundance. The other 11 can be found in small, scattered populations under threat from overcollection and illegal trade.

***Gentiana lutea*, yellow gentian**. This plant, which is found in the mountains of central and southern Europe, has been used since the time of the ancient Egyptians as an appetite stimulant. Today, its extremely bitter root is used for the treatment of anorexia and to strengthen the digestive system of patients suffering from chronic diseases. *G. lutea* is harvested in the wild and is now listed as endangered or critically endangered in the European regions where it is found.

***Podophyllum hexandrum*, Himalayan mayapple**. Found in Nepal and the western Himalayas, this plant contains podophyllin, a resin used to treat ovarian cancer and warts.

According to Susan Leopold, Executive Director of United Plant Savers, a non-profit group dedicated to raising awareness about plant extinction: "A lot of populations are still very dependent on herbal medicine". For those living on less than US\$2/day, pharmaceutical drugs are not an option. The World Health Organization (WHO) estimates that 80 percent of the world's developing populations rely on traditional, plant-based medicine as their primary form of health care. In an effort to meet a growing demand for traditional remedies, grassroots organizations are promoting organic agricultural practices to secure the future of medicinal crops.

Although many programmes advocate responsible cultivation and harvesting (e.g. Well Earth), an estimated 70–80 percent of the medicinal plants being traded are collected from wild populations, according to the World Wide Fund for Nature (WWF) and TRAFFIC, the wildlife trade monitoring network. [Source: University of Oregon [United States of America] in www.campusprogress.org/, 14 June 2011.]

Traditional medicine gains ground in African universities

The number of African countries with national policies on traditional medicine increased almost fivefold between 2001 and 2010, according to a report on a decade of traditional medicine on the continent. The report, launched at a meeting of the WHO Regional Committee for Africa (29 August–2 September), also found that the number of countries with strategic plans for traditional medicine increased from zero to 18 in the same period, and those with national regulatory frameworks rose from one to 28.

In 2010, 22 countries conducted research on traditional medicines for malaria, HIV/AIDS, sickle-cell anaemia, diabetes and hypertension, using WHO guidelines. According to WHO, roughly 80 percent of people in developing countries depend on traditional medicine for their primary health care.

Some African universities had incorporated traditional medicine into the curricula for medical and pharmacy students, the report found. Health ministers and the WHO African regional office agreed at the meeting to promote this integration as a way of increasing research in the field.

Karniyus Gamaniel, Director-General of Nigeria's National Institute for Pharmaceutical Research and



Development (NIPRD), said: "This is a very good development ... The issue of curricula in medical and pharmacy schools is fundamental as this would provide the right orientation and sensitization of younger people to begin to develop career lines in this direction".

The WHO Regional Director for Africa, Luis Gomes Sambo, who presented the report, stressed that having national policies on traditional medicine placed the conservation and sustainable use of medicinal plants in the arena of public health. He called on African institutes to compile inventories of medicinal plants and to conduct research on the safety, efficacy and quality of medicinal plants.

Tamunoibuomi Okujagu, Director-General of the Nigeria Natural Medicine Development Agency, told SciDev.Net that the decision to introduce traditional medicine into medical schools would reduce the cynicism expressed towards the practice in Africa, counteract "quackery" and ensure professionalism. "A number of our health challenges require traditional medicines," he said. "Traditional medicine policies are good for Africa." [Source: SciDev.Net, 15 September 2011.]

United States of America-Namibia research partnership against malaria

The University of Namibia (Unam) has received a donation worth N\$700 000 for its malaria research project from Rutgers University in the United States of America. Included in the donation are pharmacological kits.

Rutgers University donated 24 *Artemisia annua* plants with eight different varieties that contain compounds used to treat malaria. These plants do not exist in Namibia and Unam will plant them in its greenhouse for research purposes. Dr Martha Schulz, Dean of the Faculty of Science at Unam, said the agreement would also allow Unam

researchers to work as part of the N\$1.6 million Millennium Challenge Account (MCA)-Namibia research project as partners with Rutgers University and the National Botanical Research Institute (NBRI), whose researchers are also part of the training workshop.

"This research opportunity will be crucial in building capacity at Unam to conduct research into indigenous products with potential for commercial goods as well as social benefits for Namibian people through the health, veterinary and food sectors," Schulz explained.

Plants with medicinal or food applications such as antibacterials, antivirals, antimalarials and antifungals can be screened for use, while foods can be evaluated for nutraceutical (medical) and nutritional properties.

Meanwhile, Dr James Simon, a professor in the Department of Plant Biology and Pathology at Rutgers University who is heading the visiting delegation, said they will develop kits to screen plants and see if they have activities to treat a range of diseases. "This year we expect to screen 100 Namibian indigenous plants within ten different screens. We hope the kits will provide valuable information that can be used to protect and preserve plants while Namibians seek to generate income and improve health as well as nutrition at local level," said Simon. [Source: New Era [Namibia], 24 May 2011.]

Herbal remedies

It is estimated that £126 million is spent on herbal medicine in the United Kingdom each year, and a poll in 2008 revealed that 35 percent of the British have tried shop-bought natural remedies.

Peppermint. A powerful muscle relaxant, peppermint (*Mentha piperita*) can help with stomach cramps and relieving the symptoms of irritable bowel syndrome. The oil can be used as a topical remedy for pain, while a study by the University of Heidelberg in Germany found that peppermint can also help treat cold sores.

Rosemary. From the Latin word *rosmarinus* (dew of the sea), rosemary (*Rosmarinus officinalis*) has long been associated with its ability to aid memory. It is said that scholars in the past wore fresh rosemary springs in their hair to help recall their studies. In addition, a study carried out at the National Institute of Agronomic Research in Dijon (France) demonstrated that rosemary stimulates the production of cytochrome P450, an enzyme that enables the liver to clean toxins out of the blood.

Oregano. *Origanum vulgare* has long been recognized by herbalists as having antioxidant and disease-preventing properties. The leaves and flowering stems are antiseptic. In one United States of America study, oregano was found to have 42 times more antioxidant activity than apples, 30 times more than potatoes and 12 times more than oranges, making it one of the most powerful herbs at tackling chemical damage to the body.

Thyme. The main constituent of *Thymus vulgaris*, thymol, can destroy bacteria and some fungal infections. "Thyme is hugely antibacterial and studies have demonstrated its effects on killing *Helicobacter pylori* bacteria, which cause stomach ulcers," says Philip Weeks, an expert in natural medicine. "An extract of thyme in honey has been used for centuries for bronchitis and chest infections."

Sage. *Salvia officinalis* has been used in natural toothpaste for many years for its antiseptic properties. It has also been included in skin creams to treat bites and shingles because of its anti-inflammatory benefits. A study by the University of Exeter (United Kingdom) revealed that sage extract significantly reduced the frequency, duration and severity of hot flushes in menopausal women. [Source: *The Mail on Sunday*, 26 June 2011.]



Salvia officinalis



"Miracle plant" boosting health in Sierra Leone

A tropical plant said to be nutritional dynamite is being plugged by Sierra Leone's Government as a natural cure-all in the country, which has some of the worst health indicators in the world.

The *moringa* plant, native to northern India, has been called the "tree of life" and its use is spreading in Africa, advocates

say, where it can prevent diseases and malnutrition and even boost development by creating job opportunities.

In Sierra Leone, President Ernest Koroma himself regularly takes *moringa* oil, one form of the plant, boasts Jonas Coleman of the country's Moringa Association.

In a recent interview with AFP, Agriculture Minister Sam Sesay described *moringa* as "the most nutritious plant on Earth, and each and every part of it has nutritional and medicinal values that have the propensity to cure over 300 diseases, including hypertension and diabetes".

In Sierra Leone, where some 70 percent of the population lives on less than a dollar a day, only one in four children live to see their fifth birthday, according to UN figures. The country, which was ravaged by a decade-long war that ended in 2002, has one doctor for every 17 000 people and one nurse for every 8 000, according to health ministry statistics.

The Catholic NGO Caritas recently led a campaign to popularize the use of *moringa* by distributing samples in the northern city of Makeni, urging some 2 000 residents to replant them in their backyards and farms. Coleman said "a total of 250 000 seeds were distributed to people across the country last year to engage them in some form of economic venture".

Makeni, however, remains the hub of *moringa* production where a factory has been established and is marketing the commodity to other parts of the country. District Forest Officer Fomba James, who has over 15 years of herbal experience, describes *moringa* as "a powerhouse of nutritional values".

"It contains seven times the vitamin C found in oranges, four times the calcium in milk, four times the vitamin A in carrots and three times the potassium in bananas," he told AFP.

According to the Web site of the United Methodist Committee on Relief (UMCOR), the plant contains some 46 antioxidants and is loaded with phytonutrients, which flush toxins from the body, purify the liver and bolster the immune system.

In the northern town of Port Loko, tribal headman Jimmy Lagbo told AFP by telephone: "We see it as a cure-all and many folks in my community are no longer visiting the local clinics as they are now using either *moringa* teabags or sprinkling the powder on their daily meals." [Source: Medicalxpress.com, 17 September 2011.]

Plans for “tree of life” plantation in South Africa

KwaZulu-Natal (a province of South Africa) may soon be home to a plantation of what research shows to be one of the most useful trees in the plant kingdom. *Moringa oleifera*, commonly referred to as the “tree of life” or “mother’s best friend” in many cultures, is native to northern India and ancient Ayurveda medicine claims that it prevents 300 diseases.

The iLembe District Municipality and Dr Samson Tesfay, a post-doctoral student at the University of KwaZulu-Natal’s discipline of horticultural science, are planning a plantation project for the plant. The project will harvest *moringa* pods for biodiesel processing, using small-scale emerging farmers in the area.

Moringa seeds are extremely high in oil and “the tree can survive in relatively unfavourable conditions and does not require sophisticated and expensive farming methods or inputs,” Tesfay said.

The tree has also been used for water purification in southern and East Africa. “The seeds are effective in removing about 98 percent of impurities and microbes from contaminated water,” Tesfay added.

In addition to the plantation project, Tesfay plans to conduct community-based research trials on the plant’s antioxidant compounds. “I hope to create an awareness of the value of the plant which will help to mitigate malnutrition in the community,” he said. “People today are more focused on antioxidants.” Antioxidants have a wide range of purposes, such as anti-ageing and cancer prevention. [Source: Daily News [South Africa], 17 August 2011.]

“No life without *moringa*”

“Without *moringa* there is no life” goes the saying of the Konso people who inhabit the lowlands of southern Ethiopia, expressing the ancient link that unites them to the *Moringa stenopetala* plant. Called the “miracle tree” in the local language, it is known for its capacity to withstand prolonged periods of drought. Its cultivation, intercropped with tubers, legumes, cereals and shade plants such as coffee, allows the creation of an agro-ecological system able to preserve the properties of the land and prevent soil erosion, with the construction of terraces, creating a unique landscape in the region. The Konso throw nothing away from this plant: the edible leaves are rich in protein, iron and vitamins; the more bitter leaves

are used as animal fodder; and the seeds serve to purify water.

For its nutritious and drought-resistant properties, *M. stenopetala* has become the object of a study that aims to extend its cultivation to areas affected by severe periodic droughts and famines.

The first national conference on the cultural and agro-economic heritage of the Konso people – “Konso Cultural Landscape: Terracing and Moringa” – will be held this month in Karat, Ethiopia. The meeting, organized by the newly formed Konso Cultural Centre, the NGO CISS-Ethiopia and its local partner (Konso Development Association), follows the inclusion of this landscape linked to the cultivation of *moringa* as a UNESCO World Heritage Site.

The conference is part of a series of initiatives at national and international levels that will focus on *moringa* and the agroforestry of the Konso. [Source: SlowFood.com, 17 August 2011.]

 **NATURAL SWEETENERS**

***Stevia rebaudiana*: EU members approve *stevia* sweeteners for food use**

Natural sweeteners derived from the *stevia* plant could be authorized for EU-wide use by the end of the year, after governments approved their sale in certain foodstuffs, the EU’s executive said on Tuesday.

Concern over rising levels of obesity and diabetes has spurred the development of new sweeteners, and food consultancy Zenith International expects the global market for *stevia*-derived products to reach US\$825 million by 2014.

“The text will now be subject to the scrutiny of the European Parliament. At the end of the procedure, steviol glycoside could be authorized in the EU by the end of the year,” the European Commission said in a statement.

The Commission proposed a cut in the maximum usage levels for steviol glycosides requested by manufacturers, after a safety evaluation found that they could exceed the “acceptable daily intake” level of 4 mg/kg of body weight.

Zero-calorie steviol glycosides, which are between 40 and 300 times sweeter than sucrose, are derived from the *Stevia rebaudiana* plant – also known as sweetleaf or sugarleaf – native to Central and South America. [Source: Reuters, 5 July 2011.]



Betulla papyrifera

Xylitol: a natural sweetener

Xylitol is a molecule found widely in nature. It is typically extracted from birch bark (*Betulla papyrifera* or *B. populifolia*), and also found in a variety of fruits and vegetables. Xylitol is a naturally occurring sugar substitute, and has been used as a sweetener since the 1960s. It is slowly absorbed and only partially utilized, thus amounting to a reduced calorie intake. The molecule is more or less as sweet as sucrose, yet it has 40 percent fewer calories and 75 percent fewer carbohydrates than sugar.

Xylitol was discovered by a German chemist in 1891. Yet it was not until acute sugar shortages after the Second World War – when researchers were forced to look for an alternative sugar supply – that Finnish scientists “rediscovered” xylitol. Only then did it become widely recognized as a sweetener as well as an energy source for patients with impaired glucose tolerance and insulin resistance.

Xylitol also has proven medical benefits because of its effects on many types of bacteria. It is a cavity fighter – reducing tooth decay – and effective in clearing nasal passages, thus reducing the risk of infection. [Source: S. Sellman, 2003. Xylitol: our sweet salvation? in *Nexus Magazine*.]

 **NETTLES**

Nettle (*Urtica dioica* Linn.) – a potential wild resource for socio-economic upliftment in the Indian Himalayas

The genus *Urtica* (Urticaceae) is known by 30–45 species, of which the most used dietary supplement is the nettle (*Urtica dioica* Linn). It is native to Asia, Africa, Europe and North America. In the

Himalayas, this stinging perennial herb grows in forests, thickets, grasslands, stream banks, floodplains and newly disturbed moist areas at altitudes of 1 200–3 000 m from Pakistan to southwest China. With good humus, the plant produces a robust stem reaching up to 3 m in height. Flowering in June–August and fruiting during August–October, the one-sexed flowers produce flattened achene. In the Indian Himalayas, the species has many vernacular names, such as *Bichu buti* in Hindi, *Sisnoo* in Sikkim and *Ahan* in Himachal Pradesh (HP).

The plant is used for various purposes as food, fodder, medicine and cosmetics; and in agriculture and industry (industrial chlorophyll production is known). Domestically and commercially, the plant offers great socio-economic potential. The dried leaves used as tea and the fresh leaves as juice are considered haemostatic, diuretic, antiarthritic, antirheumatic, anti-itch and anti-inflammatory. Soups and curries are common dishes and are routine meals in Sikkim, HP and Uttarakhand. The plant also offers a feeding ground to caterpillars of abundant butterflies and moths.

Research in Dzongu valley of north Sikkim by the author with his student (published in the *Journal of Ethnobiology and Ethnomedicine*, 2008) found that nettle root paste is applied on minor bone fractures and dislocations; a decoction of roots and seeds cures diarrhoea and coughs; and curry prepared from shoot tips is given to females during childbirth. Beating cows that are not lactating with nettles is held to stimulate milk production. Shamans believe that evil spirits can be driven out of humans by beating them with nettles during exorcism rituals, and this is a common practice. Different curries (routine food) are made delicious by boiling young leaves with added condiments and frying them with butter; they are also good for the stomach. In Uttarakhand and HP, the seeds are crushed to make *chatni*, a tasty appetizer. Furthermore, the leaves make good fodder.

Before the Second World War in central Europe, nettles were cultivated as a fibre plant using wild stock for the production of textiles. The nettle stem contains around 30 percent protein and 10 percent fibre. Breeding helped increase the fibre content from 5 percent stalk dry matter (wild) to 17 percent (cultivated). Planting cuttings may yield pure nettle fibre; the organically produced fibres are highly in demand in textiles. Wild nettles can be domesticated by sowing seeds or by stem



cuttings. A high heterogeneity in seeds may result in declining fibre content more than the plants developed from vegetative propagation. Research and field trials are limited.

Unfortunately, in the Indian Himalayas, industrial entrepreneurship has yet to be established. Commonly, in Sikkim, HP and Uttarakhand, traditional nettle clothing is made by beating, drying and boiling the nettle stems. In Dzongu (Sikkim), natives still traditionally extract the quality nettle fibres; however, the younger generation is reluctant.

The young shoots/leaves of the nettles are highly marketed NTFPs almost all year, with April–September being the peak season for quality and quantity. Growing markets have encouraged people to harvest nettles perennially. Villagers in Sikkim and HP sell the shoots/leaves in bunches of 300–500 g for 8–15 rupees/bunch. During the season, a vendor (in Sikkim and HP) may earn 200–500 rupees/day. A large number of vendors in Sikkim market the nettle frequently, along with many other NTFPs.

Cultivation and varietal development in Europe has been well researched; the experience can be utilized for *ex situ* cultivation-based commercial entrepreneurship in the Indian Himalayas. Nettle domestication, as organic farming and by plantation in wastelands and fringe habitats, will substantially raise the socio-economic situation of the community. Moreover, planting nettles as hedge plants and fencing will protect crops and animal husbandry from wildlife. Nettle cultivation will strengthen *in situ* species conservation and, thus, of the associated biodiversity as part of a carbon sink combating climate change. Planting nettles is relatively cost effective and environmentally friendly.

The domestic market for fresh leaves/young twigs is huge within the Indian Himalayas and value addition and commercial production need further exploration. An assessment of the quantum availability of raw

material using scientifically based population studies in different Himalayan terrains and habitats would help conservation planning and management. Propagation/cultivation technologies need innovation and standardization before a mass cropping is encouraged in the rural sectors of the Indian Himalayas.

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Reviving pine resin extraction in southern Europe

The extraction of resin in the pine forests of southern Europe has generated revenue for woodland owners since the end of the nineteenth century. It has also created employment in rural areas, supplying renewable, natural raw material in demand by the large chemical industry of the southwest. Its effect on the conservation of the pine forests and fire prevention has also been notable, with less frequent and intense fires where resin workers are active.

These benefits, however, are disappearing because of the decline of resin extraction activity; the work is no longer attractive to youth since it is not particularly profitable and involves demanding physical work. In fact, extraction requires intense labour, skill and long periods of training which, together with its seasonal nature (currently 7.5 months/year) and its limited profitability, explains why the activity is gradually disappearing in developed countries. The abandonment of the activity has led to the degradation of the forests, mainly as a result of forest fires.

However, current European rural development policies based on the use of endogenous resources, such as resin, and the social and legislative recognition of natural, sustainable products, together with the current employment crisis; the seriousness of forest fires; and the instability and price increases of resin products supported by European industries have created a scenario that is favourable for the revival of the sector.

In 2007, in the hopes of reviving resin extraction activity, the Fundación Centro de

Servicios y Promoción Forestal y de su Industria de Castilla y León (Cesefor), Spain's Ministry of Science and Innovation, OurémViva-Gestão de Espaços e Equipamentos Municipais and the Institut Polytechnique de Bordeaux, among others, initiated a project (set to run until 2013), aiming to mechanize the method of tapping and investigate the different applications and uses of resin, in order to raise the value of the resource.

The primary goal of the project is to transform the extraction of resin into a profitable activity that contributes to rural employment, the conservation of the large *Pinus pinaster* pine forests of the southwest and the prevention of forest fires. Other objectives include:

- the mechanization of the process as an alternative to manual extraction, which has higher costs and cannot easily compete with less developed countries where labour costs are lower;
- obtaining scientific and economic evidence of the role played by the resin industry for the conservation of the pine forests of the southwest and performing a market analysis and reevaluating a differentiated product – European resin;
- demonstrating the role played by human activity in the conservation of European forest ecosystems and its compatibility with the natural values they hold; and
- using cross-sector participation to design a strategy that is common to and assumed by every player, coinciding with the objectives of the main European policies on the conservation of nature and rural development, taking into consideration the different characteristics of each territory on a local scale.

(Contributed by: Félix Pinillos Herrero, Jefe de Área, Fundación Centro de Servicios y Promoción Forestal y de su Industria, Pol. Ind. Las Casas, calle C, parcela 4, 42005 Soria, Spain. Fax: +34 975 23 96 77; e-mail: felix.pinillos@cesefor.com; www.cesefor.com; www.sust-forest.eu/)



A substantial business has grown out of a spruce resin salve

A Finnish company has turned spruce resin into a pharmaceutical salve. At the turn of the millennium, physician Arno Sipponen at the outpatient clinic in Kolari, Western Lapland, was treating patients with bedsores so bad that nothing seemed to help. He was told by a nurse that there was one more method worth trying – the traditional Lappish spruce resin (*Picea abies*) salve. However, it could not be bought at a pharmacy but from a local farmer, Mr Timo Kyrö, who made it himself. Sipponen decided to give the salve a try.

Within six months, even apparently hopeless bedsores of several years' standing were healed. Now a company called Repolar Oy, headed by Arno's father, physician and Professor Pentti Sipponen, produces the resin salve industrially in the city of Espoo. Called "Abilar," the salve can be bought at all Finnish pharmacies and is used by several primary health-care and specialized medical care units.

The resin salve is a good example of what can be made out of a natural product by refining it. The price of the resin in a tube of salve is much higher than the price paid to its gatherer – and so it should be. The increase in price is based on value added, and it means work and well-being: the resin is gathered, purified, turned into a salve, packaged and delivered to the consumer.

"Scientific evidence is important." Seeing the effects of the resin salve on bedsores, the Sipponens wanted to research its properties scientifically: were the bedsores getting better just by accident or was the salve really effective? Both microbiological laboratory tests and comprehensive clinical tests were carried out. The results were published in 2008 in the *British Journal of Dermatology*, a leading publication in the field of skin diseases. "The key word is scientific evidence. That is my advice to those who are launching other Finnish natural products," emphasizes Pentti Sipponen. [Source: www.forest.fi, 15 April 2011.]



Switzerland's sweet saffron

It takes 390 stigmas, gathered by hand from 130 *Crocus sativus* flowers, to produce 1 g of saffron. This, however, is not the Islamic Republic of Iran or Spain, countries known for their bountiful saffron fields. This is tiny Mund in Switzerland, a town tucked between Geneva and Zermatt in the Aletsch

Glacier range, the birthplace of the Rhone River and the unlikely home of these precious purple flowers.

The region was designated a UNESCO World Heritage site in 2001 for its stunning Alpine beauty. Saffron was harvested in the Mund area as long ago as the fourteenth century. Then, in the 1950s, as industrialization spread throughout Switzerland, farmers gradually abandoned the practice. But when state authorities decided in 1979 to build a road through what remained of the saffron fields, hundreds of villagers rebelled. Led by the village priest, they rose up to protect the crucial 4 acres (1.6 ha) historically under cultivation. More important, their fervour reignited the tradition of saffron cultivation in the area.

Mund has 529 residents today, and 60 of them own a piece of the saffron fields in parcels ranging from 376 to 2 368 ft² (35–220 m²). "We formed an old-fashioned guild in 1979. Year after year, the amount of cultivated land grew, and more inhabitants got involved," said former Mund mayor Leo Albert. By 2004, the guild had obtained an Appellation d'origine contrôlée (AOC), the stamp of approval from the Swiss Government, and official Mund saffron was born.

Last year's harvest yielded a grand total of about 9 lb (4 kg) – a small amount, perhaps, but enough to re-energize a village and put it on the international foodie map.

Today, experts consider Mund saffron superior to any in the world. Neither Spain nor the Islamic Republic of Iran, with their massive outputs can compete with Mund saffron for flavour. [Source: *The Washington Post*, 3 June 2011.]

Concern over saffron price drop in Afghanistan

Saffron prices in western Afghanistan have reportedly declined sharply over the past year, raising fears that some people may resume opium cultivation. Saffron has been promoted as an alternative to opium and a profitable crop for rural peoples. But growers in the province of Herat, which borders the Islamic Republic of Iran, told BBC Pashto that prices have dropped by as much as 60 percent as supply has outstripped demand.

Afghanistan, in particular Herat, has the ideal climate for growing saffron. Afghan officials say that last year Herat produced more than 2.5 tonnes; this year they expect more than 3.5 tonnes to be produced.

Last year, pure saffron sold at US\$4 500/kg but now the price stands at US\$1 500. The high prices of saffron, the world's most expensive spice, have benefited cultivators around the world over the years.

The Head of the Chamber of Commerce in Herat, Gholam Jailani Hamidi, told the BBC that production increase is key to the price drop. "We need balance in our productivity and demand and we need to find new markets," he said. But correspondents say that some are afraid the price drop could leave farmers considering whether to revert to growing poppies.

Afghanistan is estimated to produce around 90 percent of the world's opium. Farmers are still willing to cultivate saffron, saying they do not want to go back to poppy cultivation as long as the government provides them with financial help, correspondents say. But Afghan businesses have been demanding new processing and packaging systems in order to open foreign markets for their product. [Source: BBC News, 17 June 2011.]

SANDALWOOD

Scientists "knock on wood" to keep species popular

A collaborative team of Western Australian and Sri Lankan scientists have been awarded a Sri Lanka National Research Council Grant to help continue their international study to protect and repopulate the highly threatened sandalwood tree *Santalum album*.

Curtin School of Pharmacy Ph.D. student Dhanushka Sugeeshwara Hettiarachchi says the team will use silviculture to set up a healthy sandalwood population in Sri Lanka. He says that seeds will be selected from high-quality sandalwood trees, rather than a single tree and that these seeds will be planted in nurseries. Being a semi-parasitic species, sandalwood taps the roots of surrounding trees for water and nutrients but photosynthesizes independently. Using the study results, seedlings will be established with a proper host tree species in pots, and then transferred into the ground.

Dhanushka says that determining the quality of sandalwood is simple because standards have been established for many years, but one of the challenges arose when dealing with seedling sample sizes. "It is a challenge because the seedling heartwood [sample] size is less than 1 g. The main challenge is to use a database to identify the quality of essential oils," he says.



Sandalwood

There are also plans to introduce the sandalwood to protected reserves and to the home gardens of rural villagers in Sri Lanka. Dhanushka says this will benefit the community because "sandalwood is one of the most expensive timbers in the world – it's considered an asset to have a tree that could provide 100 kg of quality heartwood".

"It's a huge boost to the villages as not many crops could yield such an income. Also it's seen as a long-term investment by many people. It's also common practice in Western Australia and southern India that sandalwood trees are added to the value of a land in estimating the land value." [Source: Science Network Western Australia, 21 September 2011.]

SEA BUCKTHORN

Sea buckthorn in the United Kingdom

Sea buckthorn (*Hippophae rhamnoides*) is a shrub-like tree from which the berries are collected. It is native to the United Kingdom and, until recently, was largely restricted to the southern part of the east coast of England. It is an excellent stabilizer of sand dunes and has been planted all around the coast for this purpose. Unfortunately, it has done its job too well and, spreading by suckers, has come to dominate and effectively destroy many of these sensitive habitats; it is now considered an invasive species in the country.

It is an easy plant to identify, with its narrow grey/green leaves and bright clustered orange berries. It looks a little like a willow tree and indeed one of its old names was "sallow thorn". This coastal plant has recently become something of a favourite with highway authorities and can be found on bypasses and dual carriageways all over the United Kingdom.

The trees are covered in vicious spines and the berries are impossible to remove from the branches without bursting and spraying you with bright, orange-coloured juice. A fantastically sour berry, sea buckthorn is ideal for cooking and for use in a champagne cocktail. [Source: *The Guardian* [United Kingdom], 13 July 2011.]

Sea buckthorn berries

Sea buckthorn berries, grape-sized orange fruits from a hardy bush that grows in Europe, Asia and the Americas, are being tapped as the next superfood with "huge" potential, scientists say in a new report.

While the berry juice – tart and acidic – is consumed in the Russian Federation and other parts of Europe, it is still underutilized in North America. But in a study published in this month's issue of *Food Research International*, researchers from the University of Saskatchewan in Canada and the Indian Institute of Technology in New Delhi found the berries to be nutrient rich, packed with vitamins A, K, E, C, B₁, and B₂, fatty acids, lipids, organic acids, amino acids, carbohydrates, folic acid and flavonoids.

Sea buckthorn oil is currently used to alleviate eczema, sunburn, mouth dryness and ulcers, gastric ulcers, urinary tract inflammation, genital ulcers, sinus inflammation and eye dryness.

Although the fruits are loaded with nutritional potential, researchers also noted that one significant drawback is the short harvesting season and the high moisture content of the fruits, which make them less flexible to work with.

Recently, Dr Mehmet Oz, Vice-Chair and Professor of Surgery at Columbia University (New York, United States of America) also touted the berries for their wide-ranging health benefits. The berries were featured as a weight loss supplement and recognized for their ability to aid constipation and prevent acne. [Source: *The Independent*, 7 August 2011.]

[Please see page 19 for more information.]

SHEA BUTTER

Empowering Nigerian women via shea butter production

"I have five children and I am training them with the proceeds I make through the sales of shea butter," says Hajija Fatima Ibrahim, Leader of the ENA-Ekokpara Shea Butter Cooperative Association in Assanyi, Katcha local

government area of Niger state, Nigeria. "If the government provides modern shea butter processing equipment for us, it will go a long way in reducing the backbreaking efforts we put in to produce the butter. We will also be able to make extra money," she adds.

Ibrahim is one of several women who solicit improved shea butter production in the country because of the myriad economic benefits that can be derived from the venture.

Shea butter, an abridged form of "sheanut butter", is a kind of margarine extracted from the nuts of the shea tree, popularly called the *karité* tree (tree of life) because of its numerous therapeutic properties. The tree is native to Africa, and in the dry savannah belt of West Africa, the tree is found growing wild. In the northern parts of Nigeria, shea butter is referred to as *kadanya* and in many areas in the south, it is commonly known as *ori*.

In Nigeria, shea butter can be procured across the country at extremely cheap, affordable rates and is widely used by women for hair and skin treatment.

Mr Thompson Ogunsanmi, the Programme Officer (for shea butter production) of the German Society for International Cooperation (GIZ), maintains that Nigeria has the potential to supply the entire world with adequate shea butter for people's various needs. He says that 22 out of the 27 local government areas of Niger state have shea trees in abundance, adding, however, that shea butter production is largely misconstrued to be a women's occupation in the communities.

"For the communities, everything about shea butter is about women; starting from its name, the process of picking shea nuts to their crushing – all is perceived as women's work. Shea butter can generate a

lot of income for the people but there is a growing need to empower the women traders through educational schemes about the product to enable them to make proper investment decisions," he adds.

While efforts are on the rise to modernize shea butter processing in some parts of the country, courtesy of GIZ, the Government should look into how to establish small training centres to train these women and improve their skills in shea butter production, says Ogunsanmi. (Source: *Nigerian Observer*, 7 July 2011.)

How moisture involves big money and exploitation

Shea butter is coveted by global cosmetic companies for its amazing moisturizing properties. As an increasingly sought-after ingredient in everything from soothing and nourishing hair and skin care products to lip balms and exfoliating creams, the benefits of shea butter are in great demand across the globe.

The connotation of shea butter, however, is drastically different for the women of sub-Saharan Africa who harvest the nut of the *karité* tree (*Vitellaria paradoxa*), from which shea butter originates. They are among the 1.2 billion people who live in extreme poverty. To them, shea butter is deemed to be "women's gold" for the few extra dollars its yield affords. In this region, it is the women who manually collect, sort, crush, roast, grind, separate the oils from the butter and shape the finished product. The work is all carried out during the scorching late spring/early summer arid heat of the savannah – and most of it is sold at "so-called" fairtrade prices.

Processing of shea nuts often takes place within local cooperatives where between 100 to 800 women work every season. Cooperatives are mainly operated by NGOs or are small local businesses. The women employed via the cooperative either sell the nuts they collect from the communal lands where the *karité* tree grows or they process them into unrefined shea butter. It takes 3 kg of shea nuts to create 1 kg of shea butter.

Shea processing takes two routes. The raw nuts are sold in bulk to Asian oil companies, which extract, refine and sell the oil to Europe for cosmetic purposes. Alternatively, the shea butter is processed locally, certified organic, graded for purity and then pushed on to the world market by upper-level distributors. In both

scenarios, a hefty markup is added with none of the profits trickling down.

Dr Samuel Hunter of the American Shea Butter Institute says some NGOs "claim that they are in the villages to help the people when, in actuality, their application of fairtrade versus a living wage is often the biggest enabler of poverty for the women throughout this region".

The money generated from shea butter production is desperately needed. It pays for food, clothing, children's school fees and the like; therefore, fairtrade compensation equates survival.

But, have no doubt, the women recognize – based on its many uses throughout the generations – that shea butter is a precious substance. They, as Dr Hunter stressed, just lack the resources to produce a superior product on their own that can be traded on the world market. (Source: *The Atlanta Post* [United States of America], July 2011.)

Ghana may target China as a new market for shea nut exports, group says

Ghana, the world's second-largest cocoa producer, may target China as a new market for exports of shea nuts as the West African nation seeks to boost the industry, according to the Integrated Social Development Centre (ISODEC), an Accra-based NGO.

Ghana's annual exports of about 60 000 tonnes of the nuts, which are used in foods and cosmetics, could increase to 130 000 tonnes with access to Chinese buyers, said ISODEC, which conducted research into the shea nut sector that was funded by United Kingdom-based advocacy group Oxfam International.

The nuts are currently sold to Europe, the United States of America and Japan, and earn about US\$30 million for Ghana each year, said Yakubu Zakaria, Director of Programmes at ISODEC. "China alone can absorb all our produce and we can make about US\$70 million," Zakaria said.

Shea trees, which produce the nuts, grow across the Sahelian regions of Africa, including in northern Ghana. Global exports of shea nuts and butter were worth US\$120 million in 2010, according to the United States Agency for International Development.

Ghana plans to establish a development board for shea that will set the prices paid to farmers for their crops and also carry out research. (Source: Bloomberg, 9 August 2011.)



Karité tree



Trade in animals and skins worries experts at UN CITES meeting

At the 25th meeting of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Animals Committee in Geneva, over 200 animal experts – from 50 countries – expressed concern about the sustenance of the current trade scenario of snake skins used in luxury products and another 20 animal species used in biomedical research, the food industry or as pets. The event, backed by the UN, saw technical recommendations to control animal trade in several species surfacing as a solution.

Three snake species – the oriental rat snake, the reticulated python and the Indonesian cobra – were prime concerns. Recommendations were endorsed to tighten controls on snake breeding and logistics for the skin trade. Snakes from the Asian forests and jungles are crucial within their ecosystems. For example, if snakes were to disappear from the agricultural landscapes of Asia, their prey, left behind with no predator to control their numbers, could have devastating effects on agricultural production, food security and national economies, according to CITES.

Apart from being sold as pets or found in luxury leather goods and accessories all across Europe, snakes are used for food, as traditional medicines and for skins.

Biomedical research, especially in China, Indonesia and Cambodia, which resulted in a rapid surge in trade in 2004, has led the committee to examine the quantum of international trade in the long-tailed macaque. Several endemic species from Madagascar, including chameleons and frogs, and seahorses from Southeast Asia, were also identified as a priority under the CITES Review of Significant Trade.

Most of the individual species reviewed and considered at the meeting live in Southeast Asia, a territory that has become a hotspot for wildlife trade. This is because it is a region abounding in biodiversity, with an increasingly prosperous population, as well as countless people dependent on wildlife for their livelihoods. (Source: Institute for International Trade, 25 July 2011.)

Cameroon, Chad sign pact to fight elephant poaching

Cameroon and Chad have signed an accord to ramp up efforts to fight poachers who

ILLEGAL IVORY OPENLY ON SALE IN CHINA

The long-held desire for elephant ivory has fuelled an industry that has placed both of the Earth's two species of elephants – Asian and African – on the International Union for Conservation of Nature (IUCN) Red List, the former listed as endangered and the latter as vulnerable.

In China, a deeply rooted cultural emphasis on ivory as a status symbol, coupled with the recent exponential growth of the consuming class, has created a demand for ivory that is the highest in the world.

Despite a 1989 CITES ban on the international sale of new ivory, there are still several types of ivory that are considered legal in China, when accompanied by proper documentation: antique ivory, or that which is already carved and in circulation; mammoth ivory, which comes from the extinct relatives of modern elephants; and ivory that was included in one of two CITES-certified "one-off" sales in 1999 and 2008.

In both the CITES internationally approved sales, the ivory came from southern African nations, that insisted it was sourced from natural mortality or culling, and not from poaching. The intent of these sales was to provide the Asian markets with a legitimate source, thereby reducing the demand for poached ivory.

Esmond Martin, an expert on the ivory trade who coauthored a recent report by the NGO Elephant Family, expressed concern over China's appetite for ivory. In the city of Guangzhou, for example, 61 percent of the nearly 6 500 retail ivory items surveyed were illegal and lacked legitimate ID cards. In addition, there were many cases of mammoth ivory being mixed with elephant ivory, the latter being smuggled in and then passed off as the former. The impact this has on elephants is devastating, decimating both populations and habitats, Martin says. (Source: *The Ecologist*, 17 August 2011.)

kill hundreds of elephants a year in a protected park on their common border, ministers from both nations said.

These Central African countries suffer from rampant poaching of elephants and other species for ivory heading mainly towards Asian markets and for the bushmeat trade. Observers say the rising wealth of East Asian countries has caused a jump in the price and demand for ivory in recent years.

The protected area is more than 300 000 ha, including Cameroon's Bouba Ndjida park and Chad's Sena Oura park, Cameroon Forestry and Wildlife Minister Elvis Ngolle Ngolle said late on Tuesday, as he signed the deal with Chad's Environment Minister Hassan Terap. Of this area, the Chadian side makes up only about 70 000 ha but has most of the elephants, numbering around 3 000, Terap said, adding that armed poachers had reduced elephant numbers from 5 000 five years ago. Cameroon's Government says Bouba Ndjida has just 300 elephants left.

Measures include better cooperation between authorities running the parks and boosting numbers of armed rangers. Conservationists say poaching is rife and worsening in both countries.

As well as elephants and the rare black rhinoceros, the parks are also home to monkeys, buffaloes, porcupines and two dozen species of antelope, all of which are poached for their meat.

"We are ... very determined to preserve ... them for the economic and cultural benefits of our people," Ngolle said. "We will do everything to protect them, especially the elephants that are under serious threat from illegal poachers. We will need a large number of well-trained and well-armed ecoguards so that they can be able to face the illegal poachers who are operating all over the protected area. Very often, they are well armed." (Source: Reuters, 4 August 2011.) ♣

Change alone is unchanging.

Heraclitus

AFGHANISTAN

Afghanistan's wildlife is surviving conflict

Afghanistan's wildlife is surviving years of conflict, according to a new survey. Asiatic black bears, gray wolves, markhor goats and leopard cats are all continuing to survive despite deforestation, habitat degradation and decades of unrest.

The Wildlife Conservation Society (WCS) team used camera traps, transect surveys, and DNA identification of scat samples in the first wildlife update in the conflict-plagued eastern province of Nuristan since 1977. The surveys, conducted between 2006 and 2009, covered an area of 1 100 km², confirmed the presence of several important species in the region's montane deciduous and coniferous forests, including the first documented sighting of the common palm civet in Afghanistan.

"This ongoing work in Afghanistan by WCS, supported by USAID, ensures the protection of wildlife and has a long-term positive effect on local communities," said Steven Sanderson, WCS President and Chief Executive Officer. "The surveys confirm the presence of globally important species in the area, despite indications of habitat loss and uncontrolled hunting. This highlights the need for targeted conservation programmes to protect forest resources, including wildlife, that provide livelihoods for people."

WCS has had a full-time presence in Afghanistan since 2006 and continues to be the only conservation NGO operating there. It works on community conservation, conservation education, institution building, training, capacity building and wildlife trade issues. [Source: www.wildlifeextra.com, 4 July 2011.] (Please see pages 31–32 for more information about Afghanistan.)

ARGENTINA

Programa de productos forestales no madereros en Argentina

La Dirección de Recursos Forestales Nativos ha encarado una serie de trabajos para evaluar la situación actual y la potencialidad de los productos forestales no madereros (PFNM) en la República Argentina, creándose al efecto el Programa de productos forestales no madereros. La tendencia creciente del mercado de los productos llamados "naturales" que se está produciendo y se ha puesto en evidencia en los últimos años, muestra la necesidad de desarrollar las estructuras productivas y comerciales de estos nuevos productos, haciendo hincapié

en la importancia del manejo sostenible de los mismos, los beneficios que pueden reportar a las comunidades indígenas y locales en pro de la preservación de las masas forestales nativas.

- Los objetivos del Programa son:
- recopilar y sistematizar la información sobre los PFNM de los bosques nativos, con el fin de llevar estadísticas de su producción;
- efectuar su adecuada valoración y valorización como generadores de desarrollo y como herramienta indispensable para el manejo sostenible; e
- incentivar la investigación y el manejo vinculados a los mismos y su apropiada comercialización.

Entre los PFNM se encuentran los siguientes productos alimenticios: plantas silvestres, cultivadas y "semidomesticadas" hierbas aprovechables y sus raíces, tubérculos, bulbos, tallos, hojas, brotes, flores, frutos, semillas, etc. Comestibles para obtener cereales, hortalizas, hongos, grasas y aceites comestibles, especias y aromatizantes, sucedáneos de la sal, edulcorantes, sucedáneos del cuajo, productos para ablandar la carne, bebidas, tónicos e infusiones, productos para apagar la sed, etc. También se denominan PFNM al forraje tales como los alimentos para el ganado y los animales silvestres, inclusive aves, peces e insectos. Productos farmacéuticos como drogas, anestésicos, bálsamos, ungüentos, lociones, purgantes, etc., tanto para uso humano como veterinario. Toxinas, productos aromáticos, productos bioquímicos, fibras, productos ornamentales y animales silvestres. **[Aportación hecha por:** Ing. Cristina Réscio y Lic. Mariana Burghi, Dirección de Bosques, Secretaría de Ambiente y Desarrollo Sustentable de la Nación, San Martín 451, 3° of. 335 (1004) Cap. Fed., Argentina. Fax: +54-(011) 4348-8486; correo electrónico: nomad@ambiente.gob.ar/]



ARMENIA

Armenia Tree Project begins propagation of rare and endangered species

Armenia's Ministry of Nature Protection released its *Red Book of Plants and Animals of the Republic of Armenia* in 2010. "The production of the Red Book is another step forward in the preservation and recovery of the region's biodiversity," writes Aram Harutyunyan, Armenia's Minister of Nature Protection, in the preface to the publication.

There are approximately 3 600 plant species in Armenia, and 123 are endemic or found nowhere else on the planet. According to the authors, these plants may become endangered because of deforestation, the overuse of resources such as water, and development of land which provides habitats for plants and animals, among other factors. The new Red Book includes information about 452 plant and 40 fungus species that are rare, along with information on 223 plant species that are in danger of extinction.

"In response to the concern over the loss of native plants, the Armenia Tree Project (ATP) has a policy of growing only indigenous trees in its three nurseries," explains Samvel Ghandilyan, ATP's Nursery Programme manager. The only exception to this is "naturalized" trees, which were introduced long ago, and have not been observed to have a negative impact on the local ecosystem, but provide an added benefit of food security (fruit and nut trees).

"ATP started to pay special attention to the propagation of endangered species of plants at our nursery in Karin. These include nine trees and shrubs that are registered as rare in the Red Book and two that are in danger of extinction," Ghandilyan says. "These are alpine maple (*Acer trautvetteri*) and halfsphere rose (*Rosa gaenuspherica*)."

"Our nurseries serve the communities of Armenia by providing fruit and decorative trees to more than 900 planting sites," explains Areg Maghakian, ATP Deputy Director of Operations. "As a result of this work, we will soon be able to observe some of the species included in the Red Book in the parks, churches and schools throughout Armenia."

"As part of our mission to re-green Armenia, ATP has a commitment to preserve our precious biodiversity by planting native and endangered trees all over the country," adds Maghakian.

(Source: Armenia Tree Project press release, 19 September 2011.)

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AUSTRALIA

Truffle trouble despite boom crop in 2011

The head of Australia's biggest truffle producer, which is located in Western Australia (WA), says the multimillion dollar industry is facing some serious challenges. WA is the nation's largest producer of truffles, or more precisely, the sleepy southwest hamlet of Manjimup is considered to be the epitome of Australia's truffle industry, churning out about 70 percent of the annual crop.

The Wine and Truffle Company chairman, Alf Salter, told PerthNow that this year's Australian harvest, currently under way nationwide, will yield about 3 500 kg of the deliciously rare fungi. With wholesale prices ranging between AUD\$1 800 and AUD\$2 000/kg, the industry is valued at around AUD\$7 million, although the retail price is currently a staggering AUD\$3 000/kg, with the majority of the annual crop destined for overseas markets.

Mr Salter explained that reporting on the industry was always overwhelmingly positive, when in reality the key challenge, among many facing the industry at present, was establishing, developing and retaining lucrative foreign markets such as France, elsewhere in Europe and even the United States of America.

He said the Australian market only consumed 600–800 kg/year and, considering the national haul may hit 3 500 kg this year, almost 2 tonnes will need to head offshore.

"The reality is that we all thought the world would be clamouring for truffles from the southern hemisphere because we are growing truffles when the northern hemisphere is not," he added. "At this time of year they are growing autumn-summer truffles (*Tuber uncinatum*), and we are growing winter truffles (*T. melanosporum*)."

He indicated that the long-established and highly traditional industry that exists in France and neighbouring European countries meant that the local trufferies (the name given to a truffle orchard)

desperately required a good strategic plan to sell that export quantity successfully to the northern hemisphere. (Source: www.perthnow.com.au, 22 July 2011.)



Pleurotus spp.

BANGLADESH

Potential and emerging economic benefits of mushroom cultivation in the northeastern region of Bangladesh

Mushrooms are one of the fleshy lower-class parasitic fungi with a distinctive fruiting body. They are delicious, nutritious and have medicinal value when cultivated scientifically from seeds. Seven types of mushroom species are common in Bangladesh: *Pleurotus spp.*, *Calocybe indica*, *Volvariella volvacea*, *Lentinus edodes*, *Agaricus spp.*, *Ganoderma lucidum* and *Auricularia polytricha*. Among these, *Pleurotus spp.*, locally called oyster mushroom, is cultivated the most because its cultivation method is very simple and it can be grown within a temperature range of 15–30° C throughout the year.

At present, mushrooms are one of the primary sources of income for the poor, but the rich are also engaged in mushroom cultivation as a subsistence income and as a leisure pursuit in Bangladesh. Mushroom cultivation has opened up a new opportunity to earn additional income for a good number of large to small entrepreneurs in the Sylhet City Corporation (SCC) area of Bangladesh. The greatest advantage for the entrepreneur is that mushroom cultivation does not require a large area: mushrooms can be grown inside a house, even in an unusual place (such as under the bed).

Generally, entrepreneurs follow the poly bag and shelf cultivation method. For 100 spawn packet production the required raw

materials are sawdust (16 kg), wheat bran (8 kg), rice straw (2 kg), CaCO₃ (2 percent) and water (46 percent). After two to three days, pin-head flushes appear. Although up to six flushes may be obtained from each bag, the first three are the most important for commercial production. Mushrooms can be harvested within five to seven days. They should not be watered the day before collection since this decreases their preservation capacity. The packets are kept at rest for one day after harvesting and then rubbed gently by spoon and sprayed. Mushrooms can be collected again after ten to 15 days. Consequently, within three months and from one spawn packet, mushrooms can be collected seven to eight times and produce 200–250 g mushrooms each time.

Fresh spawn or mushrooms and mushroom dry powder are the main products that are traded in markets both locally and throughout the country. Mushroom-based fast food, snacks and drinks (mainly coffee) are the most profitable businesses in the area. Raw material from mushroom residues is used by agrifarmers and fishery farmers as fertilizer in their vegetable gardens or agriculture fields, and in ponds as fish food. Recently, many Chinese restaurants and fast food shops have been serving various delicious and popular mushroom-based food items to their customers. The existing marketing channel of mushroom and mushroom products in SCC reveals that the entrepreneurs and/or processors are more or less dependent on intermediaries. In most cases, the entrepreneurs are not obtaining real prices because of intermediaries or retailers. Sometimes they sell their mushrooms directly to retailers and local consumers or neighbours. When they sell directly to wholesalers they obtain comparatively better prices than through the existing market channel.

The average annual expenditure of the surveyed enterprises was calculated at Tk144 995 (US\$2 071.36), whereas the average annual income from mushrooms, residues and spawn packet sales were about Tk410 874 (US\$5 869.63), Tk15 960 (US\$228) and Tk17 357 (US\$247.96), respectively. However, the average total and net revenue of the surveyed enterprises were calculated at about Tk432 909 (US\$6 184.4) and Tk287 914 (US\$4 113.06) respectively, indicating a profitable production system. The average

benefit-cost ratio of mushroom enterprises was calculated at 2.90 in SCC.

The mushroom enterprises of SCC also faced various problems. The entrepreneurs raised issues such as the lack of financial and technical facilities, storage, preservation, effective marketing facilities and skilled labour. For example, oyster mushrooms cannot be preserved for a long time; sometimes they do not remain fresh for more than one day and consequently buyers are not interested in them. Moreover, the entrepreneurs identified the lack of support in mushroom cultivation by the extension service of the Bangladesh Forest Department. It gave training and encouraged entrepreneurs to cultivate mushrooms, but did not take any further steps to publicize and popularize mushrooms as a food with consumers. Moreover, no NGOs have yet come forward to establish a training centre and obtain a financial loan for mushroom cultivation, given that farmers often face a lack of proper training, as well as technical and financial problems. **(Contributed by:** Most. Jannatul Fardusi and Md. Habibur Rahman, Department of Forestry and Environmental Science, School of Agriculture and Mineral Sciences, Shahjalal University of Science and Technology, Sylhet 3114, Bangladesh. E-mail: jfardusi@yahoo.com/)

Wild honey: the terrain in the Sundarbans forests is one of the most treacherous in the region

For generations, poor fishers and villagers around Bangladesh's Sundarbans, the largest mangrove forests in the world, have been collecting wild honey from April to June every year. The annual honey-gathering season brings many expectations in the southwest of the country, as it provides people with much needed extra income. On average, fishers earn US\$70–80 each during the season. They use this extra money to repay their debts or to repair their boats.

Honey gathering may sound like a normal rural occupation but here it is perhaps the most dangerous job in the world. As the fishers move about in search of beehives in the wild, they run the risk of meeting a deadly foe – the Royal Bengal tiger. "During this period, the biggest danger comes from the tigers. They are always on the prowl and they can kill us instantly," says Abdus Salam, an experienced honey gatherer from Burigoalini village, in the district of

Satkhira in the western Sundarbans. "Then there are venomous snakes inside the forests. In these muddy waters, crocodiles lie in waiting," he adds. Tiger attacks happen throughout the year but the number of incidents goes up during the honey-gathering season. At least 80 people are killed by the tigers every year in the Sundarbans.

Fishers normally go from island to island for about three weeks in their creaky boats collecting honey, made by some of the largest and most aggressive bees in the world.

They travel through muddy saltwater rivers, creeks and narrow channels that criss-cross the Sundarbans forests.

With no other jobs on offer, it seems these fishers from the Sundarbans have little option than to carry on with one of the most dangerous professions in the world. *(Source: BBC News, 20 May 2011.)*



CAMEROON

Cameroon via Chelsea

The journey south from Cameroon's Douala International Airport to Marguerite Akom's home in one of Africa's largest rain forests takes around seven hours in a 4x4. It was a journey that Akom made this time last year when she came to London to help create a garden at the Chelsea Flower Show and to raise awareness about the threats faced by indigenous people in sub-Saharan Africa.

Akom, 46, who is a pygmy from the Baka community, lives in a *poto poto*, or mud home, in the village of Cyrie. It is very different from the *mongulu*, or leaf house, in which she grew up. Back then, her family lived deep in the forest as hunter-gatherers, until local officials persuaded them to swap their traditional life for a permanent community built along a track.

"It is the work of women to make *mongulus* from small lianas and

Marantaceae leaves," says Akom. "It takes a few hours. We had everything we needed on site. The *poto poto* home can take several months. To be done fast, the owner may have to prepare food for those working and provide the locally brewed alcohol, called *odontol*."

Akom lives there with her six children and her late husband's cousin, plus various visitors who stay with her because her husband was a community leader. "Our staple meal is based on bushmeat and forest spices, tubers and vegetables. Now it is difficult to have bushmeat as there are so many poachers coming from the cities and taking advantage of the logging tracks for easy access to game. Once in a while we eat porcupine, deer, hare, duikers [antelopes], grasscutters, rats, pigs, antelope. It is more and more difficult to have elephant meat, which used to be a ceremonial meat," says Akom.

The Baka tend to hunt old, usually male, animals in order to preserve their food source, unlike poachers, who hunt indiscriminately.

"Life in the forest was very good," says Akom. "When the hunting expedition was very successful we have enough food for a couple of days and sing and dance all night, chanting praises to Enjenqui, the god of the forest."

"Honey remains very precious to us. We have different types of honey collected from the forest. NGOs are now teaching us how to produce honey from our backyard. I still doubt the honey from hives will taste like the forest honey. Honey is very important as it is part of the wedding dowry."

"Our problems are many," says Akom. "We were the first inhabitants of the forest but do not have any rights there. Where we used to live in the forest has now been sold for logging and made into national parks and we are not allowed to go back and live there. This makes me sad."

Mongulu-building is one of the traditional skills that keeps Akom and other women in touch with the forest and, more bizarrely, with the Chelsea Flower Show. Last year, she and two other pygmy women from Cameroon built a *mongulu* at Green & Black's rain forest garden to highlight the fact that hunter-gatherers can be excellent guardians against activities such as illegal logging, if they are allowed to continue their traditional way of life.

The garden won a gold medal and a visit from the Queen, who spent some time talking, through a translator, to Akom.

The meeting with the Queen, and Akom's presence at Chelsea have given her clout in Cameroon. She says: "This visit has empowered me and enabled me to position myself as a community resource person. Chelsea has helped organizations working with us to push forward our efforts to have our land rights recognized".

"Since being at Chelsea we have seen small changes. The council has started extending forest fees and royalties to the Baka. What we want is our informed consent on all initiatives that affect us." (Source: S. Nnah Ndohe, J. Mougou and J. Owen in *The Financial Times*, 20 May 2011.)



Rangers put bushmeat poachers in their sights

In the dense rain forest of eastern Cameroon a team of rangers is on the hunt for poachers. The group is cracking down on the commercial trade of bushmeat, a problem that now extends beyond the country's borders. "It is the main problem we face, but with time we will succeed," said Deng Deng National Park ranger, Julius Tanyi.

The bushmeat trade in Cameroon is illegal, but enforcement is low and profits are high. Animals caught in the rain forest by poachers are often smuggled by train from the rural areas to the cities. But the threat to wildlife is becoming greater as the meat is sent further afield.

A study published last year estimated that each week around 5 tonnes of illegal African bushmeat is smuggled through Paris Charles de Gaulle airport in France (please see page 20).

The rangers scour the forest for clues left by poachers looking to turn threatened species into bushmeat. "On these types of expeditions we look for bullets, we look for traps that people set and animals too," Tanyi explained. "We see if they [animals] are curious or if they are still running away from us – if they run away from us, it means they are threatened."

The meat can be found for sale at a market close to the park. Roger Fotso, from the Wildlife Conservation Society, says most of the meat for sale comes from the rain forest he is trying to protect. As soon as he arrives at the market a group of meat sellers runs away with everything. But Fotso still finds animals such as monkeys for sale there. "Monkeys reproduce really slowly and it is really serious to have people taking away that many of them," Fotso explained.

In local markets, bushmeat can fetch between US\$10–15 but in urban centres such as the capital Yaoundé, sellers can charge double. And, as Cameroon continues to urbanize, the problem is getting worse. Fotso says there is a new breed of consumer in the city who buys the meat for prestige instead of sustenance. "It is quite expensive, so it is more about luxury than really having the need for that bushmeat," he said. "This is taking away from the people in the rural areas where bushmeat is for local consumption but this is commercial."

"Very often people tend to point the finger at the rural poor, but they are not the problem. The problem is the middlemen who come from the cities with money, with cartridges, with guns and professional hunters," Fotso continued. (Source: CNN, 17 August 2011.)



The economic value of NTFPs

The economic wealth of Canada's forests has long been measured in terms of the trees used to make conventional forest products, notably softwood lumber, newsprint and wood pulp. In fact, numerous forest-derived resources make a significant contribution to many rural communities and households across Canada through sales revenue and seasonal employment.

The range of NTFPs is very diverse and includes those that are: (i) gathered from the wild, in either timber-productive or non-timber-productive forests and lands (e.g. mushrooms); (ii) produced in forests under varying levels of management intensity (e.g. maple syrup); and (iii) produced in agroforestry systems (e.g. forest species such as wild ginseng planted as field crops).

The types of NTFPs that are found in Canada consist of the following.

- *Forest-based foods.* These include maple syrup, wild blueberries, wild

mushrooms and native understory plants such as wild ginseng and fiddleheads. By-products of the forest industry can also be converted into prepared foods (e.g. lignin, a natural constituent of wood, which is used to make artificial vanilla).

- *Ornamental products from the forest.* These include horticultural species bred from wild species (such as cedars and maples); and decorative or artistic products such as Christmas trees and wreaths, fresh or dried floral greenery (e.g. salal), and speciality wood products and carvings.
- *Forest plant extracts used to make pharmaceuticals and personal care products.* These include paclitaxel (commonly known by the trade name Taxol®), which is most often extracted from yews such as the Canada yew (ground hemlock). Taxol is widely used as a chemotherapy agent. Other forest plant extracts, particularly conifer essential oils, are used in a wide range of creams and other personal care products.

Maple products represent a \$354 million dollar industry in Canada. In 2009, the country produced over 41 million litres of maple products, including maple syrup. Canada produces 85 percent of the world's maple syrup.

More than 1.8 million Christmas trees were sold in Canada's domestic and export markets in 2009. This seasonal industry is worth about \$39 million annually.

Furthermore, Canada is the world's largest producer of wild (low-bush) blueberries. It exported \$127 million of fresh and frozen berries in 2009. Most wild blueberries are planted commercially in Quebec and the Atlantic provinces as field crops.

Research by the Canadian Forest Service (CFS) on opportunities related to NTFPs has focused on treatments to increase the levels of paclitaxel and related compounds (taxanes) in Canada yew before harvesting. New methods to extract taxanes from Canada yew have also been researched.

As part of Forest 2020, CFS also conducted research on other wood perennials that have medical uses. These species include larch, willow and hawthorn. Another focus of CFS research has been on the sustainable harvest and cultivation of forest-based foods, such as mushrooms and several wild berries. (Source: Natural Resources Canada, 20 September 2011.)

A forest full of opportunities

There are many examples of NTFPs among the more than 860 woodlot licences around the province of British Columbia (BC). A woodlot licence outside Quesnel taps birch and alder trees for producing syrup and fudge, while a woodlot near Campbell River taps big-leaf sugar maple trees. A Chilliwack nursery selling only natural plants finds its vine maple and salmonberry shoots from the neighbouring woodlot licence. Another woodlot is used as a source for bows for making wreaths and salal for floral decorating.

These are but a few examples. Beyond syrup, birch trees can be a source of toffee, marinades, ice cream toppings, sauces, basketry, weaving, paper from bark, bowls, platters, cutlery, serving utensils, twig furniture, canoes, paddles, shoe insoles, sleds, snowshoes, oils for cosmetics, medicines, sweeteners (e.g. xylitol), and the list goes on.

One example of a forest managed for more than timber lies outside the village of Kaslo. The Kootenay Agroforestry Society holds this woodlot licence and Peter McAllister manages the multitude of resources in addition to trees. He harvests and processes culinary and medicinal mushrooms for sale and teaches workshops on behalf of the society about "alternative foods" and NTFPs. Peter refers to the many NTFPs as GFTF – "gifts from the forest".

"We have grown a lot of food on underutilized wood," McAllister said, "mainly on deciduous species." Woodlots provide many other foods in addition to berries. Pine mushrooms, for example, are harvested and sold to buyers in Japan. Popular shiitake mushrooms are gathered and then dried using a method that causes them to secrete maximum amounts of precious vitamin D.

McAllister said the society's workshops have introduced subjects and skills such as dyeing natural fabrics with lichens; pine needle and cedar basket weaving; culinary and medicinal mushroom growing; native plants, yew bow-making and edible and poisonous mushroom identification.

Opportunities abound for the many NTFPs that have yet to be developed. The Centre for Livelihoods and Ecology (CLE) at Royal Roads University is working to provide information to understand the potential of these species more fully. [Source: Barriere Star Journal in www.bclocalnews.com [Canada], 25 July 2011.]

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La découverte d'un nouveau produit forestier non ligneux pour la commercialisation – les amandes de *Ricinodendron heudelotii*

La région de la Lobaye au sud-ouest de la République centrafricaine contient d'importants peuplements d'essessang (*Ricinodendron heudelotii*), dont les amandes sont inexploitées du fait d'une méconnaissance de la part des communautés locales des potentialités du marché en Afrique centrale et de l'Ouest comme des techniques de valorisation.

L'essessang, appelé nzoko en ngbaka et bomboko en issongo, est un arbre de la famille des euphorbiacées présent dans les forêts secondaires avec lumière abondante; il peut atteindre 40 m de hauteur et jusqu'à 120 cm de diamètre. La plante est protégée lors des défrichements agricoles en raison de ses multiples usages. En effet, son bois est employé en menuiserie et son écorce comme produit médicinal, et son ombrage est apprécié; il sert également d'arbre hôte pour des chenilles et des champignons comestibles (voir Eyog Matig, O. *et al.* 2006. *Les fruitiers forestiers comestibles du Cameroun*. IPGRI).

Les fruits d'essessang contribuent à une nourriture équilibrée car ils fournissent des graines oléagineuses riches en lipides, glucides, protéines et calcium et renferment entre 49 et 63 pour cent d'huile, qui peut être consommée directement ou utilisée en pharmacie. Les amandes transformées en poudre entrent dans la préparation des poissons braisés et des sauces, car elles servent à épaissir et sont appréciées pour leur goût. La potentialité économique de ce produit est largement ignorée par les populations de la Lobaye, alors même qu'un sac de 50 kg d'amandes se vend aujourd'hui entre 120 000 et 150 000 francs CFA (260-326 dollars EU) sur le marché camerounais.

C'est à ce titre que, à travers son projet régional sur les produits forestiers non ligneux, la FAO a programmé une formation dans les villages pour



Ricinodendron heudelotii

développer les capacités locales relatives aux étapes de transformation des amandes d'essessang. Le processus comprend les étapes suivantes: la collecte, la fermentation visant à faciliter la pourriture de la pulpe, le lavage et la préparation sur le feu afin de fragiliser la coque, le concassage et, enfin, le séchage permettant de conserver les amandes pendant plusieurs années. La formation se propose de montrer les avantages de la fermentation accélérée en sachet polyéthylène, qui ne dure que quatre jours, comparée à la fermentation à l'air libre, qui requiert deux semaines.

Par ailleurs, des acheteurs grossistes en provenance du Cameroun seront mobilisés et des ventes groupées organisées, ce qui devrait permettre aux populations locales d'obtenir un revenu minimum de 50 000 francs CFA par sac de 50 kg vendu (109 dollars EU). Les autorités nationales et locales seront sensibilisées sur ces activités de développement de la filière essessang, de façon à ce qu'elles assurent leur soutien administratif à cet égard.

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Exportaciones Forestales de Productos no Madereros 2010

Las "Exportaciones Forestales de Productos no Madereros 2010" comprende el último boletín que alude a las exportaciones chilenas más recientes incluyendo los países de destino, así como

las industrias de mayor producción de los productos forestales no madereros.

En este número se hace referencia entre los PFNM más destacados, a las hojas de boldo como planta medicinal utilizada en el mundo y menciona algunas empresas involucradas en la comercialización del mismo. También se describe el bambú del género *Chasquea* así como los segmentos de mercado actual y sus potenciales de uso. Ambos productos se analizan teniendo en cuenta los antecedentes técnicos y la recopilación bibliográfica especializada.

(Fuente: Grupo de Información y Mercado, Sede metropolitana de Chile, Instituto Forestal [INFOR].)

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Los productos forestales no madereros (PFNM) de Costa Rica

Un reciente estudio sobre un manejo tradicional de plantas de Costa Rica se divide en seis capítulos, a saber:

1. Manejo tradicional de lianas y otras fibras vegetales. Los recursos del bosque tropical son productores de diferentes tipos de fibras. De acuerdo con la estructura y resistencia de los tejidos, las fibras se clasifican en: (i) fibras suaves: provienen del floema secundario, como sucede con los géneros *Corchorus*, *Sida*, *Abutilom*, *Apeibay* *Cecropia*; y (ii) fibras duras: conformadas por células de mayor resistencia, presentes en los tejidos internos de las plantas; algunos ejemplos son los géneros *Agave*, *Furcraea* y *Ananas*.



Agave

No es fácil determinar hasta donde es sostenible el manejo de las fibras, ya que en su análisis se mezclan elementos biológicos, culturales y de mercado. La investigación no ha hecho hincapié en el aprovechamiento, limitándose éste al aprovechamiento de la fibra para uso utilitario, por lo tanto, al incentivarse el aprovechamiento con otras finalidades, la situación entra en conflicto con el concepto de sostenibilidad, esto es lo que sucede con el ratán.

2. Etnobotánica y etnofarmacología, disciplinas de valor en la domesticación de plantas. Es importante rescatar el conocimiento que aportan ambas disciplinas sobre elementos de manejo tradicional, ecológicos, de protección y domesticación para la evaluación técnica de los recursos. La importancia que ha tomado la etnobotánica en las últimas décadas, es producto del interés de diferentes organismos por buscar alternativas para la conservación y el desarrollo de la biodiversidad tropical.

3. Extractivismo y domesticación de plantas medicinales nativas. Actualmente, el extractivismo continúa en el Petén pero en otras regiones de Guatemala y en países como México, Honduras y Costa Rica se ha promovido el proceso de domesticación a través de su cultivo en condiciones de mayor avance tecnológico. A pesar de la preocupación de los expertos, organismos internacionales y público en general sobre el futuro de este ecosistema, las consecuencias del deterioro de los bosques tropicales húmedos apenas empieza a dilucidarse.

La biodiversidad vegetal útil ha constituido desde la colonia hasta la actualidad un bien codiciado, tanto en el ámbito local como internacional. Su aprovechamiento indiscriminado se ha denominado "extractivismo" y "minería forestal". El extractivismo campesino o el de comunidades indígenas más aculturizadas tiene en general un fuerte componente de comercialización, centrándose para tal fin en un menor número de productos. La presión del mercado a través de su gran demanda y elevados precios para bienes escasos puede estimular un cambio en las técnicas de extracción y una sobreexplotación por encima de la tasa de renovación del recurso haciendo, a largo plazo, la actividad insostenible.

4. Biodiversidad y manejo sustentable de plantas aromáticas. Es muy importante poder conocer los procedimientos racionales que aplican estas culturas y que les han permitido explotar las riquezas naturales de sus entornos sin amenazar sus subsistencias. Lógicamente las técnicas difieren mucho según la región y según las circunstancias sociales, geográficas y climáticas. Se exponen a continuación algunos ejemplos de cómo el recurso genético natural puede ser explotado, sin ejercer el simple extractivismo, y garantizando su permanencia y diversidad natural. Básicamente son dos los caminos que se pueden seguir: la domesticación de la especie para su manejo agrícola, o la explotación sustentable de las poblaciones naturales.

5. Aprovechamiento de los PFNM del bosque tropical. El aprovechamiento de los diferentes PFNM por parte de comunidades locales no ha sido objeto de estudio, específicamente lo relacionado con el aprovechamiento y generación de ingresos de las familias locales. No existen estadísticas de mercado local. Otro problema es la capacidad técnica, referida a la falta de conocimiento biológico. Este problema ocasiona que no se conozcan cuales son los productos que provienen del bosque y cuales de cultivos agrícolas convencionales. Finalmente, debido a normas internacionales que restringen el comercio internacional de flora y fauna silvestre, se evaden las normativas aduaneras, precisamente para lograr las exportaciones.

6. Comercio de los PFNM del bosque en América Latina. Es evidente que el comercio de plantas medicinales está en aumento en la región latinoamericana y en el mundo. La prioridad en la región latinoamericana radica en caracterizar el estado de desarrollo de las plantas medicinales. Existe un mercado regional importante que debe fortalecerse con medidas políticas. El mercado internacional debe mejorar los precios de la materia prima y/o promover la producción de extractos.

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DEMOCRATIC REPUBLIC OF THE CONGO

Plantes médicinales de traditions: province de l'Equateur

A recent book (*Plantes médicinales de traditions: province de l'Equateur*, R.D. Congo) contains a wealth of information on local medicinal uses, including the different plant parts used and the way of preparation of the medicine, of more than 350 medicinal plants of the Equator province in the Democratic Republic of the Congo (DR Congo). All this information was documented by a team of 25 research workers from the Institut de recherche en sciences de la santé, who held interviews with 537 traditional healers belonging to 51 tribes in 255 villages and four towns throughout the province. In addition, each medicinal plant has a brief description, some information on its ecology and a list of vernacular and French names. Vernacular names have been noted in more than 50 languages in total, and at the back of the book these names have been indexed by language and also alphabetically. Where possible, the medicinal plants are illustrated, adding more value to the book.

This publication can be considered as one of the steps towards a complete pharmacopoeia of DR Congo. There are several other books and articles on the medicinal plants in DR Congo, but most of them focus on specific diseases or are much less detailed in their uses. A database with the documented information on the medicinal plants of DR Congo, with samples stored in a herbarium for verification, would be of immense help to a diverse group of users, including traditional healers, students and researchers, pharmacists, chemists, biologists, rural development agencies, conservation agencies and even private enterprises.

More information concerning species that are useful for cultivation in home gardens would also be welcome, so that people can have plants close at hand to treat common



ailments such as fever, malaria, diarrhoea and skin problems. Planting local medicinal plants in home gardens helps in the domestication process of some species, and at the same time protects wild populations from unsustainable harvesting.

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(Please see page 69 for more information.)

ETHIOPIA

Wild plants and contributions to food and health-care security

Wild food consumption is common in rural areas of Ethiopia. Wild plants are also important as food supplements and a means of survival during times of drought and famine. Wild food plants are of special nutritional importance as sources of vitamins, minerals, trace elements, dietary fibre and protein. They contribute to improved local food security and income, and help overcome a number of health problems associated with nutrient deficiency. In parts of southern Ethiopia, the consumption of wild food plants is one of the most important local survival strategies. In recent times, their consumption and use have intensified as a result of repeated climatic shocks hampering agricultural production.

Nutraceuticals – foods or naturally occurring food supplements with beneficial effects on human and livestock health – play an important role in health and nutritional security in Ethiopia. Over 80 percent of medicines for primary health care in the country are in fact derived from plant products. Among the illnesses that are most often treated with medicinal plants are internal parasites, skin ailments, tapeworm infections, snake poisons, dog bites and liver diseases.

Indigenous fruits and seeds of trees and shrubs are commonly consumed fresh in many parts of Ethiopia by children, herders and hunters. This helps to maintain their nutritional and medicinal content and value. Wild fruits in particular contribute greatly to the nutrition and health security of rural people because of the many major elements such as proteins, vitamins and minerals they possess.

Nevertheless, research on sustainable utilization of these edible and medicinal wild plants is inadequate in Ethiopia. Consequently, an ethnobotanical study aiming to identify key nutraceutical wild plants and document associated indigenous knowledge was conducted in six study sites of semi-arid east Shewa, Ethiopia. The study analysed local use and management practices and implications for the food and health security of people living in semi-arid areas. Twenty nutraceutical plants were identified: 35 percent shrubs, 6 percent trees and 5 percent lianas for human food, livestock feed and medicine. Results showed that local people have diverse indigenous knowledge on the use and management of nutraceuticals. Transhumant pastoralists used 95 percent nutraceuticals and settled farmers 65 percent. Twenty nutraceutical wild plants were used to treat 11 human and nine livestock ailments/health problems. There are a large number of nutraceutical plants that can be used for the nutrition and health care of people in semi-arid areas. Since transhumant pastoralists are more intimate with nature and more knowledgeable, they have been able to adapt to climatic changes by using locally available nutraceuticals for themselves and their livestock. Climate change adaptation strategies can be built on this indigenous knowledge for the sustainable use of nutraceuticals for nutrition and health security.

The study revealed, however, that the clearance of vegetation for crop production is threatening the survival of wild plants and hence undermining the health, food and financial security of local people. Moreover, the environmentally friendly resource use and conservation practices over generations of the transhumant pastoralists of east Shewa are also eroding. In short, nutraceutical wild plants are declining with the natural vegetation of the area. There is thus an urgent need for the sustainable utilization, documentation and management of these wild edible plants. [Source: D.H. Feyssa, J.T. Njoka, M.M. Nyangito and Z. Asfaw, 2011. Nutraceutical wild plants of semiarid east Shewa, Ethiopia. Contributions to food and healthcare security of the semiarid people. *J. Forestry*, 5(1): 1–16.]

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GEORGIA

The Georgian Society of Nature Friends

The Georgian Society of Nature Friends (GSNF) is an organization that serves to educate the community about our natural environment and protect it. We have a strategy of raising public environmental awareness and institutional development of community and organizational networks for the creation of the necessary actions related to environmental conservation.

In support of these strategies, in October this year the organization plans to conduct a three-day training programme for 17 employees and volunteers covering areas of fundraising, project writing, public communication and organizational capacity development. Participants will learn useful and important information on the above issues, and will then be able to assist their local communities in the implementation of environmental activities, as well as raise awareness of environmental issues in Georgia.



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HAITI

Bamboo project

The Foré Bamboo initiative is partnering with Haitian community organizations to plant and maintain non-invasive construction-grade bamboo. This bamboo can then be used to relieve the housing and environmental crises in Haiti.

On the World Bamboo Organization's first trip to Haiti, two huge problems were very striking: the urgent need for housing and the barren, deforested hillsides. In an effort to contribute to Haiti's long-term sustainable development, this bamboo

project, led by Foré Bamboo, aims to tackle both of these massive problems head on. So far, it has planted over 15 000 ft² (1 393.5 m²) of bamboo nursery with four Haitian community partner organizations, and is planning to expand ambitiously in the coming year.

The goal is to develop bamboo as a multipurpose crop to build disaster-resistant houses, slow down deforestation and erosion, and develop the local economy. The strategy is to partner with local Haitian organizations that can provide land and social capital, and help them with the technicalities of growing bamboo and building safe houses. All the profits, both economic and environmental, go directly to the Haitians in the community.

Why bamboo? Bamboo is a phenomenal construction material. Over 1.5 million Haitians are in desperate need of shelter. Bamboo is a cheap, sustainable and locally sourced building material that can be used to build earthquake- and hurricane-resistant houses.

Bamboo will also help the economy. Because it is incredibly versatile, it can increase farmers' incomes and create jobs in construction, agriculture and energy, etc. This economic incentive is incredibly important to ensure that the project is sustainable in the long term.

Furthermore, bamboo is extremely beneficial to the environment. Erosion, deforestation and mass extinction are all enormous problems in Haiti. Bamboo reduces soil erosion, provides a multitude of environmental services and takes the stress off natural forests, protecting the threatened species within. It is one of the best plants for carbon sequestration, which is extremely important as the impacts of climate change become more catastrophic. [Source: World Bamboo Organization, 11 July 2011.]

INDIA

Medicinal plants to get "good quality" tag

India's wonder plants with medicinal properties will now come with a special "good quality" tag with the Government putting in place a voluntary certification scheme for medicinal plant produce based on good agricultural and field collection practices. This, it said, will enhance confidence in the quality of India's medicinal plant produce and make good-quality raw material available to the Ayurvedic and herbal drugs industry.

Under the scheme, launched jointly by the National Medicinal Plants Board and the Quality Council of India, any producer/collector or group of producers/collectors can obtain certification from a designated certification body and will be under its regular surveillance. [Source: *The Times of India*, 6 June 2011.]

Campaign to make India the land of spice Veda

India, which is known as the land of Ayurveda, might soon acquire another distinction globally as the "land of spice Veda" if the proposed Spices Board campaign yields the targeted impact.

The Spices Board is working on a campaign focusing on the health benefits of spices as part of efforts to promote exports, the Board Chairman, Dr A. Jayathilak, said during an interaction programme with *The Times of India* journalists here recently.

Spice exports from India doubled from US\$0.52 billion in 2005 to US\$1.17 billion in 2010. In 2010-11, they had shot up to US\$1.20 billion and the target is to jack exports up to US\$10 billion in 2025, he said.

The elimination of pesticide content will be a prerequisite for promotion of exports and the Spices Board is launching various initiatives to ensure that Indian spices are free from pesticide residue, the Chairman added. [Source: *The Times of India*, 20 September 2011.]

Contribution of NTFPs to the rural economy in Chhattisgarh

A recent research-based study was conducted in Chhattisgarh (CG) state with the overall objective of understanding the status of NTFPs and their contribution to the rural economy. Detailed surveys and interviews were carried out at the household level in the six forested districts selected in north Surguja, Manendragarh, Dharamjaigarh, Kawardha, east Bhanupratappur and Jagdalpur. In each district, ten representative villages were selected for an intensive survey and in each selected village, 20 households belonging to different socio-economic strata were surveyed. Thus, a total of 1 200 households were interviewed/surveyed from 60 selected sample villages.

The state of Chhattisgarh has a total forest area of 59 772 km², which is about 44 percent of the total area; it also has the highest percentage (31.8 percent) of

Trade of NTFPs in Chhattisgarh state

Category of NWFP	Major component	Total species	Trade in crores (Rs)
Nationalized	<i>tendu</i> leaves, sal seed, <i>narra</i> and gums, <i>kullu</i> , <i>dhawda</i> , <i>babul</i> , <i>khair</i>	7	375
Non-nationalized, non-medicinal	<i>kusum</i> , <i>palash</i> , <i>mahul</i> , <i>karanj</i> , <i>thikhur</i> , <i>baichandi</i> , <i>imli</i> , <i>mahua</i> , <i>lac</i> , <i>mahul</i> leaves, <i>chirinji</i> , etc.	30	275
Non-nationalized, medicinal	honey, <i>bel</i> , <i>kalijiri</i> , <i>dhavai</i> , <i>shatawar</i> , <i>nagarmotha</i> , <i>baheera</i> , <i>malkangani</i> , <i>bhilawa</i> , <i>marodfali</i> , <i>baibaring</i> , <i>vanjeera</i> , <i>kalmegh</i> , <i>aonla</i>	42	50
Total		79	700

Source: CG MFP Federation; US\$1= Rs48 at time of study; 1 crore = 10 million rupees.

scheduled tribes (STs), i.e. 20.83 million. The Government considers that unemployment in tribal areas could be addressed by central government through NTFP-based activities. There is tremendous scope and relevance in the 2006 Forest Rights Act and the NTFP access benefit, but there is a long way to go as far as the implementation of the Act is concerned.

Income from NTFPs goes towards investment in agriculture, serves as a risk-hedging instrument in crop loss years, and meets emergency health requirements and major consumption expenditures such as clothes and festivals.

Over 625 NTFP species are reported to be available in CG forests, with an annual potential of around Rs1 000 crore. The CG MFP (Minor Forest Products) Federation estimates the trade in NTFPs at around Rs700 crore. Assuming a simple correlation with proportionate forest area and tribal population as per all India NTFP employment potential figures, it is estimated that at least 100 million person days of employment are generated by NTFP collection and trade in Chhattisgarh. The major NTFPs available and collected in the state are *tendu* leaves, *narra*, *palash* flower and seed, *mahua* flower and seed, sal seed, *kusum* seed, mango kernel, *babul* gum, neem seed and *charota* seed. Over 200 species of medicinal, aromatic and dye plants are found in abundance.

The study shows that 73.9 percent of the sample population was found to be below the poverty line. In all villages, local people gathered various NTFPs for commercial purposes. Of the total number of households studied, 31.1 percent gathered up to 100 kg of NTFPs, 29.8 percent gathered 100–300 kg, 27.8 percent gathered 300–1 000 kg, while the

remaining 11.3 percent households collected more than 1 000 kg of NTFPs over the last year. This indicates that the quantity of NTFPs collected for sale varied per household and location of village.

Household NTFP collection varied, from 80 to 166 days in Jagdalpur, Dharmjaigarh and north Surguja forest divisions. In CS, NTFP collection (excluding fuelwood and fodder) is the second largest contributor (average 23 percent) to the household economy of the sample population after the agriculture sector (44 percent). The average time spent by rural households on NTFP collection is around five hours every day. The average monetary value of NTFPs gathered overall by the sampled households is Rs8 142 (approximately US\$1 700), whereas in tribal areas the highest was Rs9 358 (approximately US\$1 950) annually, which shows a higher dependence on NTFPs by tribal people.

The average distance travelled to collect NTFPs is 4.3 km. Women’s participation in NTFP collection was found to be higher than men’s in households of all social categories. Women gather NTFPs alone as well as with male members and children of



the family. At household level, people do not have separate facilities to store the NTFPs collected from the forests. Generally, NTFP items are stored in the traditional way, using earthen pots, sacks, containers and bamboo baskets.

The 73rd Constitutional Amendment Act in India and thereby enactment of PESA (Panchayat Extension to Scheduled Areas Act 1996), have bestowed ownership of NTFPs to Gram Sabhas (village councils). As a result, the state Forest Department decided that all net receipts from *tendu* leaves (used for wrapping country cigarettes) should be distributed to primary cooperative societies for the primary collectors of *tendu* leaves. Since 2008, the profit earned from the trade of nationalized NTFPs is distributed by the Department in the following manner: 80 percent as incentive wages to the collector; 15 percent used for collection, sale and value addition of non-nationalized NTFPs; and 5 percent for the temporary reimbursement of losses (if any).

The pricing mechanism practised by the Federation is more or less based on current prevalent market rates of NTFPs, which are decided by the big traders. The small processing units have been developed and handed over to local self-help groups. At the time of this study (2010), 65 processing/production centres (including 15 for lac production and one for processing; four for honey collection; 11 for collection of raw MFPs; nine for *mahul* leaf processing and for *aonla* processing; three for making herbal products; two for processing *chirinji*; one for cashew nut processing; three for oilseed processing; five for tamarind processing; two for collection of herbal medicines; and one for processing herbal foods) had been established in various parts of the state with financial support of Rs20 lakh from the European Commission for each processing/production unit. Innovative programmes adopted by the Forest Department with its funding include: training for non-destructive harvesting; a herbal processing unit; introduction of a minimum support price for selected NTFPs; and establishment of an organic certification body. **(Contributed by:** Professor P. Bhattacharya, NRM, Dean, University School of Environment Management, GGS Indraprastha University, Block-A, Sector 16 C, Dwarka, New Delhi 110075, India. E-mail: produtbhattacharya@yahoo.com/)



ITALY

Unusual and local beers

The latest Italian craft beers are inspired by local ingredients and require the same attention generally reserved for quality wine. In Italy, grapevines cast long shadows. But brewers embrace them, infusing their beer with the complex flavours of local bounty such as chestnuts and thyme, as well as grapes, of course. Plus, while a ginseng ale would never fly in, say, Germany, Italian breweries can play freely. "We do not have a heavy beer culture on our shoulders, so we are free to experiment," says Leonardo Di Vincenzo of Birra del Borgo, one of only about 280 breweries in the country. New-wave Italian restaurants love the beer because it is typically lighter and less sweet than many high-end American brews. [Source: *Wall Street Journal*, 21 May 2011.]



JAPAN

Sustainable sourcing sought for wild plant industry

TRAFFIC has launched a new project to promote sustainable production and consumption of wild medicinal and aromatic plants traditionally used in Japan.

"Wild plants are hugely important in Japanese culture for a variety of purposes, including traditional 'Kampo' medicine, as traditional 'Kodo' incense, in cosmetics and as ornaments and, more recently, they have been imported as ingredients in herbal teas and as cooking spices," said Kahoru Kanari of TRAFFIC East Asia's office in Japan. "As environmental awareness and the demand for a healthy lifestyle grow among Japanese consumers, it is now more important than ever to promote sustainable use of these resources."

The new project, "Saving Asian medicinal and aromatic plant species through involvement of the Japanese private sector", will help Japanese companies to introduce responsible production and sourcing practices for wild plant ingredients. At the same time, consumers will be encouraged to seek sustainably sourced products.

According to *The State of Wildlife Trade in Japan*, a TRAFFIC report, in 2007 Japan was the fourth largest importer (in terms of value) of medicinal and aromatic plants

used in the pharmaceutical industry – some US\$118 million.

"Worldwide, many wild plant species are threatened through overexploitation, and Japan is a major consumer of wild plant resources," said Anastasiya Timoshyna, TRAFFIC's programme leader for medicinal and aromatic plants. "A long-term commitment by Japanese industry to adopt sustainable sourcing practices would have a significant impact on the conservation of medicinal plants in the wild."

The project will encourage implementation of the international best practices for sustainable plant harvesting laid down in the FairWild Standard, and is supported by the Keidanren Nature Conservation Fund (KNCF) as part of TRAFFIC's work on medicinal and aromatic plants. [Source: TRAFFIC Web site, 23 June 2011.]

Beekeeping in Japan hit by disaster

As a result of the earthquake and tsunami in Japan on 11 March 2011, damage caused to the Fukushima nuclear power plant has led to a 20-km evacuation zone around the plant. The exclusion of traffic and the breakdown in petrol supplies have prevented many beekeepers from gaining access to their bees.

Mr Mizuhisa Fujiwara is the third generation of a beekeeping family in Akita Prefecture and is a regular supplier of honey to Tamagawa University bookstore. Mr Fujiwara's colonies are currently in several out-apiaries for overwintering and ready to start up early for fruit-tree pollination including apple, cherry and peach. A major nectar flow from *Robinia pseudoacacia* will begin in late May. Many beekeepers want to know what to do with their bees as the beekeeping season begins. Japan's Beekeepers' Association (JBA) has received many enquiries from members, while the Ministry of Agriculture, Forestry and Fisheries (MAFF) had nothing to refer to on honey bees and radiation when this serious incident occurred.

Professor Jun Nakamura, Secretary-General of the Asian Apicultural Association (AAA), at the Honeybee Science Research Center at Tamagawa University was consulted by both MAFF and JBA on this unexpected situation. With a scintillation counter he visited Iwaki city to meet Mr Fujiwara and check his colonies.

Professor Nakamura reports that the Livestock Hygiene Service Center of south Soma is helping beekeepers to evacuate their colonies and providing them with

disease-free certificates on site. JBA understands that there are still 1 500 colonies within the power plant evacuation zone. [Source: *Bees for Development Journal*, 99, June 2011.]

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LAO PEOPLE'S
DEMOCRATIC REPUBLIC**FAO celebrates first cricket harvest in the Lao People's Democratic Republic**

Within the framework of the project "Sustainable insect farming and harvesting for better nutrition, improved food security and household income generation," which kicked off in January 2011, FAO began introducing small-scale cricket farming at the School for Gifted and Ethnic Students, National University of Laos (NUoL).

The pilot project held "Saep E Li [very tasty] – the Celebration of the first cricket harvesting" last Saturday, gathering between 300 and 400 students from different schools at the School for Gifted and Ethnic Students, Lao news agency reported. This event provided an opportunity for the students involved in the pilot activity to share and exchange their experiences on cricket farming. The event involved insect cooking demonstrations, tasting sessions of free edible insects and lessons on insect breeding and the nutritional benefits of insects.

FAO, together with the Faculty of Agriculture, NUoL, has thus far worked with four different species of insects: the house cricket, the mealworm, the palm weevil (which is bred) and the weaver ant (semi-bred in trees).

For the project, students aged 16 to 18 years were taught the techniques of cricket breeding at their schools. They were also taught about the nutritional benefits of

insects, especially as complementary food in the Lao diet. [Source: BERNAMA [Malaysian National News Agency], 30 May 2011.]

Deux séries de timbres en l'honneur de la diversité des produits forestiers non ligneux dans la République démocratique populaire lao

Les produits forestiers non ligneux (PFNL) de la République démocratique populaire lao ont été mis à l'honneur par deux séries de timbres, à l'occasion de l'Année internationale de la biodiversité 2010 et de l'Année internationale des forêts 2011.

Une contribution du secteur privé forestier

Ces deux séries de timbres sont le fruit d'un partenariat entre le Ministère des postes et télécommunications, le Ministère de l'agriculture et des forêts et Agroforex Company. Cette société, établie en République démocratique populaire lao depuis 20 ans, est spécialisée dans la production et la valorisation sur le marché international des PFNL issus d'une gestion durable des écosystèmes forestiers. Les partenaires de la société en aval sont les leaders mondiaux de l'industrie aromatique et pharmaceutique.

Un double hommage: à l'action des hommes sur la préservation de la biodiversité, et à la place de la forêt dans la vie des hommes

En valorisant les produits naturels forestiers, la société reconnaît la richesse des connaissances traditionnelles des communautés forestières, grâce auxquelles ces produits et les essences forestières dont ils sont issus ont pu être protégés et conservés depuis des décennies. Inversement, l'existence et la valorisation de ces produits procurent aux familles rurales soit des usages (alimentaires, médicaux, techniques, etc.), soit, s'ils sont commercialisés, un revenu monétaire complémentaire à leur économie vivrière. Les deux séries de timbres portent ce double message.

Confirmer à la population lao l'usage industriel de ces produits naturels, et aux industries internationales l'origine lao de ces matières premières

Ces deux séries de timbres s'adressent tant à un public national qu'international : les Lao découvrent les usages (bien vivants!) de ces produits traditionnels dans l'industrie aromatique et pharmaceutique. Ces industries, pour leur part, se voient confirmer l'origine géographique de ces matières premières qu'elles intègrent dans leurs formules au quotidien.

Douze produits à l'honneur

La collection de timbres émise en 2010 se décline en deux séries : une série de plantes aromatiques (le bois d'agar *Aquilaria crassna*, la verveine exotique *Litsea cubeba* et le gingembre rouge *Zingiber sp.*) et une série de plantes pharmaceutiques (l'aliboufier à benjoin *Styrax tonkinensis*, la barbiflore *Orthosiphon stamineus* et la noix vomique *Strychnos nux vomica*).

PLANTES DE LA RÉPUBLIQUE DÉMOCRATIQUE POPULAIRE LAO À USAGES INDUSTRIELS AROMATIQUES ET PHARMACEUTIQUES



L'année 2010 a été proclamée Année internationale de la biodiversité par les Nations Unies. A cette occasion, et après 18 ans de travaux sur la biodiversité végétale en République démocratique populaire lao, Agroforex Company a le plaisir de s'associer à cet événement. Parmi ces ressources, les plantes aromatiques et pharmaceutiques tiennent une place toute particulière: leurs propriétés et leur potentiel industriel sont tels qu'elles sont convoitées par les plus grandes industries internationales. Les six plantes proposées sont natives du pays et gérées depuis des générations par les communautés villageoises, qui ont une responsabilité dans leur maintien au sein de cette biodiversité végétale. Leur exploitation raisonnée et leur commercialisation représentent un moyen non seulement de pérenniser la conservation de ces espèces végétales, mais surtout d'apporter un complément de revenu monétaire à de nombreuses familles rurales.

PRODUITS FORESTIERS NON LIGNEUX DE LA RÉPUBLIQUE DÉMOCRATIQUE POPULAIRE LAO



L'année 2011 a été proclamée Année internationale des forêts par les Nations Unies. La République démocratique populaire lao, dotée d'un domaine forestier vaste et composé de différents types de forêt, s'associe à cet événement et rappelle, parmi les différentes fonctions des forêts, l'importance des produits non ligneux.

Les produits non ligneux peuvent être des fruits, des fleurs, des résines, mais aussi des produits animaux (cire, miel, gomme laque, etc.). Six produits figurent dans cette nouvelle collection et sont illustrés par les essences forestières auxquels ils sont associés.

Depuis près de 20 ans, Agroforex Company promeut la pérennisation du marché international des produits forestiers non ligneux du pays. Il s'agit d'une exploitation renouvelable qui génère des revenus monétaires complémentaires aux communautés forestières, directement attachées à la conservation de ce domaine forestier.

La collection 2011 est dédiée aux essences forestières sources de quatre autres PFNL de la République démocratique populaire lao: *Cinnamomum Loureiris*, qui produit la cannelle royale, *Scapium lychnophorum*, dont est issue la noix de malva, *Shorea spp.*, à l'origine de la gomme dammar, et *Dipterocarpus alatus*, qui donne le gurjum et deux produits inféodés à plusieurs espèces forestières, la cire d'abeille et la gomme laque. [Auteur: F. Chagnaud, DG, Agroforex Company, PO Box 6682, 43-45 Piene Morin Road, 01000 Vientiane, République démocratique populaire lao. Courriel: fchagnaud@agroforex-company.com/]

LEBANON

Cedar forests ecotourism boom

Lebanon's 2 000 ha of cedar forest are a peaceful oasis for hikers, mountain bikers and bird-watchers, a world away from the hustle and bustle of Beirut. In the Shouf Cedar Reserve, the country's largest natural forest, villagers make a living selling home-made jam, honey, pickled olives and wine to tourists. The area was declared a UNESCO Biosphere Reserve in 2005.

While sustainable tourism is booming, the ancient forests are under threat from climate change. Nizar Hani, manager of Shouf Cedar Reserve, said: "Right now we have a new challenge for the cedar forest in Lebanon, which is climate change".

The reserve is trying to raise awareness of biodiversity among its visitors and the local community, including schools and decision-makers. It had 40 000 visitors last year, with 65 percent Lebanese and 35 percent foreigners. This year, it is expecting to receive 50 000 visitors.

Villagers in the forest benefit from a sustainable tourism programme to sell 42 different home-made products, from honey to walnut jam, herbs and olive oil, to tourists. Hani said: "About 40 women benefit from this programme. We increase their income and they work on a seasonal basis to prepare all the products. In addition to the women, we have the beekeepers. They can put their bees in the reserve and at the end of the season promote their honey here."

Cedar trees have a fond place in Lebanese history as well as in the centre of the country's flag. (Source: CNN, 10 August 2011.)

PAKISTAN

In situ conservation of medicinal plants in Chitral

Glycyrrhiza glabra (liquorice root, known locally as *muruk*) is a species found in the Karimabad and Mustuj areas of Chitral and grows on marginal lands, usually field boundaries of agricultural lands. This undershrub plant starts sprouting in April, develops flowers in May and the pods mature in July.

The roots are used locally as remedies for throat infections, stomach problems and coughs. The population of this valuable species is rapidly declining in the district because the local communities

overharvest its roots for these local remedies and collect roots before seed setting. Moreover, there is heavy grazing by livestock in the area.

In order to conserve *muruk* and other valuable species in the forests of Chitral, the Directorate of Non-Timber Forest Products, Khyber Pukhtunkhaw Forest Department Development Office Chitral has initiated a special *in situ* conservation approach along the following lines.

- A Medicinal Plant Conservation committee has been formed in Chitral's Momy valley involving the local community, especially graziers (nomadic people). This committee has 20 members (15 men and five women) belonging to various villages and castes in the valley.
- An area of about 10 acres (4 ha) has been declared a Conservation Area of Medicinal Plants (CAMP) and, by involving the local community, grazing here has been banned for a period of five years in order to ensure the regeneration of *muruk*.
- A *chowkidar* (watchman) from the local community of Momy has been hired to look after the area and three village volunteers have also been engaged to control grazing there.
- One acre (0.4 ha) of degraded communal range land has been replanted with liquorice roots.
- Through a valley gathering, 56 local plant collectors have been trained in sustainable harvesting of medicinal plants.

(Contributed by: Mr Iftilhar Ahmad and Ajaz Ahmad, Directorate of Non-Timber Forest Products, KPK Forest Department, Shami Road, Peshawar, Pakistan. E-mail: ajaz_ntfp@yahoo.com/)



Glycyrrhiza glabra

PHILIPPINES

Philippines' tribes try to save their forest

Over 40 000 ha of land, including vast swathes of forest of Occidental Mindoro, is claimed by the Mangyan people as their ancestral domain. The land is believed to be rich in gold, natural gas and minerals worth many millions of dollars. The stakes are high and the Mangyan are fighting against all odds. They are an ethnic and linguistic minority group of fewer than 25 000 in number.

A Mangyan family earns on average just US\$0.34/day. Historically nomadic and forest gatherers, the tribes often struggle to feed themselves. The consequences are obvious as 60 percent of Mangyan children are malnourished and infant mortality rates are so high that a child is considered fortunate to reach the age of ten.

According to government regulations, all indigenous peoples such as the Mangyan tribes must prove their ownership of the land they claim as rightfully theirs through title deeds and legally valid documentation. Given that the majority of Mangyan are illiterate with limited contact with the outside world, their ability to support their claim is fraught with tremendous challenges, rendering them even more vulnerable.

They rely on support from local and international community development organizations such as Plan International. For their title claim, the organization – with support from the EU – is assisting the Mangyan to survey their land, create 3D maps of their domain and document their oral history, which is replete with references to geographic landmarks. (Source: Aljazeera, 14 September 2011.)

PORTUGAL

Portugal's traditional cork industry fights modern challengers

In the centuries-old cork forests of southern Portugal, locals who for generations have harvested the bark that caps billions of bottles around the world do not think much of the rival plastic stoppers and metal screwcaps threatening their livelihoods. "Cork is a safer bet," says João Simões, a 64-year-old, as he peels the bark off a cork oak – a job he has been doing for the past 40 years. "It seals [bottles] better."

Some of the world's leading winemakers disagree. Since the turn of the century they have used more and more

alternative stoppers in an unprecedented threat for the economy of Portugal, the world's largest cork producer and one of Western Europe's poorest countries. The competition compelled Portuguese cork companies, accustomed to a long-standing near-monopoly, to embark on a do-or-die makeover. Now, producers say, their modernization and diversification programme is paying off.

They say they have checked the steep drop in the market share for cork stoppers, holding it at around 70 percent for the past two years. And last year, cork exports improved for the first time in a decade with a growth of more than 8 percent, according to the National Statistics Institute.

"For the first time in 250 years, the cork industry was actually challenged," says Antonio Amorim, Chairman and Chief Executive Officer of Amorim, Portugal's oldest and largest cork company. "We would like to ... think that the worst times for the cork industry are behind us."

Portugal supplies about half of global cork production, and the spongy bark is a major export earner for a national economy that is floundering.

Cork's recovery illustrates the kind of overhaul that officials say Portuguese businesses need to become more competitive. Modernization "is the path we must take with the utmost urgency", Portuguese President Anibal Cavaco Silva said last month.

The cork industry ensures the livelihoods of some 10 000 Portuguese workers and their families, most of them in rural areas where jobs are hard to come by. "The economic importance of the cork industry and of the cork forest is absolutely critical," says Carlos de Jesus, operational director of APCOR, the Portuguese cork association.

The challenge to Portugal's dominance came from the other side of the globe. Winemakers in Australia and New Zealand were unhappy about what they said was the inconsistent quality of cork stoppers and occasional "cork taint" – the sour, musty taste that spoils a wine and is widely blamed on chemical interaction with the cork. It is what people refer to when they say a bottle of wine is "corked".

On top of that, a cork stopper costs between €0.25 and €2; its synthetic rival comes in at €0.15–€0.40.

Most New World producers, who export much of their wine to the United Kingdom

and the United States of America, have converted to synthetic closures and screwcaps. Some producers on other continents have followed suit. Wine experts gave their endorsement for the switch. One anti-cork group staged a mock funeral in New York featuring a cork stopper in a casket.

The Portuguese Government, aware that the industry is too big to fail, declared its survival "a national cause".

In a key victory, the cork business earned green credentials from the World Wide Fund for Nature (WWF), which applauded the industry for being renewable, sustainable and environmentally friendly. The cork oak's bark is pried off about every nine years, when the inner lining is able to withstand exposure. This happens in a regular cycle for more than a century with each tree. [Source: Associated Press in *The Washington Post*, 31 July 2011.]



Développement des petites et moyennes entreprises basées sur les PFNL

Le secteur des produits forestiers non ligneux (PFNL) au Congo est porteur de nombreuses opportunités, notamment dues à une grande diversité de ces ressources. Le *Gnetum*, les marantacées, les asperges (comme *Laccosperma secundiflorum*), le miel, les fruits comestibles (*Aframomum stipulatum*, *Landolphia* spp., *Coula edulis*, *Pseudospondias longifolia*) et les champignons sont les PFNL les plus utilisés à Abala, dans la région des Plateaux, et à Madingo-Kayes, dans la région du Kouilou, sites pilotes du projet PFNL de la FAO et du Ministère en charge des forêts. La demande commerciale de PFNL est forte et il existe des marchés au niveau local, national, sous-régional et international pour ces produits.

Toutefois, ces opportunités coexistent avec des carences: production irrégulière de PFNL; connaissance insuffisante des techniques durables de récolte, conservation, emballage et transport; faible promotion de la qualité des PFNL; absence d'organisation des producteurs et des commerçants, et besoins en renforcement des capacités des acteurs des petites et moyennes entreprises forestières (PMEF).

Afin de développer les filières PFNL, deux formations à l'approche de l'Analyse et du développement des marchés (ADM) ont été organisées par la FAO et le Ministère en charge des forêts à Abala et à Madingo-Kayes en août 2011. Cette approche développée et appliquée par la FAO depuis plus de 20 ans en Asie, en Amérique latine et en Afrique est une méthodologie participative conçue pour aider les populations locales à créer des entreprises rémunératrices tout en conservant les ressources forestières. La méthode comprend trois phases: la phase 1 consiste à identifier les entrepreneurs et les produits potentiels, la phase 2 à sélectionner les produits les plus prometteurs, à identifier les marchés potentiels et à examiner les moyens de commercialiser les produits, et la phase 3 à préparer la stratégie et le plan d'entreprise et à faire démarrer les entreprises forestières.

Les études de base menées dans le cadre du Projet ont permis de se faire une idée sur les éléments des phases 1 et 2 de l'ADM. En conséquence, les formations ont mis l'accent sur la phase 3, élucidant les flux de commercialisation, soulignant les avantages de la collaboration en groupe au niveau des villages, et amenant les participants à déterminer leurs objectifs financiers et à élaborer des stratégies pour les atteindre.

Au total, 48 participants ont été formés durant cinq jours dans les deux sites, et neuf plans de développement d'entreprise (PDE) pilotes ont été développés. Les activités après la formation prévoient une restitution dans les villages, suivie de l'élaboration et de la mise en œuvre de PDE pour d'autres groupes de ces villages.

À la suite et dans le cadre du même projet, la FAO organise des formations similaires au Gabon et en République centrafricaine.

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Facilitating honey business

Honey dealers in Rwanda are set to receive better rewards after the Rwanda Bureau of Standards (RBS) established quality standards to boost the product in the market.

Rwandan honey has seen tremendous demand both locally and internationally. The Managing Director of RBS, Mark Bagabe Cyubahiro, says that the recent increase in the demand for honey has called for standards and checks to ensure quality. "We have taken a multipronged approach to make sure that Rwandan honey meets international standards compliant by offering training to farmers and dealers," he said.

Cyubahiro said that demand for honey has increased because of the growing tourism sector. "We have a big market here locally, in the Middle East and Europe. The challenge is for beekeepers to go for high volumes by acquiring big beehives to increase production."

Cyubahiro added: "Market demand requires certain standards that we could not meet because the international market demands organic products that are pesticide free," he said. He noted that honey collected in agricultural areas where pesticides are sprayed normally contains copper, a metal that is dangerous to a human body's functions. Such metals, including the carcinogen found in smoke that is used by many farmers to harvest honey, are the critical elements that lower quality, making the product harmful.

However, efforts are under way to create awareness among honey farmers against using smoke. Florida Uwamariya, the Accounts Administrator of Rwanda beekeeping services centre, said farmers have been trained in safe extraction, post-harvest honey management and packaging, which has improved quality. "We are looking at how we can maintain hygiene and quality honey processing and setting



up scale-processing equipment to upgrade the quality standards and produce," she said. She added that they have received international demand for Rwandan honey because of its naturalness, thanks to the country's well-endowed forests and ecosystems. [Source: www.allafrica.com, 23 June 2011.]



Great Green Wall project gathers pace

Senegal is planting its latest batch of seedlings for Africa's "wall of trees" initiative this week – the first planting since a memorandum of understanding (MoU) for the project was signed in May.

The Great Green Wall project involves planting a living wall of trees and bushes more than 7 000 km long and 15 km wide, from Dakar, Senegal in the west to Djibouti in the east, to protect the semi-arid Sahel region from desertification.

The project is in its fourth year in Senegal, with planting taking place in Labgar, Mbar Toubab, Tessekere and Widou. The 1 500-strong workforce began planting this week (8 August) and hopes to plant 1.65 million seedlings by 15 September. Since 2008, Senegal has planted nearly 8 million seedlings for the wall.

Pape Sarr, Technical Director for the Senegalese project, told SciDev.Net that the species selected for planting are economically viable and drought resistant. They are also protected by law in Senegal and cannot be felled without government permission, he said.

The wall was initiated by the African Union (AU) in 2007, through its New Partnership for Africa's Development (NEPAD). In June last year, AU created the Pan African Agency of the Great Green Wall to monitor and coordinate the project in the different countries, and provide and share information.

Marcel Nwalozie, Director of NEPAD's West Africa Mission, told SciDev.Net: "One of the things we are trying to do [through the MoU] is [create] a scientific advisory panel, because the Great Green Wall is not going to be just a wall of trees". The project could also help improve livelihoods of the communities around the wall, he said.

His office, Nwalozie added, is currently looking into different initiatives to improve the soil, which would also help improve local livelihoods.

Matar Cisse, Director-General of the Senegalese Great Green Wall Agency, said efforts were in place to maintain the plants after harvesting. "The World Food Programme provides food for work to the communities that are hosting the programmes where the walls are being planted. These communities were given the responsibility to maintain these trees that are being planted. We have small irrigation systems that these communities use to water the plants and [they will also] protect them from animals." [Source: SciDev.Net, 12 August 2011.]



Resource curse or wild wonder?

After the people of South Sudan voted overwhelmingly for independence, the work of building a nation begins. One of many tasks facing the nation's nascent leaders is the conservation of its stunning wildlife. In 2007, following two decades of brutal civil war, the Wildlife Conservation Society (WCS) surveyed South Sudan. What they found surprised everyone: 1.3 million white-eared *kob*, *tiang* (or *topi*) antelopes and Mongalla gazelles still roamed the plains, making up the world's second largest migration after the Serengeti. The civil war had not, as expected, largely diminished the Sudan's great wildernesses, which are also inhabited by buffaloes, giraffes, lions, *bongo* antelopes, chimpanzees and some 8 000 elephants.

However, with new nationhood come tough decisions and new pressures. Multinational companies seeking to exploit the nation's vast natural resources are expected to arrive in South Sudan, tempting the people with promises of development and economic growth, promises that have proven uneven at best across Africa. Dubbed the resource curse, many poor nations have seen their rich, natural resources plundered for the world market, but instead of reaping the financial

rewards, money is lost in poorly made deals or commodity swings, or ends up in the pockets of foreign corporations or corrupt officials, leaving the nation's people not with education and opportunity, but with environmental degradation and social unrest. Dependent on oil (98 percent of the Government's revenue comes from oil) and shockingly poor (90 percent of the people live on less than US\$1/day), the South Sudan is perfectly situated for a resource-curse repeat.

One way to avoid the resource curse is to expand the economic portfolio from non-renewable resources, such as oil and mining, to opportunities that will not stagnate. Here is where the nation's vast wildlife – and its still intact ecosystems – comes in.

"There is a historic opportunity, perhaps unprecedented, for wildlife conservation, sustainable natural resource management and environmentally friendly ecotourism to be integrated into the nation-building process," wrote Steven Sanderson, Chief Executive Officer of WCS.

With some of the continent's biggest herds – and therefore some of the best wildlife viewing in the world – South Sudan could become an ecotourism hub. Tourism in such a place is nothing to sniff at: Kenya estimated it would make over US\$1 billion in revenue from tourism in 2010. And unlike oil, tourism does not run dry, so long as the South Sudan makes forward-thinking conservation a priority. [Source: www.mongabay.com, 11 July 2011.]



SUDAN

Gum arabic: the Sudan's miracle commodity

Vital to human manufacturing, gum arabic is used in a wide variety of industries including pharmaceuticals, soft drinks, paints, detergents, chocolates, textiles, metal corrosion inhibition, glues, pesticides and much more. This sap, from the branches of *Acacia senegal* trees, is a natural emulsifier, which means that it can keep together substances that normally would not mix well.

The WWF project in the Bikin River area aims to demonstrate that harvesting and utilization of wild NTFPs, providing the major source of income for local people, is a viable alternative to timber logging (often illegal and unsustainable). These efforts lead to the conservation of Korean pine forests and Amur tiger habitats.

Since most of the world's gum arabic comes from the Sudan, it is considered to

be the country's miracle commodity, with a thick belt of the trees stretching from one end of the Sudan to the other.

The resource-rich African country exports tens of thousands of tonnes of raw gum arabic each year, feeding 80 percent of global demand. The Sudan's output has dropped to nearly half of what the nation produced in its heyday. As the once abundant belt of *A. senegal* trees across the Sudan shrinks, climate change appears to be one of the culprits.

The humanitarian crisis in Darfur and now in Southern Kordofan and Blue Nile are having a negative impact by sullyng the Sudan's reputation to the point that many companies do not want to admit that they buy a Sudanese commodity.

For example, Coca-Cola, which uses gum arabic to keep the sugar from precipitating to the bottom of its sodas, will not say where it gets the emulsifier. The raw sap is sent to Europe for processing and then it is disseminated to customers worldwide. Referenced in the Qur'an, Bible and Torah, modern research has proved its role in fighting diseases including diabetes, kidney disease, colon cancer, heart disease and high blood pressure.

Ly Hoang, Quality Manager of Alan and Robert, one of the companies working in the Sudan, admits that the commodity is used in an unimaginable number of commodities. Ly Hoang said that a forum in Khartoum recently took place "to exchange ideas and research topics on gum arabic by different universities and professors and students and to review the future of gum arabic". In the same context, she said Sudanese gum arabic is the most important gum in volume in the world. [Source: SudanVision Daily, 19 September 2011.]



Gum arabic



TRINIDAD AND TOBAGO

Beekeeping activities

Available data indicated that in 2008 there were around 300 beekeepers and 6 000 honey-bee colonies in Trinidad, and 16 beekeepers with 450 colonies in Tobago. This represents a decline in beekeeping in both islands, clearly suggesting that new strategies must be found to secure the sector's future to enable it to realize its full potential.

Since 1997, the Government has agreed to designate areas of forest reserve lands to be used for beekeeping activities but, to date, the agreement remains unfulfilled. This potentially fruitful policy decision could, if implemented, significantly improve the sector's history. This is because a recent survey revealed that beekeepers on both islands considered lack of suitable apiary sites as their major constraint to enterprise development.

Government policy, as reflected in statements by Food Production Minister Vasant Bharath, is one of support for the resurgence of beekeeping. Local beekeepers hope the Minister will recognize that unless a structured mechanism for the support of beekeeping is appropriately resourced, mobilized and mandated, attempts to develop the sector are likely to be short lived. Due consideration must be given to the fragility of the national beekeeping environment, which is threatened by new and exotic pests and diseases, and subjected to denudation by untamed bush fires, slash-and-burn agriculture, creeping urbanization, "fogging" for mosquitoes and large-scale industrial sites being established in rural communities.

Complementarity between beekeeping on the two islands may also be explored: a significant market exists for European queen bees in Trinidad, which could be satisfied by developing commercial queen-rearing capacity in Tobago. Of course, there is also the need to ensure that Tobago remains free from Africanized bees. Given the probability that these bees will eventually arrive in Tobago, action must be taken, both to forestall and yet prepare for that eventuality.

Beekeepers must exploit to the fullest their collective potential as a "cluster" of socio-economic interests, and enjoy the benefits of cooperation rather than competing within their community. There is significant scope to expand and diversify

the production and marketing of bee products. The bottom line is that apiculture must be tweaked to emphasize its api-business component. Finally, and of critical importance, is the need to recognize that twenty-first century beekeeping is not a simple vocation. The perception of aspiring beekeepers, investors, advisers, policy analysts and planners that there is "money in honey" and that the transformation process is as figuratively straightforward as changing the "h" in honey to the "m" in money, must give way to the reality that sustainable beekeeping is as complicated an activity as the bees we are working with. (Source: *Bees for Development Journal*, 99, June 2011.)

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UGANDA

Ugandans mobilize to save Mabira forest from sugar-cane plantation

One of Africa's last remaining tropical forests, Mabira is home to precious wildlife and is an ecotourist attraction. But it is now under threat from sugar-cane production.

In July this year, when sugar prices tripled, Ugandan President Yoweri Museveni took the opportunity to try to convince the public that the only way to bring down prices was to increase sugar production. To do this, Ugandans would give away 7 100 ha of Mabira Central Forest Reserve to the Sugar Corporation of Uganda Limited (SCOUL) to produce more sugar.

In 2007, the Government attempted to give away Mabira but backed down after facing strong resistance from civil society organizations and the public.

Mabira forest is a core conservation area for critical biodiversity; a hub for ecological and environmental conservation; a habitat for many animal and plant species; a water-catchment protector for the many rivers and streams that feed the lakes in East Africa; a recharger for underground aquifers; a crucial component of microclimate moderation in the region (which aids agricultural production); a necessary catalyst for carbon sequestration in the region; and an economic boon for Uganda's ecotourism industry.

"We have an alternative, start a bee project and have honey instead of sugar. The bees will act as security to the trees in the forest," said Beatrice Anywar, Member of Parliament for Kitgum.

Conservationists have warned that in the event that the ecology of Mabira is disrupted, the future of Ugandan dams such as Bujagali and Nalubaale would equally be at stake.

"A rain forest like Mabira is simply too intricate and delicate a body to slice apart. It will be unable to perform these functions amputated," said Tony Otoa, a researcher with Advocates Coalition for Development and Environment Uganda (ACODE-U). (Source: *The Ecologist*, 20 September 2011.)



UNITED KINGDOM

Foraging in the spring

One of the most versatile of our spring-flowering woodland plants forms vivid green patches in damp shady places on the alluvial soil beside woodland streams. Ramsons, *Allium ursinum*, or wild garlic, requires no searching for: if trodden on, it is instantly identified by a strong aroma of onions. There is no need to uproot the narrow bulbs; instead, collect a handful of the bright green, lily-of-the-valley-like leaves. Better still, pick a few clusters of the white flowers with their six narrow petals – their *al dente* texture and subtle taste, when eaten raw, puts the leaves in the shade.

For those requiring more solid sustenance, the underground tubers of pignut, *Conopodium majus*, a small plant that grows in ancient woods, are worthy of the search, especially in May. At this time, the finely divided, carrot-like leaves are topped by thin stalks bearing tiny clusters of white cow-parsley-type flower heads. In former times, free-range pigs found autumn nourishment from uprooting the plant. The hazelnut-like tuber lies at least 8 cm under the soil surface, so a penknife or trowel is useful. The sliced "nuts" can be eaten raw in salads or cooked as part of stews and stir-fries.

Elder, also called elderberry, is a genus of between five and 30 species of shrubs or small trees constituting the genus *Sambucus* of the moschatel family, Adoxaceae. In the eyes of a forager, elder has the status of a weed but, as May gives way to June, this small, multibranched tree, with its fissured, corky bark, is transformed by clusters of creamy, fragrant flowers. Elder

leaves are inedible, but the flowers can be deep fried in batter and are readily transformed into a delicious cordial with the help of sugar, lemon juice and citric acid. Elder is the preferred home of one of our strangest fungi, jelly ear (*Auricularia auricula-judae*). Emerging from trunks and branches throughout the year, especially following rain, the ear-shaped, translucent brown fruits have the consistency of tough jelly babies. Finely sliced, they make a tasty addition to a stir-fry or risotto and, after stewing and blending, the resultant glutinous soup is flavoursome and filling, if a rather odd colour.

April is high season for a much-prized and odd-looking woodland fungus known as the morel (any of various species of edible mushrooms of the genera *Morchella* and *Verpa*). Its tan-coloured cap is covered with honeycomb-like pits and resembles an elongated brain on a stalk. Morels grow to 10 cm on well-drained soil in open woodland. They are easily preserved by drying and can be rapidly reconstituted in warm water; the resulting taste and texture are every bit as good as with fresh ones.

A woodland plant that is more common in the north of England and in parts of Scotland, sweet cicely (*Myrrhis odorata*) flowers can be found as early as April. Good news for people suffering from diabetes: the sweetener found in this plant is not sugar and can be enjoyed by all.

Woodland foraging can even provide the ingredients for some unusual wines. You will have to wait until next year to make birch sap wine, as the peak collecting season is in early March, when the sap is rising. However, the end of May is the best time to collect young oak leaves, from which you can make a simple white wine with the help of



Myrrhis odorata

sugar, oranges and yeast. Once bottled, it can be drunk immediately, preferably on a hot summer's day. [Source: *The Observer* [United Kingdom], 10 April 2011.]

Honey is at the heart of a beneficial partnership

One of the most impressive features of the London office of the Nomura global investment bank, located in the City on the banks of the River Thames, is its 36 155 ft² (3 359 m²) flowering sedum-covered roof. Even more impressive is that an inner city organization is seeking corporates to help the floundering United Kingdom bee population by hosting beehives in their offices.

The Golden Company is a London-based organization working with at-risk 16–21 year-olds from inner London who develop business skills through producing, marketing and selling honey and related products. The social enterprise, founded in 2009, has offered services to London businesses since last year. The partnerships provide young people with training, income and work opportunities for 12 months.

Nomura offered the Golden Company the rooftop of its recently completed 11-storey European headquarters. Its roof provides plenty of opportunity for pollination and adheres to a strict no-pesticide policy. The honey bees feel welcome, which encourages wild pollinators to thrive. The hives are located in their own purpose-built area, surrounded by a timber enclosure to protect them from strong winds and London's unpredictable weather.

This partnership is not just helping the 150 000 bees: the Golden Company is able to provide work and training for two young people who will visit the bees regularly with an experienced beekeeper to monitor and maintain the hives.

It is also an opportunity for Nomura to help the City towards a sustainable future. With an emphasis on collaboration and teamwork, bees serve as a great metaphor for a large corporation.

"The initiative with the beehives on our roof is a perfect partnership for Nomura," says Dominic Cashman, the Managing Director. "We can use our building's environmental credentials – the roof garden and sedum roof – to give something back to the City by supporting the pollinators and inner-city young people."

Nomura has agreed to purchase all the honey produced in 2012, which will be used at client events and for breakfasts. [Source: *The Guardian* [United Kingdom], 25 July 2011.]



NTFPs in the United States of America

In partnership with 11 other countries, the United States of America participates in the Montreal Process. Each country assesses national progress towards the sustainable management of forest resources by using a set of criteria and indicators agreed on by all member countries.

Several indicators focus on NTFPs. In the United States of America, permit and contract data from the US Forest Service and the Bureau of Land Management, in addition to several other data sources, were used as a benchmark to assess harvest, value, employment, exports and imports, per capita consumption, and subsistence uses for many NTFPs.

The retail value of commercial harvests of NTFPs from United States forest lands is estimated at US\$1.4 billion annually. NTFPs are important to many people throughout the country for personal, cultural and commercial uses, providing food security, beauty, connection to culture and tradition, and income. [Source: S.J. Alexander, S.N. Oswald and M.R. Emery, 2011. *Nontimber forest products in the United States: Montreal Process indicators as measures of current conditions and sustainability*. Gen. Tech. Rep. PNW-GTR-851. Portland, OR, US Department of Agriculture, Forest Service, Pacific Northwest Research Station.] (abstract)

A forager's delight: seeking out secret harvests in the city

For about three weeks each summer, mulberry trees are impossible to miss, if you know what to look for. That is when the trees' sweet, ripe berries, which look a lot like blackberries, fall from the branches and leave telltale bluish-black stains on the pavement or ground below. It is happening right now in New York City.

Since most city folk do not even know that the berries can be eaten, more often than not the spoiled fruit winds up as pigeon feed.

With supermarket berries averaging about US\$3/pint (0.5 litre) at the moment, it is hard to see why more people do not take advantage of this annual harvest, available for free in cities from Sacramento, California to Baltimore, where the trees are also found and the berries are in season. Mulberries are one of the easiest foods for would-be foragers

US FOREST SERVICE REPORT ON SUSTAINABLE FORESTS RELEASED

The United States of America has 751 million acres (304 million ha) of forests that have remained remarkably stable during the past 50 years, according to the US Forest Service's *2010 National Report on Sustainable Forests* that was released today. The report, the second edition since 2003, provides a comprehensive picture of current conditions and trends in the nation's forests, forest industries and forest communities, and also gives details on forest conditions as they relate to sustainability.

Forests in the United States of America continue to face a number of threats, ranging from fragmentation and loss of forest integrity caused by development and an increase in the area and severity of forest disturbances including destructive insects, development and fire. The economic and social environment surrounding forests is also changing rapidly. Data from the report indicate ongoing shifts in where and how wood products are made and the emergence of new markets for environmental services. Some of this social change includes the growing ecotourism industry and a return to wood as a building material in smaller-scale structures. [Source: US Department of Agriculture, 7 July 2011.]

to harvest, because they are so plentiful and are not likely to be confused with any killer berries. Yet despite a plethora of new books on urban foraging and a growing interest in eating local, swallowing something that does not come from a market or restaurant can be just too scary for most city dwellers.

It does not help that city officials often frown on foraging. Health officials shut down an underground market of foraged foods in San Francisco last year, and the New York City Parks Department recently uprooted a rogue farm in Manhattan's Highbridge Park on the grounds that the crop was not safe for consumption.

Some foraged food is actually easier to find in cities than in the country. Dandelions, whose leaves are the least bitter in spring and autumn, as well as other greens such as

purslane and lamb's quarters, thrive in dry, sunny spots where less-hardy plants would perish. Caleb Malcom of Kansas City recently spied a flowering elderberry bush in an empty lot near his home as he was driving by one day and saw the bush's white flowers. Once the berries ripen later this summer, he plans to make elderberry wine. To make sure he does not harvest anything from a toxic brownfield or Superfund site, Malcom says he researches the sites he is interested in online before foraging them.

The biggest dilemma for new foragers is figuring out what's actually edible. Rule number one: if you are not sure what it is, do not eat it. To get started, free Web and field guides (such as *Nature's Garden* or *Urban Foraging*) abound. There are also some iPhone apps, such as Steve Brill's *Wild Edibles*. Park tours guided by long-time foragers can also help ease the learning curve.

The biggest challenge faced by experienced city foragers is the competition for some of the more coveted harvests. "Sometimes I stake out my favourite ginkgo trees, and I am too late," says Leda Meredith, author of *The Locavore's Handbook*, who often finds that others have collected the stinky tree's nuts, which can be roasted or used in tea.

Avid foragers say their hobby can shave up to 40 percent off their grocery bill. But that is rarely the main motive. Caleb Malcom likes the health benefits: "Wild vegetables and wild greens have a higher nutrient level than things you find in the grocery store." (For example, amaranth, also known as Chinese spinach, is high in many vitamins and minerals, including vitamin C, folate, calcium, iron and magnesium.) [Source: *Time Magazine*, 6 July 2011.]

A banner year for New York's maple syrup industry

Maple syrup production in New York increased 81 percent this year, compared with the dismal season in 2010, according to statistics from the state Department of Agriculture and Markets.

New York maple producers made 564 000 gallons (21 350 hectolitres) of maple syrup, said King Whetstone, Director of the US Department of Agriculture's National Agricultural Statistics Service office in New York. It is the highest production since 1947. Last year, 312 000 gallons (11 810 hectolitres) were made after an early warm-up stopped the sap run

after only a couple of weeks. In 2009, producers in the state made 439 000 gallons (11 810 hectolitres).

Whetstone said the number of taps in New York increased this year. There were 2.01 million taps, up 6 percent from 2010. He said that this is the largest number of taps since 1950.

An overwhelming majority of maple producers in the state reported a favourable season. The weather was with producers this year, as temperatures began to warm above freezing in March and stayed in the 40s during the days and in the 30s at night, allowing sap to run for a month or more.

Only Vermont produces more syrup than New York. Its producers made 1.14 million gallons (43 154 hectolitres) this year. [Source: www.syracuse.com [New York, United States of America], 15 June 2011.]



VENEZUELA (BOLIVARIAN REPUBLIC OF)

Venezuela's wildlife conservation sees mixed results

Young crocodiles cry plaintively for their mother as they are hooked in a trap and pulled, splashing frantically, from the water. But their mother is nowhere to be seen. These one-year-old Orinoco crocodiles are part of a captive breeding programme designed to put the brakes on their slide towards extinction. This crocodile (*Crocodylus intermedius*) is the biggest in South America, present only in Venezuela and Colombia. Researchers measure population by the number of adult females and say there are now around 100 in Venezuela, far fewer in Colombia.

"In the 1930s and 1940s, they were overexploited for their skin," said Omar Hernandez, Director of Venezuela's Science Development Foundation. "Now people are eating these crocodiles, they are hunting them for their meat."

The breeding programme, which each year sees around 200 young crocodiles released into the rivers of Venezuela's *Llanos*, or Great Plains, takes place on a private reserve about six hours drive from the capital, Caracas.

Over the years, state-run national parks have proved ineffective at preserving wildlife and the task fell to private ranchers who kept reserves and created ecotourism lodges. The challenge is for productive farming to coexist with conservation programmes. But now these reserves are an endangered species themselves. Since 2006, three of the four farms that hosted biological research programmes have been expropriated by the Government, to the dismay of environmentalists.

Yet at one expropriated farm, ecological programmes are continuing. El Cedral, a 53 000-ha ranch, keeps 90 percent of its land as a nature reserve, while still raising cattle for meat and buffalo for dairy products. Its ecotourism lodge remains open and continues to attract bird-watchers who come to see the more than 300 species found at the ranch. The approach at El Cedral seems to suggest that all is not lost for the wildlife of the Great Plains, but neither is its future guaranteed. [Source: BBC News, 13 June 2011.]

VIET NAM

Agarwood in Viet Nam

In Viet Nam, agarwood is naturally distributed in the north, central highlands and southeast of the country, and is widely grown in the north-central regions, especially across Ha Tinh and Thua Thien Hue provinces.

Agarwood can provide valuable products such as highly valued paper pulp (agarwood chips), agarwood incense and agarwood oil for perfume and traditional medicines. Prices vary from US\$10 (for fragrant agarwood) to US\$1 000 (for perfume and oils), up to US\$20 000–30 000/kg (for best-quality perfume and medicines or *Ky nam* in Vietnamese).

Depending upon the extent of the resin accumulation, the heartwood is generally classified into four categories: grade 1 (grade A), black or true agar; grade 2 (grade B), *bantang*; grade 3 (grade C), *bhuta* or *phuta*; and grade 4 (grade D), *dhum*. True agar is mainly exported to the Middle East countries where it is used as incense. *Bantang* is brown

Agarwood (or agar) is a dark resinous heartwood that forms in *Aquilaria* trees (large evergreens native to Southeast Asia and Viet Nam) when they become infected with a type of mould. Prior to infection, the heartwood is relatively light and pale coloured; however, as the infection progresses, the tree responds by producing a dense, dark aromatic resin. The resin-embedded wood is commonly called *gaharu*, aloeswood, agarwood or *oud* and is valued in many cultures for its distinctive fragrance, which is used in incense and perfumes. One of the reasons for the relative rarity and high cost of agarwood is the depletion of the wild resource. Since 1990, the *Aquilaria* tree has been listed in CITES Appendix II (potentially threatened species).

in colour without any black tones. *Bhuta* is also brown but interspersed with 50 percent or more of yellow-coloured wood. These two grades are usually used in incense. *Dhum* is the lowest grade, which is mostly yellow with scattered streaks of brown or black resin. It is typically distilled for oil.

Agarwood is one of the ecologically and economically valued timber trees in Viet Nam, and it is widely used to reforest barren land on hilly and mountainous regions of some north-central provinces. The tree is best grown in home and forest gardens, with a combination of agricultural crops. [Source: Quang Hoang Ha and Huu Tran Nghi, 2010. *Agarwood in agroforestry systems in North Central Provinces, Vietnam*. Vietnam's Forestry Network and Tropenbos International (Viet Nam).]

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Half of city residents have eaten bushmeat

More than half of Ho Chi Minh City (HCMC) residents said they have eaten bushmeat, of which 48 percent have consumed it more than three times/year, according to the latest findings by Wildlife At Risk (WAR).

The HCMC-based NGO carried out the survey about the consumption of wild animal

products in HCMC on 4 000 city dwellers and 3 600 secondary school students between August 2010 and April 2011.

The survey, released on Monday, reveals that men consume more wild animal products than women, and restaurants in HCMC are the most common place for people to eat the meat.

The majority of polled people say they eat bushmeat because others invite them, or they want to try new experiences or they feel the meat is more delicious. According to the survey, people of 36–45 years old, state workers and those with high educational levels have a tendency to consume wild animal products more than other groups. As for secondary school students (aged between 11 and 14), 28.2 percent of them say they have eaten bushmeat, and their consumption is influenced by their parents and other adults in the family. Unlike adults, these teenagers usually eat the meat during trips to other provinces or at family events such as birthday parties.

The survey reveals that most polled people think that hunting and trading of wild animal products is the biggest threat to wild species. In fact, consumption of wildlife products is the biggest threat because it promotes illegal hunting and trading, putting wild animals at risk of extinction.

According to WAR, communication and education programmes need to be designed for residents and students in order to prevent endangered wildlife consumption. It says animal products from legal farming should be introduced as a substitute. [Source: www.thanhniennews.com, 24 May 2011.]



Ecological and financial impacts of illegal bushmeat trade

In West and Central Africa, bushmeat hunting is a survival strategy for large numbers of people, sometimes comprising most animal protein consumed and contributing significantly to household incomes. Finding solutions to address unsustainable offtake is crucial from both conservation and development perspectives.

In Zimbabwe, illegal bushmeat hunting has emerged as a serious conservation threat, given the conditions of political instability and economic decline. Widespread poverty, unemployment and food insecurity have compounded the threat to wildlife populations and wildlife-based land uses in the southeast

Lowveld of Zimbabwe. Dramatic loss of wildlife populations followed settlement of game ranches during land reform and, without realignment of land uses or efforts to enable resettled farmers to engage in wildlife-based land uses, the prospects for conservation on private land are bleak.

A study published in *Oryx* in 2011 highlights several management and land-use planning steps required to maximize the efficacy of antipoaching efforts and to reduce the likelihood of high impacts of illegal hunting. It provides a number of widely applicable insights for the prevention and management of illegal bushmeat hunting.

Recommendations include: (i) antipoaching efforts need to be aligned with the regular temporal and spatial patterns of illegal hunting; (ii) leases for hunting and tourism concessions should ensure adequate investment by tourism operators in antipoaching; (iii) in conservancies and hunting concessions minimum standards of per capita investment in antipoaching should be met for landowners to qualify for legal hunting quotas; (iv) reserve designers should minimize the perimeter-to-area ratio of parks; (v) fences should not be constructed using wire that can be made into snares; (vi) land reform involving game ranches should integrate communities in wildlife-based land uses and ensure spatial separation between land for wildlife and human settlement; and (vii) means are required to enable communities to benefit from wildlife, create disincentives for illegal hunting and provide for more efficient use of wildlife resources. [Source: P.A. Lindsey, S.S. Romañach, C.J. Tambling, K. Chartier and R. Groom, 2011. Ecological and financial impacts of illegal bushmeat trade in Zimbabwe. *Oryx*, 45(1): 96–111.]

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The game of life is not so much in holding a good hand as playing a poor hand well.

H.T. Leslie



A MODEST PROPOSAL FOR WEALTHY COUNTRIES TO REFOREST THEIR LAND FOR THE COMMON GOOD

The Coalition of Financially Challenged Countries with Lots of Trees, known as "CoFCCLoT", representing most of the world's remaining tropical forests, is asking wealthy nations to share global responsibilities and reforest their land for the common good of stabilizing climate and protecting biodiversity.

"We are willing to play our part, but we require a level playing field in which we all commit to equal sacrifices," a coalition spokeswoman says. "Returning forest cover in the G8 countries and the EU back to historic levels will benefit all of us in the long term."

Seventy-five percent of Europe was once forested. Now it is 45 percent. Some countries such as Ireland saw their forest cover reduced to near zero. Most forest cover in the developed world is now often planted with stands of alien trees, turning them into deserts for biodiversity. Remaining natural forests are often highly fragmented and have few native species.

"For all the forests we in Indonesia, Brazil or Central Africa do not cut down, G8 countries should reforest a similarly sized area," says the CoFCCLoT spokeswoman. "Too many agricultural areas in Europe and the United States are only kept in business because of tariffs and subsidies."

CoFCCLoT members also ask why they are criticized for developing oil-palm plantations, even though oil-palms produce much more biofuel and oil per unit area than temperate crops such as maize, and thus require much less land to satisfy global demands.



CoFCCLoT points out that nature in wealthy nations needs urgent attention. "Large areas are degraded. Soils are compacted, soil faunas depleted, and their hydrology disrupted and contaminated."

The coalition says that if wealthy nations restore their forests, they can help slow climate change by absorbing atmospheric carbon and provide people with clean water and healthy soils. It also highlights the benefits for species diversity and environmental services. CoFCCLoT notes the opportunities to reintroduce bears, lynx, wolves, beavers and other threatened animals that have been decimated or driven to extinction by rampant exploitation of natural forests in much of the industrialized world.

It says, too, that in the longer term, ongoing climate change and reforestation may permit tropical megafauna to thrive in temperate countries. Lions could be reintroduced to Greece, CoFCCLoT suggests and gorillas might thrive in Spain. Both countries face economic challenges that could be reduced by the revenues from ecotourism.

The coalition acknowledges that their demands will meet some resistance. People might be scared to live near large forests with wild animals and may be resentful of not being allowed access to forest resources. "But people will get used to it," explains the spokeswoman. "It is time to share these global responsibilities," she adds. "The G8 cannot have their cake and eat it too." (Source: www.mongabay.com, 11 August 2011.)



ASIA'S REAL CONTRIBUTION TO THE GLOBAL HEALTH OF FORESTS

As the UN International Year of Forests kicked off this spring, there was good news from Asia. New planting in China, India, Viet Nam and other countries in the region is helping to slow down the rate of forest loss worldwide, according to the *State of the World's Forests 2011* report from FAO.

Many environmental lobby groups are unhappy that the FAO report includes plantations at all, considering them undeserving of the title "forests" because of their limited social and environmental value when compared with the natural kind. Recognizing these concerns,

Eduardo Rojas-Briales, Assistant Director-General of the FAO Forestry Department, noted at the report's launch that the tree-planting spree in Asia over the last decade did not happen at the expense of natural forest.

However, emphasis on the expanding coverage of plantations still masks the fact that in Asia, as elsewhere, natural forest area continues to shrink.

Natural forests deliver quite different benefits from plantations. Plantations act as "carbon sinks", absorbing greenhouse gases from the atmosphere, while mature natural forests serve as "carbon reservoirs", preventing the release of the carbon that they have accumulated over the centuries. Plantations are easier to design and manage for regular income. Natural forests, however, bring a wealth of services essential to the livelihoods of 450 million indigenous and forest-dependent people in the Asia-Pacific region alone.

Nevertheless, there is growing consensus that we need to open much of the forest up, rather than fence it off, so that it can be managed and valued for the services it provides. This means giving the people who depend on forests for their everyday needs a greater say in their management.

A recent report by the Rights and Resources Initiative shows that forest dwellers and local people have consistently done a better job of managing and protecting forests than the centralized management structures that most governments favour.

Nepal's community forestry programme, in which self-identified groups of local forest dwellers assume full management responsibility for the forests that they have traditionally used, is a fine example to other countries in the region and beyond. In areas right across the country, degradation of natural forest has not only stopped, but has been reversed.

Cambodia's experience is another promising example. In essence, successful examples of people-centred forest management tend to entail a wholesale paradigm shift in a government's approach to forest policy.

Asia also holds cautionary tales. The Philippines was one of the first countries in the region to enact legislation giving local communities and indigenous peoples the rights to own and manage forest areas, but these rights became hostage to the whims of subsequent governments.

Across the region, there is a precarious balance between the incentives to hand resources back to the people, and the instincts of governments to centralize and regulate forest use and management. (Source: RECOFTC, 10 May 2011.)



DEBT-FOR-NATURE SWAPS

The debt-for-nature swap concept, whereby a portion of a developing nation's foreign debt is waived in exchange for local investments in environmental conservation measures, dates back to the mid-1980s. Since the first swap was brokered with Bolivia by the non-profit Conservation International in 1987, many national governments and conservation groups have engaged in similar types of debt-for-nature swap negotiations. Costa Rica has exchanged tens of millions of dollars in debt to protect some of its most pristine and biologically productive rain forests.

But far fewer deals are occurring today because debt restructuring and cancellation have reduced developing nations' debt significantly more than by debt-for-nature swaps. Some experts also argue that the financial benefits are overstated, that funds are misdirected to less needy countries, that external debt is not a primary driver of deforestation and other environmental ills, and that funding does not necessarily equate to effective implementation of conservation strategies.

Criticism aside, some deals are still getting done. In 2008, France waived

US\$20 million in debt owed by Madagascar to help the biodiversity-rich nation triple the size of its protected areas to protect its native flora and fauna better. In 2010, the United States of America waived US\$21 million in Brazilian debt to fund several ecosystem protection initiatives in Brazil's still vanishing tropical rain forests. So while debt-for-nature swaps are not as popular as they once were, they are still a key tool in the toolbox of environmentalists looking to promote conservation in tropical countries. (Source: *The Environmental Magazine*, 31 July 2011.)

FORESTS PLUS: LOOKING OUTSIDE THE BOX

Can you picture life without forests? Within their branches and trunks, forests record the history of life on Earth. Forests can be seen as a mirror of evolving human needs, dynamic and ever-changing. They have the unique ability to sustain and revitalize us, through a multitude of services from food and shelter to biodiversity and clean water.

Over a decade ago, the United Nations Forum on Forests (UNFF) was established to promote the management, conservation and sustainable development of forests. The Forum addresses all cross-sectoral aspects pertaining to forests, using a 360-degree perspective. Most people are aware of the economic values of forests, particularly timber production, and more recently the focus has been on climate change mitigation values through forest carbon sequestration.

However, the full picture of what forests offer is much more than simply economic values and carbon. Forests provide a healthy environment for people, secured livelihoods, shelter and sustenance. Forests are central to achieving sustainable development, yet they are not addressed in a holistic and integrated manner by the mechanisms and institutions created by the Rio Earth Summit.

A holistic approach to forests is clearly needed, one that takes into account economic, social and environmental values, as well as cultural and spiritual dimensions of forests. Looking at sustainable forest management through a biodiversity lens alone, for example,

cannot address the full suite of forest issues. A key requirement in this regard is more frequent and effective cross-sectoral and cross-institutional integration.

Approaches to forests at the policy and institutional level are often fragmented, a fact exacerbated by the reality that threats to forests most often come from outside the forest sector. In this regard, the notion of "forests-plus" as an approach embracing forests' intersectoral and inter-institutional complexity has received support at Forum discussions, including in particular at a recent high-level round table held at the Ninth UNFF session in February.

"Forests for People" is the theme of this year, the International Year of Forests 2011, which celebrates the central role of people in sustainably managing the world's forests. People are ultimately at the heart of all forest issues. However, in order for forests to be truly a sustainable natural resource to improve the well-being of people, the economy and the environment effectively, countries will need to devise programmes on a range of issues, from governance to tenure security, access and benefits to local participation, as well as increased funding at all levels, based on well-informed policy decisions, social dialogue and coordination among different ministries.

Increased attention towards the multiple values of forests through the International Year of Forests has provided a unique opportunity to strengthen implementation at the national level, by supporting national governments, international and regional organizations, and other interested stakeholders, to work together in a cross-sectoral and cross-institutional manner. (Source: Jan L. McAlpine, Director, UNFF Secretariat [in *IISD RS*], 2 August 2011.)



LEADERS DEFINE PATHWAY TO RESTORING 150 MILLION HA OF LOST FORESTS

A core commitment to restore 150 million ha of lost forests and degraded lands worldwide by 2020 is being launched today at a ministerial conference in Bonn. New analysis by the International Union for Conservation of Nature (IUCN) estimates that restoring 150 million ha would be worth US\$85 billion per year to national and global economies.

At the Bonn Challenge Ministerial Roundtable, a select group of ministers and chief executives of international and non-governmental organizations and companies are discussing how to benefit biodiversity and the fight against climate change through concrete restoration activities.

"The restoration of lost forests will increase carbon stocks and result in healthy and resilient ecosystems, which will provide the multiple goods and services people need, and lead to an increase in biodiversity," says Ashok Khoshla, President of IUCN, which acts as coordinator of the Global Partnership on Forest Landscape Restoration (GPFLR).

The landmark commitment in Bonn comes as new analysis shows that more than 2 billion ha of the world's deforested and degraded landscapes – equivalent to half the size of Asia – offer opportunities for restoration. This new global estimate is almost double the area previously considered restorable, thanks to improvements in the precision of mapping zones where climate and soils allow forests to grow.

"Recognizing that national circumstances vary enormously, this core commitment to restore 150 million ha is a robust and realistic response to the global

assessment," says Stewart Maginnis, IUCN's Global Director of Environment and Development. "What is needed urgently is a country-by-country assessment of how this commitment could be achieved in line with national economic development and conservation priorities, something we have already started doing in Ghana and Mexico."

The 150 million ha restoration target directly relates to existing international commitments on climate change and biodiversity. It will contribute to the biodiversity convention target calling for restoration of 15 percent of degraded ecosystems by 2020, and the climate change convention goal on REDD+, which calls for countries to slow, halt and reverse the loss and degradation of forests.

Forest landscape restoration can be seen as offering the world a highly cost-effective way to combat climate change, create new jobs and contribute to rural development and livelihoods.



Earlier this year, IUCN expressed its support of Rwanda's historic announcement to restore the country's degraded landscapes border-to-border, predicting that it could be the beginning of the biggest restoration initiative the world has ever seen. With similar bold commitments expected to be announced at the Bonn event, cochaired by IUCN and the German Government, an unprecedented global initiative is clearly gathering momentum. [Source: International Union for Conservation of Nature, 2 September 2011.]

NEW PARTNERSHIP ESTABLISHED TO ADDRESS THREATS TO FORESTS IN THE MEDITERRANEAN

A new partnership for Mediterranean forests has been established to address major threats to the region's forests being exacerbated by the severe impact of climate change. The partnership was announced at the Second Mediterranean Forest Week, which took place in Avignon, France, from 5 to 8 April.

"The Collaborative Partnership on Mediterranean Forests will help raise awareness on the wealth of vital functions Mediterranean forests provide. These include soil and water protection, landscape values, carbon sequestration and biodiversity conservation. It is urgent that we join efforts to restore and preserve their functions for future generations," said Eduardo Rojas-Briales, Assistant Director-General of the FAO Forestry Department.

The partnership involves 12 institutions and organizations including FAO and will focus primarily on six countries in the southern and eastern Mediterranean: Morocco, Algeria,

Tunisia, Syrian Arab Republic, Lebanon and Turkey. The new partnership offers a way for stakeholders in the region to address the mounting challenges facing Mediterranean forests and draw greater attention to their value and the urgent need to protect them.

The partnership is designed to integrate policies and investments at the country level in order to adapt forests to climate change; this would involve sectors such as forestry, agriculture, urban development, water, environment, land-use planning, education and tourism. It is also aimed at developing a joint regional approach to forest management and, in particular, to wildfire prevention, through the sharing of expertise, knowledge and best practices. At a local level, the partnership will help to promote sustainable forest management among all stakeholders, including local communities, forest owners and managers, farmers, herders, environmentalists, protected area managers and researchers. (Source: UN Regional Information Centre for Western Europe, 6 April 2011.)



MINISTERS BACK BINDING EUROPEAN FOREST AGREEMENT

Ministers have agreed to back plans to introduce a legally binding agreement (LBA) to protect Europe's forests. Delegates also agreed to adopt resolutions that would help shape forest policy over the next decade. On Tuesday, a report concluded that sustainable forestry management was essential if the EU was to reach its emission goals.

The ministerial agreement was signed at the Sixth Forest Europe Conference in Oslo, Norway. As well as signing the declaration to begin negotiations to establish an LBA, delegates also agreed to set a number of targets to be achieved by 2020. These included all European countries implementing a national forest programme, which needed to contain climate adaptation and mitigation strategies. Ministers also agreed to cut the rate of biodiversity loss within forest habitats by half, and take steps to eliminate illegal logging.

Poland's minister, Janusz Zaleski, said that nations needed to ensure that any agreement would need the legal weight required to deliver progress on the ground. Sweden's Rural Affairs Minister Eskil Erlandsson told the conference that while he supported the concept of sustainable forest management, he favoured a voluntary approach rather than an LBA. "I do not believe in common legislation for forests across the Pan-European region. Put simply, one size does not fit all," he said. "We need to recognize the different geoclimatic and socio-economic conditions." (Source: BBC News, 15 June 2011.)



PLANS TO PROTECT FORESTS COULD DO MORE HARM THAN GOOD UNLESS POWER IS IN LOCAL HANDS

Tropical countries that seek a share of billions of dollars of climate finance in return for protecting their forests risk creating strategies that fail to bring social and environmental benefits, according to a report released today by the International Institute for Environment and Development (IIED).

The report draws on the work of Forest Governance Learning Group (FGLG) teams in ten nations in Africa and Asia to promote decision-making about forests that is fair and sustainable. It highlights success stories at the national level, in which FGLG teams have influenced policy processes to promote outcomes that benefit forest-dependent communities that have been marginalized.

On the international stage, the FGLG teams have focused on how their countries are preparing for REDD+, a system being developed to reward countries that maintain or increase their forest to limit emissions of greenhouse gases from deforestation. FGLG teams in Ghana, Indonesia, Mozambique, the United Republic of Tanzania and Viet Nam report that national plans for REDD+ could do more harm than good.

In many countries, top-down, government-led plans for REDD+ have been rushed through and focus more on how to count carbon stored in trees than on how actually to implement a system that brings real benefits for communities, biodiversity and the climate.

"REDD remains forestry's best hope yet but it must be built from the bottom up," says James Mayers, head of IIED's Natural Resources Group and coauthor of the FGLG report.

"Strategies are difficult to turn around once they head off in the wrong direction – and the costs of bad strategy for forests are extremely high. To realize justice in the forests, policy-makers must turn REDD on its head and put control of the forests into local hands."

The FGLG teams bring together representatives of communities, governments, civil society organizations, businesses and the media, to explore the drivers of poor forest governance and to influence policy-making. They operate in

Cameroon, Ghana, India, Indonesia, Malawi, Mozambique, South Africa, the United Republic of Tanzania, Uganda and Viet Nam. For each country, the report describes successes from the past year and plans for activities between now and 2013.

The project has been steered by IIED since it began in 2003 and has been funded by the United Kingdom and Netherlands governments and the European Commission. (Source: IIED, 25 August 2011.) ♣



A nation that destroys its soils destroys itself. Forests are the lungs of our land, purifying the air and giving fresh strength to our people.

Franklin D. Roosevelt



José Graziano da Silva of Brazil elected FAO Director-General

José Graziano da Silva of Brazil was elected Director-General of FAO on 26 June 2011.

Graziano da Silva, who is 61, received a total of 92 votes out of 180 votes cast, winning over former Spanish Foreign Minister Miguel Ángel Moratinos Cuyaubé, who received 88 votes. There were no abstentions.

The election took place on the second day of the biennial 191 Member Nation Conference of FAO.

As Brazil's Extraordinary Minister of Food Security and Fight against Hunger, Graziano da Silva was responsible for implementing the country's highly successful "Zero Hunger" ("Fome Zero") programme, in whose design he played a leading role. The programme helped lift 24 million people out of extreme poverty in five years and reduce undernourishment in Brazil by 25 percent.

Since 2006, he has served as FAO Assistant Director-General and Regional Representative for Latin America and the Caribbean.

Graziano da Silva is FAO's eighth Director-General since the Organization was founded in Quebec City, Canada on 16 October 1945. The term of the new Director-General, who will succeed Senegal's Jacques Diouf, will start on 1 January 2012 and run through 31 July 2015. [Source: FAO Newsroom, 26 June 2011.]

FORESTRY DEPARTMENT

FAO project shows how trees help halt desertification

A FAO-led pilot scheme hopes to highlight how trees can help people in arid zones, considered to be one of the most hostile habitats on the planet. FAO's Acacia project's goal is to show how trees provide food, fuel, shelter and income during times of hardship.

So far, six nations, including Senegal and the Sudan, have hosted tree-planting schemes for at-risk communities.

Drylands cover 30 percent of the Earth's land area, and are found in 100 nations.

"People do not often associate forests with arid areas, yet they are critical in terms of soil protection, mitigating climate change, maintaining biodiversity, etc," said Eduardo Rojas-Briales, Assistant Director-General of the FAO Forestry Department.

"In terms of supporting livelihoods for local communities, forests are very important," he told BBC News.

Speaking at the end of the first UN Africa Drylands Week, he added: "Desertification poses a very serious challenge to the world. The pace of land degradation and the impact of climate change are threatening food security, exacerbating poverty and impeding sustainable development".

Acacia trees can offer vulnerable villages a steady income, as well as fuel and fodder for animals.

Mr Rojas-Briales explained that people living in dryland ecosystems were most exposed to the risk of desertification, especially rural and pastoral communities. Globally, an estimated 2 billion people depend on ecosystems in dry land areas, 90 percent of whom live in developing countries.

The UN says that about 30 percent of dry lands are degraded, with particular susceptibility to desertification. In Africa alone, it is feared that two-thirds of arable land is expected to be lost by 2025.

Projections show that more than half of the cultivated agricultural area could be unusable by the year 2050, leaving the region struggling to feed just 25 percent of its population.

This was one of the reasons why FAO had developed the Acacia pilot project, Mr Rojas-Briales continued. "Forests and trees in arid zones are central to understanding the process of desertification – they provide local communities with sustainable livelihoods but also fodder for livestock, fuelwood, medicine, timber, resin and gums."

Extracting gum from acacias allows people to earn money from alternative revenue streams. "They are also invaluable for carbon storage and for the provision of clean water and for soil protection."

As well as providing foliage for animals and fuel for cooking, the trees produce gum arabic, a product that is used in the food and pharmaceutical industries. [Source: BBC News, 20 June 2011.]

(Please see following page for more information.)

Destruction of world's biggest rain forests down 25 percent, says FAO report

The rate of destruction of the world's three largest forests fell 25 percent this decade compared with the previous one, but remains alarmingly high in some countries, FAO said.

A report entitled *The State of Forests in the Amazon Basin, Congo Basin and*

Southeast Asia was released to coincide with a summit in the Republic of the Congo bringing together delegates from 35 countries occupying these forests, with a view to reaching a global deal on management and conservation.

The Amazon and the Congo host the world's first and second biggest forests, respectively; the third biggest, the Borneo Mekong, is in Indonesia. These forests sink billions of tonnes of carbon and house two-thirds of the world's remaining land species.

The study found that annual rate of deforestation across the three regions, which account for more than 80 percent of the world's tropical forests, was 5.4 million ha between 2000 and 2010, down a quarter from 7.1 million ha in the previous decade.

Statistics showed that forest destruction in the Congo Basin had remained stable but low over the last 20 years, while in Southeast Asia the rate of deforestation more than halved. Countries that had previously had high levels of forest loss, such as Brazil and Indonesia, have had some success tackling the problem through better conservation awareness and government policy said the report's author, Mette Wilkie.

But she suggested this was no cause for complacency, especially of the threat from farming. "Deforestation is higher than it ought to be," Wilkie told Reuters. Indonesia's forests in particular have been ravaged by clearing for palm-oil crops in the past, although the government last month signed a two-year moratorium on forest clearing, part of a carbon offset deal with Norway worth US\$1 billion. Ecuador, Burundi and Cambodia had the highest rates of forest loss while Rwanda, Viet Nam and the Philippines were among countries that had seen their forests grow in recent years, according to the study.

Wilkie said growing global demand for food, expected to rise by 70 percent by 2050, would put more pressure on these ecosystems. [Source: Reuters, 1 June 2011.]

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FAO releases forest health guide and video

Our world has become more global, with greater access to world markets from more places on Earth. But with it comes an increase in the transport and introduction of invasive bugs. Such pests can lead to agricultural and economic disaster if left unchecked and unmonitored.

FAO works on a global scale with nations and organizations to stem the movement of these bugs and pests. Recently, using an integrated approach to deal with forest health problems, FAO produced a *Guide to implementation of phytosanitary standards in forestry* (www.fao.org/docrep/013/i2080e/i2080e00.htm).

An amusing short rap video is also available at: www.youtube.com/watch?v=9-0ighGsrUE/

FAO IN THE FIELD

Mise à jour sur les activités 2011 du Projet GCP/RAF/441/GER «Renforcement de la sécurité alimentaire en Afrique centrale à travers la gestion durable des produits forestiers non ligneux»

Financé par le Gouvernement allemand et mis en œuvre depuis octobre 2009 par la FAO et les ministères en charge des forêts au Gabon, au Congo et en République centrafricaine, le Projet contribue à l'amélioration des moyens d'existence des communautés dépendant des forêts du bassin du Congo à travers le développement du secteur des PFNL et la gestion durable de ces ressources forestières. Les activités sont mises en œuvre au niveau international, régional, national et local et comprennent notamment pour l'année 2011:

- la création du Sous-groupe de travail PFNL au sein du Groupe de travail biodiversité en Afrique centrale de la COMIFAC, comme plate-forme d'échanges sur le secteur, et l'organisation de la première réunion de ce sous-groupe en République centrafricaine (cf. pages 13–14);
- l'organisation des réunions des comités consultatifs nationaux sur les PFNL au Congo, au Gabon et en République centrafricaine, relevant du Sous-groupe de travail PFNL de la COMIFAC;
- la participation au Forum des Nations Unies sur les forêts (FNUF 9), au Forum international sur les peuples autochtones d'Afrique centrale (FIPAC 2), au Sommet des trois bassins forestiers tropicaux, aux journées internationales sur les forêts à

Bonn et à plusieurs autres événements, en vue de présenter les activités du Projet, les PFNL clés d'Afrique centrale et leur contribution à la sécurité alimentaire sur la base d'une gestion durable, ainsi que le développement du secteur;

- la validation de la stratégie nationale et des plans d'action pour le développement du secteur PFNL au Gabon et en République centrafricaine;
- le développement des capacités des communautés locales et des organisations de base et de la société civile, à travers des formations sur la domestication de *Gnetum* spp. au Congo et en République centrafricaine (cf. page 25), sur l'approche Analyse et développement des marchés (ADM) au Congo, au Gabon et en République centrafricaine (cf. page 47), et sur la valorisation de *Ricinodendron heudelotii* (essesang/njansang) dans la Lobaye, République centrafricaine (cf. page 39), ainsi qu'à travers des actions de sensibilisation sur le droit à l'alimentation.

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www.fao.org/forestry/nwfp/55079/fr/

The Acacia project in Senegal

From 2004 to 2007, in partnership with the Senegalese forestry service, FAO provided seeds and seedlings and taught women in Thiékene Ndiaye village in Senegal's drylands to sow and plant acacia trees, and how to extract and market the gum they produce. In the last year, the trees finally reached maturity and gum extraction became possible.

According to Nora Berrahmouni, FAO Forestry Officer, "Acacia offers many benefits. It feeds the soil by capturing nitrogen that restores fertility. It is a shelter for crops. It also provides gum arabic, which has an international market, and so it is good for the economy. Not only that, but it is also a source of fodder for livestock and food for local communities."

Fatou Seye, her husband and their six children live in the village and confirm that acacia has already dramatically improved their living conditions, "because now we are producing hibiscus juice and millet, peanuts and beans, which we can eat. Production of fodder for livestock has increased and we sell

FAO'S ACACIA PROJECT AT A GLANCE

Region. Africa.

Subregion. Sahel countries, namely Burkina Faso, Chad, Kenya, the Niger, Senegal and the Sudan.

Objective. Strengthen analytical and operational capacity of six pilot countries to address food security and desertification problems through the improvement of agrosilvopastoral systems and sustainable development of the gum and resin sectors.

Activities. The long-term objective of the project is to reinforce and rationalize the production methods, processing and marketing of gum and resin products, by identifying and developing methods of production in order to promote their integration in rural economic activities and their contribution to a sustainable improvement of food security and the struggle against desertification.

Achievements

1. Agrosilvopastoral systems in arid and semi-arid lands were established, and gum and resin production improved through a methodological approach based on the availability of an innovative technology supporting local communities.
 2. A ten-year long-term programme was elaborated with the African Union Commission for associated member countries of the Network for Natural Gums and Resins in Africa (NGARA), in order to improve socio-economic conditions in rural areas, strengthen institutional capacity and enhance the value and sustainability of local resources.
 3. Exchange of information, training, transfer of technology and quality control of the gum and resin sector were made possible, by strengthening the organization and management of the NGARA regional network.
- Donor.** Government of Italy.
Duration. 2003–2010.
 (Source: GTFS/RAF/387/ITA, Acacia Operation, www.fao.org/)

the fodder at market. With the money, we are planning to build a mill so we can make flour and bread".

Harvesting of the gum itself has only just begun as, at seven years of age, the plants are only just mature enough. In the coming

years, the plants will provide further income for these women.

The gum is sold via intermediaries to the Valdafrique processing plant close to Senegal's capital, Dakar. From there, it will be sold on international markets.

The Chief Pharmacist at Valdafrique, Dr Madiagne Sakho, says: "the gum arabic industry is great business because the gum is in demand from many industries, including the pharmaceutical and food industries where it's used in a wide variety of products ranging from bakery and dairy products to soft drinks".

According to Sakkoudia Thiam of the Network for Natural Gums and Resins in Africa (NGARA), "great potential exists to provide income for these communities and also to help diversify the economy because these days the peanut market is in crisis so the gum arabic sector can help make up for losses there".

A total of 44 villages have benefited from the Acacia project in Senegal so far. [Source: FAO Media Centre, 10 June 2011.]

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FAO-supported forest policy in Gambia wins award

Gambia's Community Forestry Policy, put in place with support from FAO, has won silver in the 2011 Future Policy Awards as one of the world's most inspiring and innovative forest policies.

Three policies that most effectively contribute to the conservation and sustainable development of forests for current and future generations were chosen as prizewinners today by the World Future Council at UN Headquarters in New York.

Rwanda's National Forest Policy was proclaimed the first prize winner while the US Lacey Act with its amendment of 2008 and the Gambia's Community Forest Policy shared the silver award.

The Gambia, with the support of FAO and other development partners, has developed and implemented the first policy and legislation in Africa to provide local populations with secure and permanent forest ownership rights. Transferring forest tenure from state ownership to management by local communities enables them to reduce illegal logging and forest fires, slow desertification and benefit from using forest products.

"The success of the Gambia's Community Forest Policy proves that even in the world's poorest countries, with the right policies and legal framework in place, rural populations can benefit economically from forests and significantly improve their food security and environment," said Eduardo Rojas-Briales, Assistant Director-General of the FAO Forestry Department.

"The Gambia's experience has shown that the challenge of sustainable forestry can be attained through the Government's willingness to empower rural populations," he added.

The Gambia has managed to buck a strong deforestation trend in Africa, with over 350 villages managing 12 percent of the country's forests and a net increase in forest cover of 8.5 percent over the last two decades.

FAO Goodwill Ambassador and Olympic track legend Carl Lewis, who attended the awards ceremony, said that "the Gambia's people-centred approach has been highly successful and represents a model to replicate in other countries with a similar forestry environment".

Between 2000 and 2004, FAO has facilitated the introduction of economic incentives in the community forestry concept. In 2009, the Gambia joined the National Forest

Programme Facility hosted by FAO and received help with expanding community forestry areas and enhancing the capacity of stakeholders to derive economic benefits from community forestry. A recent FAO-supported project provided assistance to the revision and popularization of the forest policy.

It is intended that, by 2016, nearly half of the forests in the Gambia will be under community management. Communities have established producer groups, generating income from forest management.

Based in Hamburg, the World Future Council is a political advocacy group led by 50 leading personalities from all five continents. It focuses on environmental and social issues with the aim of safeguarding the rights of future generations. [Source: FAO, 21 September 2011.]



The project

The sustainable rattan project "Establishing a sustainable production system of rattan products in Cambodia, the Lao People's Democratic Republic and Viet Nam" of the World Wide Fund for Nature (WWF) kicked off in 2007. It aims to make at least 50 percent of rattan processing in these countries sustainable by 2015, leading to environmental improvements, strengthened competitiveness, poverty alleviation and other national economic benefits.

A key aspect of switching towards sustainable rattan involves adopting cleaner production techniques in the manufacture of rattan products. This is because technologies and equipment for rattan processing are often outdated. Cleaner production helps to open up new market opportunities and produce better-quality products. This can be achieved through optimized management, increased materials and energy efficiency, and with more effective equipment, among others.

The project focuses on the three neighbouring countries as this region is rich in rattan resources, with more than 50 species. This forms the basis for a growing rattan processing industry, particularly in Viet Nam, which has recorded an average increase of more than 30 percent per year in rattan product exports.

The growing international and domestic market demand for rattan products, combined with uncontrolled and unsustainable harvesting practices, has led to the

**2011 FUTURE POLICY AWARD:
CELEBRATING FOREST POLICIES AND
FOREST FOOD**

The Future Policy Award celebrates policies that create better living conditions for current and future generations. The aim of the award is to raise global awareness for these exemplary policies and speed up policy action towards just, sustainable and peaceful societies. The Future Policy Award is the first award that celebrates policies rather than people at the international level. Each year the World Future Council chooses one topic where policy progress is particularly urgent.

This year, forest policies were on the agenda and forest food on the menu. Caterpillars, mushrooms and other forest foods were sampled during the Award ceremony. Pictures of the event can be seen on FAO's Washington blog: <http://faowashington.org/celebrating-forest-policies-and-forest-food.html/>

overexploitation of rattan resources and forest degradation. The rattan processing industry is falling short of minimum, internationally accepted production standards and market requirements, resulting in environmental pollution, health risks for workers and less competitiveness in the global marketplace.

Poor ethnic minority communities in rural Cambodia, the Lao People's Democratic Republic (Lao PDR) and Viet Nam rely heavily on rattan as an income source. Rattan sales account for up to 50 percent of cash income for many villages.

Where WWF is headed

By 2011, 40 percent of all targeted small and medium enterprises in the supply chain will be actively engaged in cleaner rattan production. Fifteen percent of processing industries will provide environmentally friendly products to European and worldwide markets.

By 2015, 50 percent of the rattan processing industry in Cambodia, Lao PDR and Viet Nam will be environmentally cleaner and more competitive within regional and worldwide markets, generating better economic returns.

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RATTAN TRADE

Rattan is a growing, US\$4 billion/year industry. Village communities in Cambodia, Lao PDR and Viet Nam rely heavily on the rattan trade. Sales account for up to 50 percent of cash income in villages, making rattan a major contributor to poverty alleviation in rural areas.

(Source: WWF Web site.)

Country updates

Cambodia

The most common rattan product in Cambodia is furniture, accounting for approximately 70 percent of total rattan products; other products are handicrafts, such as baskets.

In the Prek Thnot community protected area (Kampot province), WWF recently worked with local communities, guiding them towards sustainable rattan harvesting and production. The project

introduced villagers to sustainable ways of rattan management and harvesting, established rattan permanence plots, a rattan nursery, and a rattan plantation in the community. Moreover, the project provided training sessions on rattan processing techniques to enable the community to manufacture more profitable rattan products independently.

Additionally, a study on rattan value chains was undertaken, and a rattan field guide for sustainable rattan production was developed.

Following the establishment of a model in Prek Thnot, the project has been scaled up to other villages, involving a total of 4 900 families in five provinces, namely Kampot, Koh Kong, Preah Sihanouk, Kampong Thom and Preah Vihear. [Source: WWF, 2010. *Research and case studies: potential assessment and proposing cleaner production solution for the rattan sector in Cambodia.*]

Lao People's Democratic Republic

Rattan collection is an important source of income for many communities in the Lao People's Democratic Republic. Forest Stewardship Council (FSC) certification increases the incentives to protect forests from conversion and other unsustainable land use.

Earlier this year, the Leudnilan Agriculture Promotion Co. Ltd received an FSC Chain of Custody (CoC) certificate with support from the WWF sustainable rattan project. This certificate shows that the company has a proper production chain that ensures sustainable traceability and legality of rattan products. "Lao rattan companies need to switch their conventional production methods to a more systematic, documented and innovative process," said Bouaphet Bounsourath, WWF Sustainable Rattan Project Manager. "Sufficient documentation of inflow and outflow in rattan production shows efficient processing and facilitates access to the global market."

Such a certification is an incentive for communities and forest managers as they receive a higher income from selling FSC rattan compared with non-certified companies.

"If we compare the new rattan model to seasonal jobs we have had in the past with what we are doing now we can see a big difference," said Mr Kensity Milamith, Vice Village Head of Thaveng village, Bolikhaxay province. "We used to earn a few hundred thousands kips per month, but now when we weave baskets and sell them to the Leudnilan

company, we can earn more than 3 million kips/month."

Lao PDR currently exports raw rattan to its neighbouring countries, particularly Viet Nam, and is aiming to be seen as a global leader of sustainable and certified rattan exports among traders, global retailers and consumers. [Source: WWF Web site, 27 June 2011.]

Viet Nam

In Viet Nam, the rattan sector employs up to 400 000 people. Although the country is an important exporter of finished rattan products with almost 60 percent of its total production going to the EU in 2005, the rattan sector cannot yet compete with other rattan manufacturing countries such as China, Indonesia and the Philippines.

According to WWF's recent study, there are currently 238 enterprises working in different processes of the rattan sector [exploitation, processing, exporting] in Viet Nam, mostly in the Hong River delta. Rattan manufacture trade villages, located all over the country, especially in the delta, play an important role in creating jobs and incomes in rural areas.

Recently, under WWF's sustainable rattan project, 26 members of ethnic minority communities from Thanh My town in the central province of Quang Nam underwent a ten-day rattan product-making course.

WWF is planning to carry out six more courses in the near future, saying in a statement that strengthening the villagers' role as rattan preprocessors/traders in the value chain would result in more benefits and better livelihood security for them. "The specific objective is that by the end of the action, at least 40 percent of all targeted small and medium enterprises (SMEs) in the supply chain are actively engaged in cleaner production of rattan products in Viet Nam and at least 15 percent of targeted processing SMEs are providing sustainable products to European and other markets," the statement said. This would deliver a "measurable improvement of this sector's environmental performance," it added. [Sources: *Viet Nam News*, 6 July 2011; WWF, 2010. *The potentials and unsustainability of rattan sector in Vietnam.*] ♣

Have patience. All things are difficult before they become easy.

Saadi



INTERNATIONAL CONFERENCE ON SILVICULTURAL MANAGEMENT FOR FOREST PRODUCERS OF EDIBLE MUSHROOMS

CASTILLA Y LEÓN, SPAIN
9–11 JUNE 2011

This conference was organized by the Forest Research Centre Valonsadero (government of Castilla y León), with the aim of contributing to the promotion in Europe of a multifunctional and sustainable forest management, integrating and enhancing ecological and socio-economic functions of edible wild mushrooms.

FOR MORE INFORMATION, PLEASE CONTACT:

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"EL BOSQUE SIN FRONTERA PARA TODOS Y POR EL BIEN COMUN"

MANAGUA, NICARAGUA
29, 30 DE JUNIO Y 1 DE JULIO DE 2011

El objetivo principal de este evento fue destacar la importancia estratégica de los ecosistemas forestales para la conservación de la biodiversidad, el desarrollo socioeconómico y cultural de la región centroamericana.

PARA MAS INFORMACIÓN DIRIGIRSE A:

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COMMUNITY FORESTRY: KEY TO SOLVING CURRENT AND EMERGING CHALLENGES

BANGKOK, THAILAND
8–9 AUGUST 2011

Many Asia-Pacific countries have made considerable strides in giving local people a greater stake in managing their forest resources. However, pressure on forests is high, and decision-makers often must revalue forest land as a result of changing

environmental, economic and social drivers. The time is right for taking stock of where community forestry stands today and for committing to efficient and practical solutions that work for both people and forests.

In collaboration with Thailand's Royal Forest Department, RECOFTC (the Center for People and Forests), the ASEAN Social Forestry Network, FAO and the Japan International Cooperation Agency organized the Second Regional Forum for People and Forests. The International Year of Forests calls for a people-centred approach to sustainable forest management. The forum promoted community forestry as a vital tool for solving current and emerging challenges in Asia and the Pacific.

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14TH SYMPOSIUM OF THE NATURAL PRODUCT RESEARCH NETWORK FOR EASTERN AND CENTRAL AFRICA (NAPRECA)

KASARANI, NAIROBI, KENYA
8–12 AUGUST 2011

NAPRECA has the mandate to mobilize scientists in the relevant fields in the East and Central African subregion to contribute effectively to the development of the science of natural products. The necessity of NAPRECA was borne from the realization that Africa was rich in biodiversity but poor in research and development in natural products.

The event further explored natural products on the continent, under the theme "Natural products from African biodiversity".

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INTERNATIONAL SYMPOSIUM ON MEDICINAL AND AROMATIC PLANTS

PETÉN, GUATEMALA
16–19 AUGUST 2011

This International Society for Horticulture Science international scientific symposium (History of Mayan Ethnopharmacology) aims to provide a unique opportunity for understanding and appreciating indigenous medicinal plant use in current and historical Mayan culture.

Scientific sessions in ethnopharmacology focused on indigenous practices and market development. Additional sessions included medicinal plant cultivation, biodiversity, and essential oils. Pharmacognosy sessions explored the physical, chemical and biological properties of medicinal plants.

FOR MORE INFORMATION, PLEASE CONTACT:

www.imaps2011-peten.org/



RESTORING FORESTS FOR COMMUNITIES, BIODIVERSITY AND ECOSYSTEM SERVICES

BOGOR, INDONESIA
12–13 SEPTEMBER 2011

Indonesia has tens of millions of hectares of degraded land resulting from unsustainable land-use practices. From colonial times onwards, the Government has implemented a wide variety of reforestation projects, but typically with limited success because of an array of technical, social and institutional problems.

This conference examined some of the more innovative reforestation approaches being conducted in Indonesia and across the Asia-Pacific region and looked at their (wider) applicability to Indonesia. The

conference was followed by a small workshop designed to determine how best to facilitate the adoption of more ecologically and socially sound forms of reforestation in Indonesia.

Conference objectives included: (i) increasing awareness of the need for forest reforestation as a means to benefit communities, conserve biodiversity and restore environmental services; (ii) introducing different forest restoration approaches with reference to initial social and ecological site conditions and management objectives; and (iii) examining the obstacles to and opportunities for more effective forest restoration in Indonesia.

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 **2ND ASIA-PACIFIC FORESTRY WEEK: NEW CHALLENGES, NEW OPPORTUNITIES**
BEIJING, CHINA
7-11 NOVEMBER 2011

FAO and its partners are inviting the forestry sector to participate at the 2nd Asia-Pacific Forestry Week, expected to be the largest and the most important forestry-related event in the region in 2011. The event will bring together some 1 500-2 000 participants from governments, NGOs, research institutions, regional and international networks, UN agencies and the private sector. High-level forestry officials from throughout the Asia-Pacific region will attend the event. It will provide a unique opportunity for diverse stakeholders and forest managers to share perspectives and seek solutions to the most challenging issues facing forests and forestry today.

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www.fao.org/forestry/ap-forestry-week/en/;
www.fao.org/forestry/27710-09ce6fb8776cc27587da58017ba67e4d7.pdf



 **GREATER MEKONG SUBREGION CONFERENCE 2020**
BANGKOK, THAILAND
15-16 NOVEMBER 2011

The Greater Mekong Subregion (GMS) countries, through the GMS Working Group on Environment and the Asian Development Bank are organizing a conference to benchmark economic developments of the decade spanning 2001-2010. The conference will look at the decade's impact on growth, the wider distribution of economic benefits to the poor in the subregion, and its overall effect on the environment in order to take a hard look at the next ten years 2011-2020 on emerging challenges of climate change and the need for appropriate responses.

FOR MORE INFORMATION, PLEASE CONTACT:
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 **2011 INBAR BAMBOO INDUSTRIAL TOUR**
ZHEJIANG, CHINA
18-24 NOVEMBER 2011

The objective of the annual bamboo study tours is to share the experience of Chinese bamboo development and to promote bamboo development in other countries.

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 **INTERNATIONAL CONFERENCE ON MANAGING NON WOOD FOREST PRODUCTS FOR SUSTAINABLE LIVELIHOODS**

BHOPAL, INDIA
17-19 DECEMBER 2011

The importance of NWFPs contributing to rural livelihoods and alleviating rural poverty is well known. It is estimated that about 60 million highly forest-dependent people in Latin America, West Africa and Southeast Asia, with an additional 400 to 500 million people especially in those communities living inside and on the fringes of forest areas, depend on NWFPs for food, shelter, medicine, cash income, etc. Apart from meeting subsistence and cash income needs of the dependent communities, NWFPs also support a large number of small- to large-scale enterprises engaged in processing and/or trading of NWFPs and NWFP-based products.

While there is growing appreciation of the importance of NWFPs for rural households, especially the very poor, there are also concerns about the potential impacts of NWFP collection on biodiversity. The Madhya Pradesh Minor Forest Produce (MPMFP) Federation, Indian Institute of Forest Management (IIFM) and Madhya Pradesh Forest Department (MPFD) have long been involved in providing livelihood opportunities for forest dwellers and rural households through direct interventions, and research and development initiatives. Yet it is strongly felt that there are many grey areas where a lot still needs to be done. Furthermore, many good things are happening around the globe concerning NWFP management-related issues. There are plenty of success stories about sustainable livelihoods as a result of NWFP marketing and trading. Madhya Pradesh wishes to learn from such experiences.

It is with this background in mind that the MPMFP Federation is organizing an international conference on NWFPs. The theme of the conference is Management of NWFPs for sustainable livelihoods. It will be organized in commemoration of the International Year of Forests and the completion of 150 years of scientific forestry. In Madhya Pradesh, the main organizer of the event is the MPMFP Federation with IIFM as copartner. MPFD is the sponsor of the event.



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www.nwfpcon.com/

 **CONGRESS OF THE**
INTERNATIONAL SOCIETY
OF ETHNOBIOLOGY 2012

MONTPELLIER, FRANCE
20-25 MAY 2012



For two decades, the International Society of Ethnobiology (ISE) has actively promoted and supported the inextricable linkages between biological and cultural diversity and the vital role of Indigenous and local people in the stewardship of biological diversity and cultural heritage, which includes recognition of land and resource rights, as well as rights and responsibilities over tangible and intangible cultural and intellectual properties.

Building on the traditions of past ISE congresses, the 13th International Congress of Ethnobiology in Montpellier, France, will bring indigenous and non-indigenous participants from around the world to tackle the key issues of our times. The congress will include a wide range of formats for people to share their knowledge, ideas and experiences, ranging from talk circles, to film viewings and discussions, cultural

performances, field trips, oral presentations and poster sessions. The congress is designed to be highly interactive and participatory, and to foster a commitment by participants to building understanding and trust.

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http://congress-ise2012.agropolis.fr/



IUFRO "FORESTS
FOR PEOPLE –
INTERNATIONAL
EXPERIENCES
AND THE VITAL ROLE
FOR THE FUTURE"

ALPBACH, AUSTRIA
22-24 MAY 2012

The conference is one important part of the new strategy of the International Union of Forest Research Organizations (IUFRO). The aim of this conference is to build a systematic body of knowledge about "forests for people" and its various facets, including possible future trends and challenges.

The conference and the follow-up process aim at integrating not only the knowledge across all IUFRO divisions, but also include the knowledge outside IUFRO.

The main themes of the conference are the following.

- Livelihoods – issues of agroforestry, food security, fuels, poverty alleviation and human dislocation.
- Health, Recreation and Tourism – issues of human health, recreation and nature-based tourism.
- Urban and Rural Landscapes – issues of ecosystem services, economic benefit and development, spaces and places for living.
- Culture and Education – issues of perceptions of forests, spiritual character, education, historical tradition and practice, communication and governance.

The IUFRO conference is addressed towards forest managers, scientists, science administrators, policy-makers and the interested public audience.

It is organized by the University of Natural Resources and Life Sciences (BOKU) Vienna, Department of Landscape, Spatial and Infrastructure Sciences,

Institute of Landscape Development, Recreation and Conservation Planning.

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 **11TH ASIAN**
APICULTURAL
ASSOCIATION
CONFERENCE

KUALA TERENGGANU, TERENGGANU,
MALAYSIA
28 SEPTEMBER-2 OCTOBER 2012

The Asian Apicultural Association (AAA) assists communication and the exchange of information between bee scientists and beekeepers in Asia. We need to coordinate bee research, extension and diversity of beekeeping promotion and to make efforts relevant to the business community and people everywhere.

The conference committee has identified the following areas as special areas of focus for the scientific presentation and discussion: bee biology, behaviour, diseases and pests; bee pollination and bee plants; bee products; beekeeping and honey-hunting equipment and technologies; apitherapy and pharmaceuticals; and environment and conservation.

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www.asianbeeconference.org/
11thaaconference/ ♣



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NEW PUBLICATIONS FROM FAO'S NON-WOOD FOREST PRODUCTS PROGRAMME

TROPICAL PALMS, 2010 REVISION NOW AVAILABLE IN FRENCH



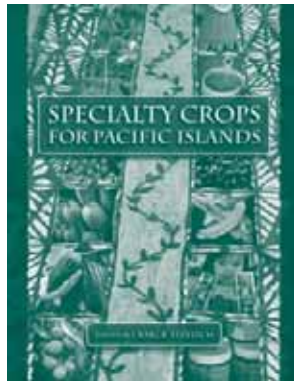
Tropical palms, originally published in 1998 as the tenth volume in FAO's NWFP series, was updated in 2010 to include the most recent information and developments regarding the conservation status and use of various tropical palm species.

The publication in its revised version is now available in French (*Les palmiers tropicaux révision 2010*) and in both hard copy and electronic format (www.fao.org/docrep/012/i1590e/i1590e00.htm). Copies can be purchased from FAO's Sales and Marketing Group at publications-sales@fao.org



OTHER RECENT PUBLICATIONS

Specialty Crops for Pacific Islands



From bamboo to black pepper, cacao to coconut, tea to taro, *Specialty Crops for Pacific Islands* provides detailed cultivation, value-added and marketing information for over two dozen of the most important speciality crops for Pacific Islands and other tropical locations. These crops provide a rapidly growing economic opportunity for innovative farmers and gardeners who are interested in diversifying their products.

This new resource book – by 40 contributing experts and illustrated with over 940 colour images – covers value-added processing, enterprise development, accessing unique markets, sustainable local food production, economic and ecological viability, multiprop agroforestry systems and local systems with export potential. It provides insights into sustainable cultivation and processing techniques for local and export markets with an emphasis on innovating production methods, post-harvest processing and marketing.

This new book promotes high-quality food, fibre and health-care crops grown in diverse agroforestry systems with an emphasis on providing small farms with opportunities for local consumption and commercial sale.

Elevitch, C.R. (ed). 2011. *Specialty Crops for Pacific Islands*. Permanent Agriculture Resources, Holualoa, Hawaii.

FOR MORE INFORMATION, PLEASE CONTACT:

Craig Elevitch, Permanent Agriculture Resources, PO Box 428, Holualoa, Hawaii 96725, United States of America.
 Fax: +1 877-883-5837;
 e-mail: cre@agroforestry.net;
<http://www.agroforestry.net>;
www.specialtycrops.info/

Bamboos at TBGRI



Published by the Tropical Botanic Garden and Research Institute (TBGRI), *Bamboos at TBGRI* is a record, with historical facts, of the initiation and development of a Bambusetum at TBGRI. It includes collection details and other features of 68 species and one variety under 15 genera and 12 hybrids produced in TBGRI. The book provides a picture of the genetic resources of bamboos available at TBGRI and is divided into three chapters covering: (1) the history of the TBGRI Bambusetum and major bambusetum of Asia; (2) details on live collections, the most important part of the book; and (3) future options and breeding in bamboos. The information is useful to policy-makers, taxonomists, breeders, horticulturists, landscape architects in general and for future bamboo development activities of the state and country in particular.

FOR MORE INFORMATION, PLEASE CONTACT:

Dr K C Koshy, Scientist, Tropical Botanic Garden and Research Institute, Palode 695 562, Trivandrum, Kerala, India.



Plantes medicinales de traditions: province de l'Equateur, R.D. Congo



This book contains a wealth of information on the local medicinal uses, including the different plant parts used and the way of preparation of the medicine, of more than 350 medicinal plants of the Equator province in the Democratic Republic of the Congo. [Source: K.K. Mbuta et al. 2011. *Plantes medicinales de traditions: province de l'Equateur, R.D. Congo*. Democratic Republic of the Congo, Institut de recherche en sciences de la santé. (Please see page 41 for more information.)

FAO finalizes second Asia-Pacific Forestry Sector Outlook Study

The new publications include:

- *Asia-Pacific forests and forestry to 2020*, which covers all the major aspects of forestry development across the whole of the Asia-Pacific region;
- subregional reports for Southeast Asia, East Asia, the Pacific and the Greater Mekong subregion, which contain a wealth of information on developing trends, future scenarios and priorities to reach sector goals;
- *Forest policies, legislation and institutions in Asia and the Pacific. Trends and emerging needs for 2020*, written in collaboration with the TNC RAFT Program, the Centre for People and Forests and with support from USAID.

In addition, the following reports, which formed the foundation for the outlook study, are available:

- twenty-one *country papers*, submitted by Asia-Pacific Forestry Commission member countries;
- eleven *thematic papers* on aspects of forests and forestry including poverty,

environmental services, NWFPs, cultures and forests, forest products industry competitiveness, gender and biomass energy.

The reports are available at: www.fao.org/asiapacific/forestry-outlook/

FOR MORE INFORMATION, PLEASE CONTACT:
Patrick Durst, Senior Forestry Officer, FAO Regional Office for Asia and the Pacific, 39 Phra Atit Road, Bangkok 10200, Thailand. Fax: (66-2) 697 4445; e-mail: patrick.durst@fao.org

State of Europe's Forests 2011 launched



The UN Economic Commission for Europe (UNECE), FAO and FOREST EUROPE have collaborated to produce *State of Europe's Forests 2011: Status & Trends in Sustainable Forest Management in Europe*, launched during the Ministerial Conference on the Protection of Forests in Europe (FOREST EUROPE) held in Oslo, Norway from 14 to 16 June 2011.

The report is based on detailed information provided by countries. The main findings of the report are that forests cover 1 billion ha in Europe, 80 percent of which are in the Russian Federation; European forests are expanding and remove the equivalent of about 10 percent of European greenhouse gas emissions; most Europeans think that their forests are shrinking; the sector provides 4 million jobs and accounts for 1 percent of the region's gross domestic product (GDP); low carbon-nitrogen ratios in forest soils will be problematic in several locations; and most countries have explicit objectives on forest-related carbon.

The authors of the report developed a draft method to assess the sustainability of European forests which, while not yet peer-reviewed, identifies a number of

threats and challenges, including landscape fragmentation; a shrinking and ageing workforce; negative net revenues of several forest enterprises; and mobilizing enough wood for energy while reconciling biodiversity values and the needs of the traditional wood sectors. [Source: *IISD News*, 14 June 2011.]

FOR MORE INFORMATION, PLEASE CONTACT:
**Ministerial Conference on the Protection of Forests in Europe FOREST EUROPE, PO Box 115, NO-1431 Aas, Norway. Fax: +4764948939; e-mail: Liason.unit.oslo@foresteurope.org; www.foresteurope.org/
 Download: www.foresteurope.org/pBI7xY4UEJFW9S_TdLVYDCFsP39Ec720-U9or6XP.ips/
 (Please see pages 14–16 for extracts from this report.)**



A novel must be exceptionally good to live as long as the average cat.

Hugh MacLennan

FAO'S NWFP HOME PAGE

Please help us make our Web site a rich resource by continuing to send us (non-wood-news@fao.org) your NWFP Web sites and citations of any publications that we are missing, as well as any research that you would like to share.
www.fao.org/forestry/site/6367/en

Amazonia Boliviana

El objetivo de este sitio es promocionar la Amazonia de Bolivia en sus aspectos culturales, ecológicos, económicos, informativos y turísticos.
www.amazonia.bo/

Biocultural heritage

This new Web site has been launched to promote understanding of traditional biocultural knowledge as a whole. It contains toolkits, resources, policy information and case studies that keep traditional knowledge in context.
www.bioculturalheritage.org/

Biodiversity Heritage Library (BHL)

This year marks the 4th anniversary of the launch of the Biodiversity Heritage Library, a consortium of history and botanical libraries that have cooperatively digitized a wealth of literature on biodiversity. In an effort to expand the reach of publications and information on this subject, BHL's materials have been made available for open access worldwide.
www.biodiversitylibrary.org/

Cork: videos available online

[http://foris.fao.org/rss/rss-feed-output.do?pageitemId=115823&language=en;](http://foris.fao.org/rss/rss-feed-output.do?pageitemId=115823&language=en)
<http://www.youtube.com/watch?v=mlzL-dElv8/>

FAOSTAT

The preliminary 2010 Forest Products Statistics have just been released on the FAO Web site:
<http://faostat.fao.org/site/630/default.aspx/>

Forest governance assessment and monitoring

FAO's new Web site on forest governance assessment and monitoring is online.
www.fao.org/forestry/governance/monitoring/en/

HOW TO WRITE RESEARCH PROPOSALS

- Hints on preparing research proposals: [http://aas.org/grants/hints.php/](http://aas.org/grants/hints.php)
- How to write a research paper proposal: www.ehow.com/how_2002069_write-research-proposal.html/
- How to write a research project grant application: www.ninds.nih.gov/funding/write_grant_doc.htm/
- How to write a thesis proposal: www.ldeo.columbia.edu/~Emartins/sen_res/how_to_thesis_proposal.html/
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- Research proposal writing: <http://lrs.ed.uiuc.edu/tse-portal/proposal/dan-ryan-proposal/propweb.htm/>
- Sample research paper proposal: www.essaybay.com/sample-research-paper-proposal.php/

◆ Orangutan Appeal UK

Orangutan Appeal UK is a charity determined to protect the remaining wild population of orangutans in Borneo.
www.orangutan-appeal.org.uk/

◆ The Jane Goodall archive

Duke University announced the establishment of the Jane Goodall Institute Research Centre, which will house Goodall's archives and digitized data from 50 years of uninterrupted study of chimpanzees. The collection receives new data with each day's observations. Its scientific value grows as scientists convert the data into digital formats.
<http://today.duke.edu/showcase/janegoodall/index.html>; <http://wildlifedirect.org/>

NWFP-DIGEST-L

The Digest is a free monthly e-bulletin produced by FAO's NWFP Programme and covers all aspects of non-wood forest products. Past issues can be found on FAO's NWFP home page at www.fao.org/forestry/site/12980/en/

You can take part in contributing to the continued success of this newsletter by sharing with the NWFP community any news that you may have regarding research, events, publications and projects. Kindly send such information to NWFP-Digest-L@mailserv.fao.org/

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Kleinhans Fellowships

Since 1989, the Rainforest Alliance has supported research on non-timber forest products through its Kleinhans Fellowship programme. Awarded biennially, the fellowship provides two years of support to a graduate student or postdoctoral fellow whose research strives to understand and improve the impacts of NTFP harvesting and marketing on rural livelihoods and tropical forest ecosystems.

This spring we awarded the 12th Kleinhans Fellowship to Kennedy de Souza, a Brazilian doctoral student who will use 15 years of socio-economic and forest cover data to determine how tenure arrangements and government policies have affected the economic viability and forest conservation potential of NTFPs in the Brazilian Amazon. The work of previous fellows has been just as ambitious: Tarin Toledo Aceves tested whether the nursery propagation of epiphytic bromeliads is a viable alternative to wild harvest from cloud forests, and before her, Monica Barroso Keel examined whether radio broadcasts of up-to-date NTFP market information improve the livelihoods of remote smallholders in the Amazon. Past Kleinhans Fellows have studied NTFPs as diverse as *mezcal*, Brazil nuts and rattan, in places ranging from Mexico to Madagascar to Indonesia and beyond.

As part of the Rainforest Alliance's 25th anniversary celebration in 2012, we have asked the past Kleinhans Fellows – a diverse group consisting of university professors, NGO practitioners and scientists at international research organizations – to reflect on the changes that have occurred in the field of NTFPs since their fellowship research. The theme of "change" is intentionally broad. We expect that some fellows will examine changes in the political context surrounding the production and sale of NTFPs, while others will focus on changes observed at NTFP-dependent communities where they conducted their fellowship research. Still others might consider changes in their own outlook on the viability of NTFPs as a tool for forest communities and conservationists.

We are delighted that the past Kleinhans Fellows' reflections will be included in next spring's edition of *Non-Wood News*, in the form of a set of essays. In the meantime, more information about the Kleinhans Fellowship is available at www.rainforest-alliance.org/fellowships/

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FOR MORE INFORMATION, PLEASE CONTACT:
Deanna Newsom, Manager, Kleinhans Fellowship, Evaluation and Research Program, Rainforest Alliance, 665 Broadway, Suite 500, New York, NY 10012, United States of America.
E-mail: dnewsom@ra.org/
(Please see page 14 for more information on the Rainforest Alliance.)



Request for information: bamboo biomass assessment method

Dr Timothy Gregoire is researching on a way to assess bamboo biomass in Bhutan NFI. Dr Gregoire is especially interested in anything that has been done to date anywhere in any region of the world.

If you could assist, please contact:
 Timothy G. Gregoire, J.P. Weyerhaeuser
 Professor of Forest Management,
 School of Forestry & Environmental
 Studies, Yale University, 360 Prospect
 Street, New Haven, CT 06511-2104,
 United States of America.
 E-mail: timothy.gregoire@yale.edu/

Letters from readers

Reader from Cameroon

It is always a pleasure to share project news via *Non-Wood News* because we are getting feedback and requests for further information from readers.

Reader from the United States of America

I really find *Non-Wood News* packed with great information.

Library in Cameroon

We are pleased to tell you that we have received the publication that you sent to us. Nowadays, we have displayed that publication in our library to all users, and it is a very important document for researchers, lecturers, students and other users. We do hope that you will still continue to give us the good publications more in our library.

Reader from India

Non-Wood News is a very useful publication and we want to continue that. Please update my mailing address so that I get the publication on time.

Reader for the United States of America

I have enjoyably been receiving your magazine in California for the past year or so. I am moving to Guatemala and want to know if I could change my mailing address? (Please remember to let us know if you are moving!)

Reader in Pakistan

Please kindly send us some hard copy of the bulletin for our library record and further distribution among our committees working on conservation and promotion of Non-Wood Forest Products in Chitral. ♣

CONTRIBUTIONS TO NON-WOOD NEWS

A strong characteristic of *Non-Wood News* is that it is open to contributions from readers. Should you have any interesting material on any aspect of NTFPs that could be of benefit to all our readers, please do not hesitate to submit it. Articles are welcomed in English, French and Spanish and should be between 200–500 words.

The deadline for contributions for *Non-Wood News 23* is 31 August 2011.

For more information, please contact:
Tina Etherington at the address on the front page or by e-mail to:
non-wood-news@fao.org/

Forests for People



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The United Nations General Assembly declared 2011 as the International Year of Forests to raise awareness on sustainable management, conservation and sustainable development of all types of forests. Under the theme "Forests for People", the year also provides an excellent opportunity to highlight non-wood forest products, their uses and users.

*From left to right: a craftsman in the Democratic Republic of the Congo weaves a rattan chair; condiments and spices on sale in a Cameroon market; women preparing baby food with a combination of flowers and fruit from *Adansonia digitata* and the leaves of *Tamarindus indica*; making bamboo furniture in the Philippines; and forest-based ecotourism in Dominica.*