



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:

Tim Cronin, International Network for Bamboo and Rattan (INBAR), 8, Futong Dong Da Jie, Wangjing, Chaoyang District, PO Box 100102-86, Beijing 100102, China. Fax: +86-10-64702166; e-mail: tcronin@inbar.int; www.inbar.int/



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:

Lise van den Bos, Switch-Asia Project Assistant, Switch-Asia Office, Beijing, Rm 1601, Zhongyu Plaza, A6 Gongti Road, Chaoyang District, Beijing 100027, China. Fax: +86 (0)10 85236305; e-mail: bamboo@bencham.org; www.bencham.org; www.inbar.int; www.switchbamboo.org/

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:

Armand Asseng Zé, Spécialiste ressources naturelles et produits forestiers non ligneux, Coordination régionale du Projet PFNL GCP/RAF/441/GER, FAO B.P. 281 Yaoundé, Cameroun. Courriel: Armand.Assengze@fao.org; www.fao.org/forestry/nwfp/55079/fr/ (Please see page 59 for more information on this project.)



 **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.

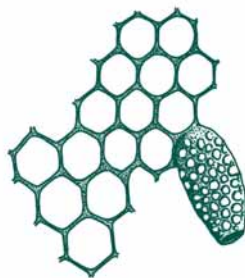
Julian Wolfhagen, from the Tasmanian Honey Company, one of the six businesses involved, says he wants to build consumer confidence in Tasmanian active hive products. "Particularly in this case, where New Zealand has established itself clearly as the market leader, we need to get some group energy and 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.)



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.)



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.

(Contributed by: Dr Hemant K Badola, Scientist 'E'– Conservation of Biodiversity, G.B. Pant Institute of Himalayan Environment & Development, Sikkim Unit, PO Box 40, Gangtok [Campus: Pangthang], Sikkim 737 101, India.
E-mail: hkbadola@rediffmail.com; hkbadola@gmail.com/)



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