



non-wood NEWS

EDITORIAL

The editorial for this issue has been written by Mr Hikojiro Katsuhisa, the new Chief of the Forest Products Service. We are delighted that Mr Katsuhisa accepted our invitation and has provided us with his insights on the importance of non-wood forest products.

This issue of *Non-Wood News* is once again packed with information from the multifaceted world of NWFPs and highlights the important role our NWFP Programme is undertaking in technically supporting many field projects and information dissemination.

The first feature article of this issue is a Global Alliance on Non-Wood Forest Products (NWFPs), an idea that was formed at the World Forestry Congress in Quebec in 2003 when a number of NWFP experts gathered at the full-day side event organized by IUFRO, CIFOR and FAO. We are very much aware that NWFPs can play a larger role in our overall efforts to attain sustainable forest management. This is especially true in the



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is compiled by Tina Etherington, Forest Products Service of the FAO Forest Products and Economics Division. Editorial support for this issue was provided by Sven Walter; design, graphics and desktop publishing were coordinated by Tina Etherington.

Non-Wood News is open to contributions by readers. Contributions may be edited to fit the appropriate size and focus of the bulletin. If you have any material that could be included in the next issue of *Non-Wood News* for the benefit of other readers, kindly send it, before 15 December 2005

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tropics where there is a higher level of expectations on the contribution of NWFPs towards the Millennium Development Goals, notably "Eradication of extreme poverty and hunger". Yet, the potential of NWFPs has not been fully realized in many parts of the world for various reasons. Consequently, the experts agreed in general to pursue concerted efforts among the organizations working with NWFPs.

Spearheading this effort were Jim Chamberlain, Research Scientist (NTFPs) at the United States Forest Service – and Coordinator of IUFRO Research Group 5.11 (NWFPs) – who was a visiting scientist at FAO for two months in 2004; and Paul Vantomme, FAO Forestry Officer (NWFPs), currently on secondment to ITTO. Together with FAO Forestry Department colleagues, the two experts further developed the concept, provisionally called "global alliance" since the term "partnership" was frequently used elsewhere. Based on the concept note, informal contacts were made with individuals at major organizations and responses were in most cases very positive.

The alliance proposals are expounded in the article. I am confident that the idea will be supported by a wide range of stakeholders who are concerned with biodiversity, food security, income generation, commercialization, forest management, research, etc. The challenge will be creating an institutional set-up with some financial support and producing a work plan endorsed by a great majority of partner organizations.

Another feature article is on Microfinance and NWFPs. Under the FAO-

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EDITORIAL

Norway Partnership Programme, a study was carried out on the needs, opportunities and constraints of microfinancing in assisting small-scale enterprises in the forestry sector with particular attention given to NWFPs. We hear about a number of success/failure stories in the agricultural sector, but forestry sector analysis has been sporadic. The report, still in draft form, presents an overview and four case studies on the Sudan (gum arabic), Peru (Brazil nuts), Guatemala (community forests) and Nepal (NWFPs). It will provide informative reading for all those who are trying to help local communities by arranging for microfinancing as a jump-start.

The part of the report that jogged my memory was the section on gender outreach: "Women are reputed to possess more unrealized entrepreneurial capacity, to have higher savings propensity, and to be more inclined to use income they control for improving children's nutrition and education. Small credit amounts used in microfinance seem to suit women better than men, and women can also be used as vehicles for credit delivery." Some male readers may disagree, but I concur with this statement. When I visited one of the African countries some years ago for a prolonged mission, I saw men going out to a market to sell their produce. When they sold whatever they brought, they bought locally produced liquor and started drinking and chit-chatting for hours, while their wives were toiling in the fields or gathering fuelwood. When they went back home before dark, I do not know how much of the money was left. I remembered feeling really sorry for the women and thought we should seriously try to empower them. One means of doing so could be by offering women-only microcredit.

The best reward for all of us involved in producing *Non-Wood News* is hearing from readers how much they enjoyed reading it and learning how people in different parts of the world are striving to better their lives using NWFPs as a leverage. We thank all those who contributed articles and seek your continued support.

Hikojiro Katsuhisa

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Non-wood forest products (NWFP) are goods of biological origin other than wood, derived from forests, other wooded land and trees outside forests. Non-timber forest products (NTFP), another term frequently used to cover this vast array of animal and plant products, also includes small wood and fuelwood. However, these two terms are used synonymously throughout this bulletin. Other terms, such as "minor", "secondary" or "speciality" forest products, are sometimes used to keep original names and/or titles.

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A GLOBAL ALLIANCE ON NON-WOOD FOREST PRODUCTS



The Overstory/C. A. Sobel and M.-A. Collier

The well-being of more than half of the 1.2 billion people who live in poverty and depend on non-wood forest resources for their livelihood will not improve unless the resources from which these products originate are managed in such a way that harvests are sustainable. Forests still cover some 30 percent of the earth's land area; most forest-dependent people, be they poor or not, have few options except to gather and hunt non-wood forest products (NWFPs) for their food and medicines, and the resources from which these essential items originate are not adequately included in forest management efforts. The potential contributions of non-wood forest products to alleviating poverty, ensuring food security and sustaining forest biological diversity are not being fully realized. The United Nations Millennium Development Goals of alleviating poverty, providing for food security and ensuring environmental sustainability will not be achievable unless these resources and the particular needs of forest-dependent people to gather and hunt are fully integrated into national forestry and related programmes and into the concept of sustainable forest management.

Global efforts to conserve forest biological diversity need to be complemented and go hand in hand with similar programmes on the sustainable management, use, processing and marketing of all forest resources, including

NWFPs. Conservation efforts will fail unless all forest resources are fully integrated, through an ecosystem approach, into work plans, programmes and actions of organizations working towards these goals. Yet, at the interface between biodiversity conservation and resource use, there is a significant lack of technical, institutional, political and financial capacity for these programmes to address adequately the diverse and complex issues that arise when considering NWFPs. Many forestry-oriented organizations are struggling with the complexities of integrating NWFPs into their programmes. They lack awareness on their value and importance, and insufficient information and knowledge concerning all aspects of NWFPs are cited as the major reasons for not incorporating them into their forest management and related programmes.

Current global efforts

Over the last two decades, many organizations have started working on various aspects of non-wood forest resources and products. A growing number of intergovernmental organizations, bodies and convention secretariats, as well as national and international research and development institutions, are embracing the need to incorporate NWFPs into their efforts to achieve sustainable development, and improve the livelihoods of forest-dependent people. Some major international forestry institutions, such as the World Conservation Union (IUCN), the Center for International Forestry Research (CIFOR), the International Center for Research in Agroforestry (ICRAF), the Convention on Biological Diversity, the International Tropical Timber Organization (ITTO) and FAO, have integrated NWFPs into their programmes. A few organizations, such as the International Development Research Centre (IDRC), the Medicinal and Aromatic Plant Programme of Asia (MAPPA) and Royal Roads University in British Columbia (Centre for Non-Timber Resources) have programmes that expressly focus on non-wood forest products. International networks (e.g. the International Network on

Bamboo and Rattan, the Medicinal Plant Working Group of the Plant Conservation Alliance, the Global Bushmeat Network, and the Network for Natural Gums and Resins) have been formed on specific NWFP commodities or issues. Several Internet-based databases are available to distribute knowledge and information concerning NWFPs. More than 100 stakeholders, representing at least 60 organizations from 25 countries, expressed their concerns and identified major issues and provided recommendations to address these issues during the XII World Forestry Congress (WFC) side event on "Strengthening Global Partnerships to develop NWFPs" (Quebec, 2003). It has been generally expressed that more concerted and collaborative efforts are needed to integrate NWFPs fully into poverty alleviation, food security and biological diversity programmes and forest management plans. Working together a group of organizations can have a greater impact.

Proposed approach

A global alliance, therefore, is envisioned with the goal of facilitating the integration of NWFPs into sustainable forest management and related programmes, helping alleviate poverty and improving food security for forest-dependent people, while conserving forest biological diversity, at the:

- *international level* to streamline international environmental agreements, and integration with poverty-reduction strategies of NWFP-related issues;
- *national level* to integrate NWFPs into sustainable development plans for different sectors, and the development of integrated land-use planning; and
- *local level* to improve land-use planning at a landscape or watershed scale, and adequate forest management plans.

Objectives

To achieve this goal, three strategic objectives are proposed:

1. Build awareness and commitments among policy-makers of relevant



(donor) organizations and governmental agencies concerning the importance and value of NWFPs; and to have these products as integral components of their agency's sustainable forestry, rural development, poverty alleviation and biodiversity conservation programmes.

2. Foster synergies among organizations within and outside the forest sector by encouraging dialogue and collaboration in order to build multidisciplinary approaches and collaboration across sectors, agencies and ministries (Health, Trade, Customs, Education, etc.).
3. Improve capacities (technical, political, institutional, financial) of (inter) national organizations to integrate NWFPs into their work programmes.

Actions

The objectives focus on three levels – improving policies, increasing collaboration and building capacities.

Achieving these objectives will lead to:

- better integration of NWFPs into forestry and related programmes within organizations that do not fully embrace them;
- more international organizations (dealing with NWFP issues) working together to increase synergies among their respective programmes and, at the national level, facilitate constructive dialogue among local governments and communities; and
- an increase in the abilities of implementing agencies and national and local organizations to integrate NWFPs into their respective programmes and fieldwork.

Through a global dialogue with the WFC side event participants, representatives of international organizations and colleagues, a number of actions have been identified that would help to advance the proposed objectives of the alliance. Initial activities are proposed, and it must be stressed that the development of a definitive strategy and plan of action would be undertaken through a reiterative process with interested parties. Proposed actions

relative to each objective include:

Build awareness and commitment

1. Provide and exchange information and knowledge to and among decision-makers in relevant organizations so that they can make more informed decisions regarding non-wood forest products (e.g. by facilitating data gathering and exchange among (inter) national agencies, and making NWFP information easily accessible and user-friendly by “cross-linking” to existing info-databases of relevant agencies).
2. Facilitate interactive fora to improve awareness and information exchange (e.g. joint agency exhibits or side events on NWFP-related issues during Conference of Parties meetings and other international fora).
3. Facilitate the integration of national NWFP strategies that could be incorporated into National Forest Programmes of interested countries and in Poverty Reduction Strategy Programmes.

Foster synergies

1. Develop communications with organizations within and outside the traditional forestry community, and including the private sector, with the idea of finding commonalities to build collaboration (e.g. World Health Organization, World Trade Organization and International Labour Organization) in order to achieve their respective mandates.
2. Provide opportunities for organizations to learn about the activities of other organizations and pursue mutual cooperation.

Improve capacities

1. Assess and make available current knowledge of practices and policies that will lead to more information concerning NWFPs:
 - Augment mechanisms whereby research results are readily available to organizations, end users and other stakeholders that would benefit from this knowledge to improve their programmes.
2. Assess and take actions to strengthen the technical skills and knowledge base that are inhibiting efforts to

integrate NWFPs into national forest programmes, by:

- a. regional NWFP assessments with the FAO Regional Forest Commissions to undertake needs and resource assessments to allow for region specific recommendations on conservation priorities, and training and research needs;
 - b. developing the skills of the staff of implementing organizations to integrate NWFPs more effectively into forestry and related programmes; and
 - c. knowledge assessments to identify sources of traditional knowledge, establishing models that integrate scientific and traditional knowledge into decision-making.
3. Develop a framework for model forests that incorporate NWFPs, and demonstrate how NWFPs can be integrated into sustainable forest management by promoting multistakeholder cooperation to:
 - a. craft guidelines to assess how well NWFPs are integrated into forest management;
 - b. craft guidelines for sustainable harvesting, inventory and monitoring protocols;
 - c. develop methods to analyse the value-added of integrating NWFPs;
 - d. support country-led processes to integrate NWFPs into forestry programmes; and
 - e. exchange knowledge to strengthen policy, regulatory and development framework at the community, regional and national levels.

Value-added

For an alliance to be successful, there must be value-added to the programmes of respective members. Below are illustrations of how the alliance might add value to programmes:

- better integration of NWFPs into forestry conservation and poverty alleviation programmes building on models and approaches developed by alliance members;
- increasing the benefits of research by better distribution of results of on-farm



production of NWFPs as well as sustainable harvest practices from forests;

- further development and more widespread usage of research methodologies and protocols, especially comparative case studies and on-farm evaluation trials;
- better statistical data on harvests and production of wild species to achieve demands for reporting to international agreements or to meet Millennium Development Goals;
- NWFPs with high potential to contribute to income and employment are identified and targeted by donors, development agencies and government interventions;
- more financial support for projects that integrate NWFPs;
- more and better integration of NWFPs into international forestry development projects;
- more and better cooperation and work on sustainable use of non-wood forest products, including technology transfer and capacity-building;
- more involvement and commitment from private sector on sustainable harvesting and compliance with regulations; and
- cross-disciplinary information exchange that fosters synergies that could make resource assessments more cost-effective as integral to forest inventories.

Advancing the process

To keep the momentum going will require a concerted effort. To facilitate the proposed alliance, the International Union of Forestry Research Organizations (IUFRO) and FAO propose the following actions:

1. Convene an expert workshop in the near future with staff from interested agencies/countries and potential alliance members to better refine the objectives and actions of the alliance, as well as the draft strategy, work plan, structure and functions of the alliance, and to define targets and success indicators.
2. Launch the Global Alliance: target 2005/2006.

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MICROCREDIT/ MICROFINANCE

2005 is the International Year of Microcredit. Microfinance gives millions of rural men and women the opportunity to find their own solutions to poverty.

Microfinance and NWFPs

The lack of financial inputs and access to providing microfinance services (MFSs) to local producers has been identified as a bottleneck for many forest projects, including developing small-scale NWFP enterprises. In the context of the International Year of Microcredit 2005, the Norway Partnership Programme at FAO has carried out a study that reviews different types of microfinance institutions (MFIs) and MFSs, the role that they can play in the forestry sector given the

characteristics of small-scale forest-based enterprises and forest communities, and their impact on local livelihoods and environment. This paper is based on the results of that study. [See page 70 for more information on the Norway Partnership Programme.]

Microfinance

Microfinance is the supply of basic financial services to poor and low-income households, and their microenterprises. Microfinance comprises several financial instruments such as credit, savings, leasing, equity finance, insurance and remittances. MFSs are provided by a variety of MFIs, which can be broadly divided into: bank MFIs; non-governmental organizations; credit and savings cooperatives and associations; and non-financial and informal sources.

Providing financial services for small-scale enterprises is a powerful instrument for poverty reduction that enables the poorer households to build assets, increase incomes and reduce their vulnerability to economic stress and external shocks. Microfinance allows better planning and management of consumption and investments, thus helping rural households to cope with risks and opening opportunities for improving their living conditions, including health and education, by smoothing the household cash flow and increasing disposable family income.

To be an effective, long-term poverty reduction instrument, MFIs must provide services and products which address and suit the needs of the rural poor and their small-scale enterprises, be sustainable and have a wide outreach.

Small-scale NWFP enterprises

When looking at expansion opportunities, small-scale NWFP enterprises face a wide array of potential problems, which can be summarized as follows:

- shortage of finance, in particular working capital, worsened by problems of access to what is available and by its cost;
- raw material shortages, owing to overexploitation or natural causes, and often compounded by wasteful



Importance of different MFSs for small-scale NWFP enterprises

MFSs	NWFP
Savings	High – to smooth out seasonalities and idle periods due to shortages of raw materials
Individual lending	Low – the lack of collateral is a common problem
Group lending	High – more standardized loans with usually lower interest rates
Short-term microcredit	High – to finance working capital requirements
Long-term, larger microcredit	Low to moderate – possibly to finance equipment purchases (as an alternative to leasing) for processing
Leasing	Moderate – for equipment purchases
Equity finance	Low – mainly for possible capital-intensive, high-risk processing activities
Microinsurance	Moderate High – for loan repayment for high-risk business
Remittances	High – to finance working capital and smooth out seasonalities

processing, restrictive regulations, poor distribution and lack of working capital;

- small and insecure markets, owing to low rural incomes, seasonality, poor access to large markets and severe competition;
- non-availability of appropriate technology in the form of suitable tools and equipment;
- managerial weaknesses, which serve to worsen all the other problems since small-scale enterprises often lack the capacity to analyse situations and chart ways of minimizing the adverse impacts of problems; and
- lack of organization of the enterprises in a manner which enables them to make effective use of available support services.

Small-scale enterprises most commonly cite finance as the principal constraint they encounter in maintaining their competitive position and developing their activities, with shortages of raw material often being mentioned as the second most important constraint. Even though the focus in this article is on microfinance, it is important to point out that the problems interact and this needs

to be taken into consideration when looking at the overall development of small-scale NWFP forest enterprises.

The income deriving from a small-scale NWFP enterprise is often integrated with other household budgets. Finances for the NWFP-based activities, consumption and household investments are in the household practice miscellany, and it is sometimes difficult to tie funds to a single specific activity. Therefore, the focus should be on providing MFSs for rural households. The MFSs provided should offer rural households a choice of the various financing options that are best adapted to possible heterogeneous investment and production strategies.

Small-scale NWFP enterprises' demand for microfinance will stem from the investments needed for their productive activities as well as from their development opportunities. It will be affected by the accessibility of the MFSs and their costs, including the interest rates and transaction costs, which will determine the viability of the investments. To be able to avail themselves profitably of MFSs, small-scale NWFP enterprises must be economically viable and sound.

Limited access to MFSs is a constraint to the development of small-scale NWFP enterprises. The nature of their activity and the fact that they are generally located in remote inaccessible areas make it particularly challenging, and costly, for MFIs to reach out to. However, several key factors and interventions can facilitate MFI outreach, notably: establishing a policy framework conducive to microfinance; providing business development services and market infrastructure in support of production; and enhancing the capacity of MFIs to service small-scale NWFP enterprises effectively.

Accessibility of MFSs is also affected by social considerations and barriers such as illiteracy, the disempowerment of women and cultural and religious factors. Banks and other financial institutions are perceived to be powerful institutions and many rural people may not have the confidence to approach them. In communities not used to financial services, people may be afraid of getting involved in these activities.

In low population density and remote access areas, to become fully sustainable and continue to expand services to the poor, MFIs will have to develop innovative products, delivery mechanisms and financial technologies that contribute to breaking these barriers and lowering the costs, and establish sustainable linkages between more formal financial institutions and informal service providers.

Group lending is a valuable tool for MFIs to reduce the costs involved in reaching out to small-scale NWFP enterprises, as it reduces transportation and transaction costs and requires less knowledge of the production because of the peer member screening and repayment pressure, and helps MFIs achieve financial sustainability with lower interest rates. Group collateral substitutes help lenders and borrowers to overcome some of the problems related to the availability and effectiveness of conventional collateral in rural and forest areas.

Increasing the supply of MFSs to small-scale NWFP enterprises could





include activities such as: upgrading and mainstreaming informal financial institutions (registration, reporting, legal status, prudential practices, supervision); capacity building and training of MFI staff, including those of the small-scale NWFP enterprises and their activities; supporting linkages and networks among MFIs and establishing apex services; linking banks with local informal financial MFIs; transforming agricultural development banks into sustainable providers of agricultural finance and other MFSs.

Governments should ensure that adequate financial policies and infrastructure are in place to facilitate small-scale NWFP enterprises' continued access to sound and reliable MFSs. Ceilings on interest rates limit the ability of MFIs to attain viability and provide permanent access to MFSs to an increasing number of households. Subsidized targeted credit programmes, most often beset by poor loan collection rates, undermine the development of sustainable microfinance and distort the market. Sound financial procedures and the autonomous management of MFIs should be respected. Allowing for cost-covering prices and promoting competition and institutional efficiency, while focusing on transparency in pricing, will enable interest rates to come down in time. (Contributed by: Anna Springfors, Associate Professional Officer, Forest Products and Economics Division, FAO.)

Microcredit for small-scale NWFP enterprises in Nepal: the Micro Enterprise Development Programme in Parbat district
Microcredit has successfully been provided to small-scale NWFP enterprises in the Parbat district of Nepal. This article is based on a case study that was carried out by the Asia Network for Sustainable Agriculture and Bioresources (ANSAB) for the Norway Partnership Programme at FAO.

Parbat district is one of the 75 districts of Nepal, situated in the hills of the Western Development Region. Agriculture is the mainstay of Parbat district with 90.82 percent of the population depending on it.



The local economy is also heavily dependent on remittances, which amount to 38 percent of the district's total GDP. Agriculture and livestock activities represent 64.5 percent of the total district production, followed by forest production (mostly NWFPs) at 11.5 percent. Given the vast forest resources available, the data show that they are not being fully utilized economically.

The major constraints to accessing microcredit are the lack of collateral available to forest microentrepreneurs and the risks linked to the great uncertainties in terms of government sector policies, the market and the supply of raw materials. Because of the limited access to funds besides their own savings and family sources, small-scale NWFP enterprises commonly finance their commercial activities through moneylenders or local business community groups (dhukuti). Moneylenders usually charge extremely high interest rates, much above commercial ones; their loans are small in size and usually given to locally well-known and better-off people. Dhukuti also charge higher interest rates than the microfinance institutions (MFIs), and have to auction their lending funds to ration their limited resources.

A number of donor-funded and government-supported projects are working in the district for poverty alleviation, with several of them active in the area of microfinance. As a result, many small-scale NWFP enterprises are being established by poor households with the support of enterprise development and financial services.

The Micro Enterprise Development Programme (MEDEP)

MEDEP is a government initiative, with support from the United Nations Development Programme (UNDP), which started in 1998 and covers ten districts, including Parbat. The programme has adopted a comprehensive business development services approach to microenterprise development. MEDEP starts with entrepreneurship development, followed by market study, skill development, microcredit, access to appropriate technology and business counselling, linkages to market and development of a subcontracting system.

MEDEP provides microcredit through special partnering arrangements with the Agriculture Development Bank of Nepal (ADBN), building on the bank's existing network of branch and subbranch offices. Microcredit is provided on a cost-sharing basis of a 30 percent contribution by MEDEP and 70 percent by ADBN, and is managed jointly by ADBN and MEDEP.

MEDEP has accomplished significant achievements in Parbat district. The programme has established about 673 entrepreneurs, exceeding the original target of developing 600 microentrepreneurs and creating employment in the district's rural areas.

About 36 percent (242) of the enterprises created were small-scale forest-based enterprises, mostly NWFPs, such as beekeeping (98), bamboo and nigalo crafts (45), lapsi processing (33), allo processing (33), ketuky (agave plant) processing (7), soap manufacturing (6), chiraito production (1), incense stick making (1). The total amount disbursed to these enterprises is about NRs 934 500 (US\$12 800), or about 32 percent of the total loans approved, with an excellent recovery rate of 99.4 percent.

In terms of financial sustainability, results show that even after including MEDEP's present subsidy of the salaries and other overhead costs to ADBN, the net profit is still high, more than 5 percent. The model appears sustainable even after the phasing out of MEDEP. This is particularly significant, as most of the MFIs in Nepal are generally not making a



profit but are actually making a loss, and every year the government has to allocate funds to rescue them.

MEDEP has identified the following key factors behind its success in Parbat district:

- the selection of the right target people applying scientific and stringent selection criteria, identifying potential microentrepreneurs who are well motivated and with adequate business potential;
- a proper comprehensive and sequential delivery of business development services, including entrepreneurship development, skill development and market promotion, which considers microfinance as one of the services that should come at the end of the sequence; and
- accurate monitoring, follow-up and business counselling after enterprise establishment.

(Contributed by: Anna Springfors, Associate Professional Officer, Forest Products and Economics Division, FAO.)

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INTERNATIONAL YEAR OF MICROCREDIT 2005

Microcredit and microfinance have already changed and revitalized the lives of individuals and communities in the world's poorest countries. Access to even modest financial services can empower people to fight their way out of poverty and allows easier access to school fees, health care, nutrition or housing. Yet studies have shown that of the 4 billion people who live on less than US\$1 400 a year, only a fraction have access to basic financial services. With this huge unmet demand, the UN Year of Microcredit 2005, jointly coordinated by the United Nations Capital Development Fund (UNCDF) and the United Nations Department of Economic and Social Affairs (UNDESA), is calling upon the international community to build inclusive financial sectors and strengthen the powerful, but often untapped, entrepreneurial spirit that exists in impoverished communities. For guidelines and inspiration for participation, visit the official Web site of the International Year of Microcredit (www.gdrc.org/icm/iym2005/). (Source: *Peak to Peak*, December 2004.)

Zambia launches K 3 billion forestry credit facility

The Zambian Government has launched a K 3 billion forestry development credit facility aimed at providing affordable financing to the micro-, small and medium enterprises in the forestry sector. The money would be disbursed according to the criteria to be worked out by the various stakeholders.

The money would be available as credit to develop the forest resource through activities such as tree planting, training in optimal utilization of forest resources and recapitalization of forest resources. It would also be used for processing wood and non-wood products to produce quality finished products for

local consumption and export. (Source: *The Times of Zambia* [Ndola], 3 June 2004.)

Microfinance Gateway

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PRODUCTOS FORESTALES NO MADEREROS EN AMÉRICA LATINA Y SUS PERSPECTIVAS AL 2020

Los productos forestales no madereros (PFNM) son de gran importancia para las comunidades campesinas e indígenas de América Latina que habitan dentro y en los alrededores de las áreas boscosas. Algunos se cosechan y procesan a nivel industrial a gran escala, principalmente en el Brasil, la Argentina, Honduras, México, Bolivia y el Perú. Debido a la importancia local de algunos de estos productos su comercio es, por lo general, informal, su importancia económica relativa y escasa la disponibilidad de datos estadísticos y estudios detallados sobre los mismos que dificulta su análisis. Por ejemplo, mientras que estos productos en la subregión son de suma importancia para las comunidades campesinas e indígenas, no lo son así a nivel internacional. Para citar un ejemplo, en México se utilizan cerca de 1 000 PFNM, de los cuales 70 son muy comunes en el mercado interno, llegando a una producción anual de 68 000 toneladas entre gomas, ceras, fibras, hongos, cortezas, para enumerar sólo algunos. La mayoría de estos productos son de uso doméstico, pero también existe infraestructura industrial para la producción de aquellos PFNM más requeridos (resina de pino, lechuguilla, palmilla, orégano, vainilla y candelilla),



algunos de los cuales se exportan a diversas naciones centroamericanas. Entre los PFNM más importantes en América Latina se pueden enumerar los siguientes:

- **Alimentos:** yerba mate (*Ilex paraguarienses*), castaña de pará (*Bertholletia excelsa*) y palmito (*Euterpe oleraceae* o *Euterpe predatoria*). Otros alimentos, pero sólo de importancia local, son los frutos del algarrobo (*Prosopis* spp.) en el Perú, los hongos silvestres en el Ecuador, el achiote (*Bixa orellana*) en Venezuela y la palma canangucha (*Mauritia flexuosa*) en Colombia.
- **Resinas y gomas:** jebe o caucho natural (*Hevea brasiliensis*), tanino (*Schinopsis quebracho-colorado*) y resinas (*Pinus* spp.).
- **Plantas medicinales:** quillay (*Quillaja saponaria*), boldo (*Peumus boldus*) y aceite de copaíba (*Copaifera officinalis*); la sábila (*Aloe vera*) usada en la industria internacional de cosméticos. Así como otras especies nativas como la zarzaparrilla (*Smilax* spp.) y la ipecacuana (*Cephaelis ipecacuanha*), o introducidas como la quina (*Ocotea veraguensis*) tienen mucha importancia económica.
- **Materiales de construcción y otros:** mimbres (*Salix viminalis*), colihue (*Chusquea* spp.), palmas (*Sabal mexicana*, *Geonoma congesta*, entre otras especies), plantas ornamentales.

Alimentos

Considerando los volúmenes de producción y comercialización, los PFNM más importantes, clasificados como alimento en América Latina, son la yerba mate (*Ilex paraguarienses*), producida principalmente en tres países de la subregión del Cono Sur (Brasil, Argentina y Paraguay), la castaña de Pará (*Bertholletia excelsa*) producida en el Brasil, Bolivia y el Perú. El palmito (*Euterpe oleraceae* o *Euterpe predatoria*) producida en los tres países anteriormente mencionados y el Ecuador. También entre ellos podemos citar para Centroamérica y México, el chicle (*Manilkara achras*), también de

importancia para Belice, Nicaragua y Guatemala. En este último país, el xate (*Chamaedorea* sp.), la pimienta gorda (*Pimenta dioica*), posee también considerable relevancia económica; al igual que para Costa Rica, la vainilla (*Vanilla* sp.) y la jamaica (*Pimenta guatemalensis*). La población de Honduras utiliza más de 300 especies de la flora para autoconsumo y comercialización de subsistencia con fines de alimentación, lo cual muestra la importancia de estos productos para la dieta diaria de su población.



Bixa orellana

1. Yerba mate (*Ilex paraguarienses*)

La yerba mate, natural del noroeste de la Argentina, el Paraguay y el sur del Brasil, se utiliza en la preparación de infusiones. Las características geográficas y climatológicas de las provincias de Misiones y de Corrientes en la Argentina, contribuyeron a que este país sea actualmente el principal productor mundial, habiendo cubierto en 1998 el 60 por ciento de la producción total. En el Brasil, que es el segundo productor mundial, la yerba se extrae principalmente de bosques nativos ubicados en el sur del país (Estados de Paraná, Santa Catarina y Rio Grande do Sul) y en el oeste del Estado de Mato Grosso do Sul. En el Paraguay, tercer productor, el cultivo se realiza en el departamento de Itapúa y, en menor cantidad, en los departamentos de Alto Paraná y Canindeyú. La producción de yerba mate entre 1990 y 2002, particularmente en la Argentina y el Paraguay, ha crecido a tasas elevadas. El crecimiento de la producción del Brasil fue más bajo.

Las perspectivas para los próximos años apuntan al mantenimiento de la tendencia observada en la última década, principalmente con crecimientos acentuados de la producción en la Argentina, en función al incremento de la demanda interna, e incrementos menos pronunciados en el Brasil y el Paraguay. De acuerdo a esas expectativas para el 2020 la producción de yerba mate en América Latina, que en la actualidad es de 556 000 toneladas, habrá alcanzado poco más de 850 000 toneladas.

2. Castaña de Pará (*Bertholletia excelsa*)

La producción de castaña de Pará tiene importancia en Bolivia, el Brasil y en menor escala en el Perú. La producción de estos tres países en 2002 fue alrededor de 55 000 toneladas, manteniéndose en los niveles del inicio de la década de los 90. Los datos disponibles son confusos y algunas publicaciones presentan al Brasil como el principal exportador mundial. Otras fuentes mencionan que Bolivia es el principal exportador de este producto en el mundo. La mayor parte de la producción de castaña de Pará en el Brasil se consume internamente (aproximadamente el 70 por ciento) y lo demás se comercializa internacionalmente. En 2002, se calcula que las exportaciones fue de aproximadamente 10 000 toneladas, mientras que el consumo interno alcanzó la cifra de 20 000 toneladas. En la última década la producción de este producto se mantuvo estable en Bolivia, tuvo un ligero crecimiento en el Brasil (1,4 por ciento anual) y decreció en el Perú. Estos indicadores muestran posibles crecimientos en la producción de castaña de Pará en las próximas décadas, pero de forma muy leve. Dentro este contexto, se espera que en el año 2020 habrá una producción máxima de 70 000 toneladas.

3. Palmito (*Euterpe oleraceae* o *Euterpe predatoria*)

De forma similar a lo que ocurre con la castaña de Pará y la mayoría de los PFNM, las estadísticas de comercio de palmito en América Latina son escasas.



La producción de palmito en el Brasil ha crecido a partir de la década de los 80, debido al aumento de la demanda nacional e internacional. La producción derivada de la actividad extractiva de los "palmiteros" ocupa un lugar relevante en la economía de la región norte del Brasil, particularmente en el Estado de Pará. Actualmente, la producción anual conjunta de frutos y palmito en esa región del Brasil, representa recursos por aproximadamente 200 millones de dólares EE.UU.

En Bolivia el aprovechamiento del palmito es una actividad económicamente importante debido a la demanda nacional e internacional. El palmito en este país es requerido tanto para el consumo directo como para su industrialización, siendo uno de los PFNM de mayor exportación. Alrededor del 10 por ciento de la producción nacional de palmito se destina al mercado nacional y el restante 90 por ciento se exporta a los principales países limítrofes, al mercado japonés e inclusive a la Comunidad Europea con exportaciones piloto. La extracción con fines industriales de palmito en el Perú se realiza únicamente en el departamento de Loreto (Iquitos), donde funcionan dos fábricas de procesamiento para atender a las necesidades del mercado interno y de exportación. En los demás departamentos (Madre de Dios, San Martín y otros) la extracción se hace exclusivamente para el consumo local en forma directa. En el Ecuador este producto es muy apreciado a nivel nacional y su producción han crecido mucho en los últimos años. No se dispone de datos para evaluar el consumo interno y el comercio internacional, aunque se supone que la mayor parte de la producción se comercializa a nivel nacional.

La expectativa para los próximos años es que la producción continuará creciendo, puesto que debido al crecimiento demográfico aumentará su demanda por motivos de subsistencia. Es importante resaltar que las plantaciones de palmito están creciendo y consolidándose, lo cual provocará una disminución de la extracción ilegal que podría, sin embargo, continuar en pequeña escala.



The Overstory/C. A. Sobel and M.-A. Cotler

4. Otros

El comercio del algarrobo (*Prosopis* spp.) como PFNM adquiere importancia sólo en el Perú. Toda la producción se consume a nivel interno y, en base a los datos disponibles, de ésta sólo alrededor del 20 por ciento viene comercializada, es decir, cerca de 400 000 toneladas al año. El volumen restante se usa como forraje o se pierde, demostrando el carácter aún rudimentario de esta actividad.

La comercialización de hongos silvestres en el Ecuador también es una actividad bastante incipiente. La producción viene entregada directamente a los revendedores y representa un complemento importante del ingreso familiar en algunas zonas. La limitante para la expansión de la comercialización es el mercado, ya que los productos son poco conocidos en el mercado interno y las experiencias de exportación son todavía muy pequeñas.

El achiote (*Bixa orellana*) en Venezuela se utiliza como condimento y es un producto de importancia comercial sólo a nivel local. No se dispone de informaciones relativas a las cantidades consumidas y a los volúmenes de comercialización en el mercado interno.

En Colombia el aceite de palma canangucha o moriche (*Mauritia flexuosa*) se exporta. El 1999 se exportaron 110 000 toneladas de aceite de palma canangucha, de las cuales 93 000 se vendieron en crudo y el restante como fracciones o incorporadas en productos procesados. El valor de las

exportaciones se estima en 58 millones de dólares EE.UU.

Resinas y gomas

En Honduras, desde 1960, se resinan los pinos con el fin de producir aguarrás, colofonia, dipenol y aceite de pino (en 2002 se produjeron 15 240 barriles de resina). Entre los mayores productores latinoamericanos de este producto se encuentran México, Venezuela, la Argentina y el Brasil, con una producción en éste último país en la década de los 90 de entre 60 000 y 65 000 toneladas de resina. No se conocen con exactitud para cada país los volúmenes de producción actual.

El jébe ó caucho natural (*Hevea brasiliensis*), es un importante PFNM de América Latina. El caucho natural reviste mayor importancia en el Brasil. También son productores Bolivia, el Perú y Colombia, pero las cantidades producidas son muy pequeñas y su importancia es sólo local.

Para el Brasil es uno de los principales PFNM tanto desde el punto de vista económico que social. En los últimos veintidós años la producción de caucho se ha incrementado desde las cerca de 24 000 toneladas de 1990 a las 168 000 toneladas de 2002.

Los significativos crecimientos alcanzados en la producción de caucho natural y en el área plantada con "seringueira" (alrededor del 17 por ciento anual), brindan una expectativa de incremento de la actividad a mediano y largo plazo. Esta expectativa se ve confirmada por los estímulos que ofrece el gobierno del Brasil al comercio de este producto y por la gran dependencia brasileña de las importaciones. Para el 2020 se espera que las tasas de crecimiento no alcancen los valores de la última década, que fueron bastante altas, y cuyos valores no podrían ser sostenidos a ese nivel. Por lo tanto se estima que el crecimiento de la producción en los próximos años será aproximadamente del 3 por ciento anual. En caso de confirmarse las actuales perspectivas, la producción brasilera de caucho natural alcanzará en el 2020 alrededor de las 245 000 toneladas.



Plantas medicinales

Las plantas medicinales en América Latina sólo tienen importancia local. Por ejemplo, la producción y el consumo de uña de gato (*Uncaria tomentosa*) disminuyó notablemente en el Perú en los últimos diez años. Se espera que para los próximos años se mantenga el nivel de producción alcanzado a inicios de la primera década de este milenio. De cualquier forma, su importancia seguirá siendo sólo local.

El aceite de copaiba (*Copaifera officinalis*), como producto medicinal, viene ganando importancia en el Brasil, pero actualmente no hay informaciones relativas al comercio de aceite de copaiba producido en ese país. Es un producto con propiedades antiinflamatorias y otros fines medicinales. Se estima que alrededor de un 90 por ciento de las cantidades producidas se comercializan a nivel interno en el Brasil, es decir, alrededor de 300 toneladas al año. El comercio de este producto es aún incipiente principalmente porque se obtiene de forma extractiva y con rendimiento muy variable.

Existen en América Latina otros importantes PFNM con fines medicinales. Entre los más importantes se encuentran el quillay (*Quillaja saponaria*) y el boldo (*Peumus boldus* o *Boldoa fragrans*) en Chile, el aceite de palmas en Colombia y el cinchona (*Cinchona officinalis*) en Bolivia y Colombia.

Del quillay se explota tradicionalmente su corteza para extracción de la saponina. Esta puede ser utilizada contra afecciones crónicas de la piel, enemas, para afirmar el cabello, contra la bronquitis, ayuda a la digestión y combate la alopecia. Como la saponina tiene propiedad de emulsionar grasas, se usa como jabón y cosmético. A pesar de su importancia en Chile, no hay información estadística de su producción en el país.

El boldo crece en regiones semiáridas de Chile y de él se aprovechan las hojas que contienen principios activos como la boldina, usada en medicina por sus propiedades analgésicas, diuréticas y antirreumáticas, la boldoglusina, el aceite esencial, la esparteína, alcaloides del tipo coridina, laurotetanina, tanino, flavonoides,

ácido cítrico, goma y azúcar. El boldo en Chile y el aceite de copaiba en el Brasil verán incrementada en los próximos años su importancia como PFNM destinados a uso medicinal. Sin embargo, su importancia continuará siendo solo local.

No existen datos estadísticos de consumo interno y comercio internacional de aceite de palmas en Colombia y de cinchona en Bolivia y Colombia, sin embargo se sabe que son productos de uso básicamente interno en sus países de origen y no hay aún un comercio formal de ellos.

En Centroamérica existe una cultura en el uso de plantas medicinales. En Costa Rica, el mayor uso de los PFNM se refiere a plantas medicinales tales como la cuculmeca (*Smilax cordifolia*) y la uña de gato. En El Salvador se transforman productos vegetales para producir aceites esenciales o extractos para la fabricación de medicinas, a partir de materia prima cultivada, entre ellos el *Myroxylon balsamum* var. *pereirae*.

Materiales de construcción y otros

En el Ecuador, se ha incrementado el uso del bambú, identificándose 19 talleres artesanales que lo utilizan para elaborar juguetes y otros productos en las provincias de Azuay y Esmeraldas. El principal consumidor de estos productos es la construcción civil en la región de la Costa ecuatoriana. La palma chiqui-chiqui (*Leopoldinia piassaba*) en Venezuela viene explotada principalmente por indígenas del Amazonas, a las orillas del medio Orinoco. El sistema de producción y comercialización de la fibra es bastante precario. Por un lado, los indígenas comercian mediante trueque con los países fronterizos y, por otro, los «fibreros» (trabajadores criollos) negocian en desventaja con comerciantes venezolanos y extranjeros, que se llevan aproximadamente el 80 por ciento de la producción (más de 100 toneladas al año).

En Chile ha tomado importancia el cultivo del mimbre (*Salix viminalis*), usado para la producción de muebles y otros utensilios domésticos. A pesar de esto, no se conoce la superficie total de las plantaciones y la cantidad producida

en el país. Lo que se sabe es que la producción se desarrolla en la mayor parte del país. Además, el colihue (*Chusquea* spp.), el único bambú nativo de América, que se da en Chile, con una gran capacidad de adaptación a diversas altitudes que van de 0 hasta 4 300 m.s.m., y que se usa para la fabricación de muebles en las zonas rurales del sur del país. Este género de bambú posee características especiales de resistencia y flexibilidad en relación a otros materiales. Sin embargo, no se conoce las cantidades producidas en el país.

Para mayor información acerca de la situación actual y las perspectivas para el año 2020 de todo el sector forestal –incluyendo los PFNM en América Latina, tanto a nivel nacional, subregional y regional–, se puede visitar el sitio web del Estudio de perspectivas del sector forestal para América Latina y el Caribe (ESFAL) o contactar al responsable del desarrollo de este estudio para cada región. Próximamente se encontrarán disponibles en nuestro sitio web estos documentos para los tres niveles (20 estudios nacionales, 3 subregionales y un estudio regional). En esos trabajos se describe la situación actual y se hace un análisis del escenario más probable del sector forestal para el año 2020, incluyendo en cada caso información acerca de los PFNM. (Artículo elaborado por: Olman Serrano, Sandra Rivero y Jhony Zapata, Departamento de Montes, FAO.)

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www.fao.org/forestry/site/outlook/sp ●





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

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

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

(FAO's working definition)

AMAZON FIBRES

Vegetable plastic

The fibre extracted from a plant native to Amazonia could replace conventional fibreglass owing to its environmental and economical advantages. This is the conclusion of a study carried out by researchers of the State University of Campinas (UNICAMP), Brazil. The investigation was initiated in 2003 by Karen Fermoselli, a student at the Chemistry Institute.

"The fibre of the curaua (*Ananas erectifolius*) costs less, and is lighter than fibreglass, in addition to its being obtained from renewable resources and being biodegradable," states the Chemistry Institute's Coordinator, Marco Aurelio De Paoli. Fibreglass requires a very high energy consumption to produce it, is more costly and has a high environmental impact. The study has shown that plastic reinforced with this fibre is much lighter than fibreglass. As a result, cars produced with this material will tend to be lighter, reducing total weight and, consequently, the consumption of petrol. According to De

Paoli, car manufacturers are already using this vegetable fibre.

The curaua is well known in the Amazonia Water Basin in the western region of Pará state, where the first commercial plantations were started. Each plant produces between 20 and 24 leaves, offering approximately 2 kg of fibre. (Source: Agência FAPESP, 4 April 2004 [in *Amazon News*, 8 April 2004].)



Natural fibres for cars

Brazil could be a pioneer in the intensive use of natural fibres for car production. Assembly-line workers already use an alternative prime material such as the fibres from coconut and from jute, agave and cotton, and they have carried out advance research in the hope of introducing more materials from renewable resources. Throughout the world, industry searches for alternatives to replace those derived from petroleum, used in various car components. With renewable natural resources, areas for planting and a varied species of plants, Brazil has the chance to be a leader in this realm.

Currently, in all Fox models, Volkswagen has seat coverings and the roof and boot covers made of curaua fibre. This plant from Amazonia which is similar to a pineapple will also be used for the CrossFox, a new version which will be introduced to the market at the beginning of 2005.

Volkswagen will also begin to use coconut fibre on the seats of the Parati and the Saveiro, a product which is already utilized by Mercedes-Benz. "In addition to the aspect of recycling, the product is more resistant than common

resin," affirmed Mercedes-Benz. This product is used in the seats and the panel covers, and thermic comfort is one of the advantages of natural fibres. Ventilation is improved and absorbs the change in body temperature. In addition to this, following 400 km of use in tests, the seats maintain their original configuration without deformation. (Source: *O Estado de S. Paulo*, 24 October 2004 [in *Amazon News*, 28 October 2004].)

Ecovogt, textile based on Amazonia plants
Caio von Vogt, a designer from Pará, has created a new cloth (which carries his name: ecovogt) from aquatic plants from the Amazonia riverside regions. The weave was developed using native populations' experience, which they inherited from the indigenous peoples for the method of weaving the fibres.

The designer's idea is that the riverain populations will supply prime material. In this way, he believes that it will be helping the region preserve its techniques and native vegetation. Prices could reach \$R 18 per metre, which is close to the price of linen at \$R 15 per metre.

Because it is an ecological material, von Vogt believes that the product has everything necessary to conquer European markets. (Source: *O Estado de S. Paulo*, 2 October 2004 [in *Amazon News*, 7 October 2004].)

ARE RAMP FESTIVALS SUSTAINABLE?

Beyond timber: certification of non-timber forest products

For the past four years, Jim Chamberlain, research forest products technologist for the USDA Forest Service Southern Research Station unit in Blacksburg, Virginia, United States, has driven down to the mountains of western North Carolina to dig ramps with the festivals that are a springtime tradition in the southern Appalachians.

Ramps (*Allium tricoccum*) are an acquired taste: the flavour has been described as similar to leeks, scallions or



garlic. People collect both the leaves and the spicy bulb as a spring tonic, a tradition that the early settlers may have learned from the Indians. Most people eat ramps freshly picked, fried with potatoes or eggs – or they cook up a “mess” with freshly caught trout and fatback. Gatherings with cooking and music have naturally formed around the spring collection of ramps. Over the last few decades, these festivals have evolved into a major funding source for rural fire departments, rescue squads and other community organizations.

In 1999, Chamberlain started contacting the major festivals in the southern Appalachian region and began digging for ramps. He keeps track of the total weight and numbers of ramps collected for each festival and has found that the major groups use 500 to 600 pounds (about 230-270 kg) of ramps for an annual festival, with between 40 and 80 bulbs making up a pound.

Chamberlain's data are tied to specific collection areas, enabling him to compare ramp populations in different watersheds, or to determine whether a particular collection method affects the size of the plants or populations available the following year.

Ramps emerge from the moist, shady floors of southern Appalachian forests in late March and early April. The plants send up a circle of smooth, broad leaves that die back in early summer, leaving the plant virtually invisible. Ramps flower in June or July: the few seeds produced take a year or longer to germinate, and three to five years to grow into a large bulb. Fortunately, ramps also reproduce from rhizomes, the rootlike stems that run underground. Bulbs can also split, producing two individual plants. Ramp collectors typically dig clumps out of large patches of plants, leaving individuals in the resulting gaps to form new patches for the following year.

Chamberlain's data show that the major ramp festivals use a total of about 3 200 pounds (1 450 kg) of ramps each spring. This figure does not include the plants collected for roadside stands, restaurants and personal use. In the spring of 2002, the Great Smoky Mountains National Park

banned the collection of ramps after a five-year study indicated a decline in ramp populations in the park. This shifted more demand on to national forest lands.

Most of the ramp festivals collect on National Forest land. “We don't know if the current levels of ramp harvesting are sustainable or not,” said Chamberlain. “We have heard that some of the ramp populations are in decline, but we can't determine if this is true without monitoring populations and harvests over several years. Since most of these groups are collecting from National Forest lands, we need to start looking at how to include traditional collectors in developing guidance on ramps for forest management plans. Many of the groups I dig with are very interested in working with the Forest Service on sustainable management.”

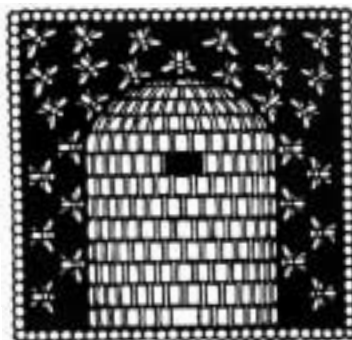
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BEES



Forest makes coffee farm richer

Seven percent of a Costa Rican coffee farm's annual income (US\$62 000) comes directly from the pollination “services” of adjacent tropical forest, according to a new study in the *Proceedings of the National Academy of Sciences*. The study is the first to quantify in such detail the

economic value of pollination services from tropical forests.

“This study illustrates that there are compelling economic reasons for conserving native ecosystems,” said Taylor Ricketts, the principal author of the study and director of the World Wide Fund for Nature's Conservation Science Programme. “Because the benefits we derive from ecosystems are difficult to quantify, they are often assumed to be worthless.”

Ricketts' team investigated pollination on coffee plants at three distances from the forest: near (100 m), intermediate (800 m), and far (1 600 m). The areas closest to the forest experienced more pollination by wild bees, which increased coffee yields and decreased the number of deformed beans, compared with the plants farthest from the forest. Hand-pollinated branches served as the control.

The study found that the value of tropical forest is likely to be greater than other land uses for which forests are often destroyed. Cattle pasture, for example, would yield approximately US\$24 000 a year, less than half of that provided by pollination services to the coffee plantation. “The fact that pollination services alone are so valuable to an individual farm demonstrates how conservation is compatible with economic development,” continued Ricketts. “Protecting natural ecosystems can benefit both biodiversity and local people.” (Source: GreenBiz.com, 4 August 2004 [on WBCSD Web site].)

Taking the sting out of beekeeping in South Africa

“Our people used to smoke out bees, which resulted in the burning of the forests. That's one of the reasons why the African indigenous bee is threatened with extinction. Our task now is to conserve this bee,” Rejoice Mabudafhasi, Deputy Minister of Environmental Affairs and Tourism, told IPS. The African bee is regarded as the most aggressive of bee species. But, “it's also the most hardworking in the world. And its honey has got a sweet natural taste.”



This flavour – and the role bees play in pollinating the crops that supply fruit for South Africa's large fruit industry – has ensured that the insects have economic as well as environmental worth. The bee industry is currently thought to be worth almost US\$466 million, according to various sources.

As part of its efforts to alert South Africans to the value of bees, the Bee Foundation, a private company based in Pretoria that will be working with the government to train new beekeepers, plans to help 100 000 people in rural areas set up their own beekeeping businesses over a three-year period. It will sell specially designed beehives (which come equipped with bee populations) to these people at a reduced rate of about US\$62 each.

When the honey is ready for harvesting, staff from the Bee Foundation will collect it, paying the farmers a fair price for their honey. As each hive is expected to yield at least 20 kg of honey every year, the farmers could look forward to a gross annual income of about US\$2 500. After repaying the loans taken out to buy the hives, the farmers would have a net monthly income of US\$155 – no small amount in a country where most of the population was impoverished by apartheid.

South Africa currently has as many as 10 000 beekeepers, but there is room for an additional 10 000, according to industry analysts. According to the Bee Foundation, "We produce only 2 000 tonnes per year, yet consume 3 000 tonnes per year. To fill the gap we import 1 000 tonnes every year from China and Australia. Yet South Africa has the capacity to produce 100 000 tonnes of honey per year."

Mabudafhasi believes that alerting people to the value of bees will put an end to the destructive practice of smoking them out.

Bee farming has many advantages but this potentially lucrative activity has, until now, been largely ignored in Africa.

"We have millions of hives in the trees. We need to bring the bees from the wild into the boxes – and we have asked for

the support of the forestry officials [to do this]," the foundation says. "People in Africa have always been bee hunters not beekeepers. Our role is to educate them and make them become beekeepers."

(Source: *Inter Press Service* [Johannesburg], 4 June 2004.)

Bee Foundation to sign deal

The Department of Environmental Affairs and Tourism, South Africa, will sign an agreement with the Bee Foundation tomorrow in an effort to intensify partnership between the two. The two partners started working together in June, when Deputy Minister Rejoice Mabudafhasi launched a R 2 billion Indigenous Bee Conservation project in Limpopo to conserve the African bee.

The project is expected to create self-employment especially in rural areas and also encourage people to play an active role in economic development.

Honey production depends largely on areas where bees can get the necessary nectar, water and the labour to protect their hives. For this reason, people are receiving training weeks for bee farming and bee production. (Source: *BuaNews* [Pretoria], 12 August 2004.)



Zambian honey gets German fair trade certificate

The North Western Bee Products of Zambia has earned a German fair trade certification for its honey. General manager Bob Malichi said that last year alone the company had exported 144 tonnes of honey to Germany and the United Kingdom. Malichi said there was a tremendous demand for organic honey in the United Kingdom and Germany and added that the company's honey was organic and was traded fairly, hence the

German certification. He explained the certification was one of the highest ratings on the world market for bee products. "Our only threat is China which produces massive quantities of honey."

The company is the second largest employer in the province after the government. It has 6 472 registered beekeepers and has contributed enormously to poverty reduction.

Honey costs £1 200 per tonne, while beeswax costs £2 300 per tonne.

The company is now looking at the plight of women by encouraging their involvement in beekeeping. (Source: *The Post* [Lusaka], 7 June 2004.)

Beekeeping centre opened in Armenia

A Multi Agro Beekeeping centre has opened in Armenia and is working with 2 567 beekeepers. This year 14 tonnes of honey were produced but half of that amount was used to feed the bees. The centre's director plans to export not only the honey, but also pollen and medicines. (Source: *A1 Plus*, 19 September 2004 [in *INFO CENN*, 30 September 2004].)

Uganda gets ready to export honey

The government is to invest in a honey processing plant in Kabale. Kabale MP and Minister of Parliamentary Affairs, Ms Hope Mwesigye, said the decision was based on the large supply of honey from the district. She said the plant would process honey for export, provide a market for the honey farmers and create employment.

Mwesigye called on farmers to produce more honey to sustain the processing plant over the years. She said that the market for the processed honey had been identified in the Great Lakes Region and within Uganda. "Use local and modern methods of beekeeping in order to increase honey production so that you can sustain the processing plant. Plant trees and flowers to act as food centres for the bees if they are to make you enough honey," she said. She advised farmers to get loans from the banking institutions to boost their business enterprises. (Source: *The Monitor* [Kampala], 15 November 2004.)



BIOPROSPECTING OR BIOPIRACY?



Making bioprospecting a sustainable endeavour

"What's in it for us?" seems to be the question asked by all parties involved in drug discovery in developing countries, and too often the answer is "not enough". The 1992 Earth Summit in Rio de Janeiro resulted in the Convention on Biological Diversity, which intended to make conservation a win-win proposition for governments, commercial companies and scientists. Governments of biologically diverse developing nations, however, remain suspicious of private interests, and companies seemingly do not reap sufficient compensation for the significant wading through local regulations that establishing cooperative programmes involves.

Panama's bioprospecting project – the Panama International Cooperative Biodiversity Group (ICBG) – is featured in the 10 June [2004] issue of *Nature* as one of the few programmes "getting it right". Now in its sixth year, ICBG employs ten senior scientists in six laboratories representing a consortium of international and local research organizations with the aim of discovering novel compounds for controlling cancer, AIDS and other diseases.

The project yields immediate rewards for developing countries: training local microbiologists, creating jobs and promoting conservation. Unlike many projects, in which a share in the royalties for products that make it to the market is the only reward for local researchers and governments, Panama's ICBG was designed to make bioprospecting a

sustainable endeavour. (Source: *Biological Conservation Newsletter*, September 2004.)

Samoa to profit from indigenous knowledge deal

The Samoan Government and the University of California at Berkeley (United States) have signed an agreement to share equally the profits from a potential anti-HIV drug – prostratin – derived from the bark of Samoa's indigenous mamala tree.

The drug is also being tested in clinical trials by the AIDS Research Alliance, which pledged in 2001 to give 20 percent of any profits back to the country.

Researchers at Berkeley will first need to isolate the genes of the mamala tree that produce prostratin. The gene will then be inserted into bacteria to create "microbial factories" that can churn out much larger quantities of the drug than could be produced naturally.

The researchers are working in collaboration with ethnobotanist Paul Alan Cox, who first learned of prostratin's antiviral properties from local healers. The agreement, which allocates a 50 percent share of commercial profits to the Samoan people, is novel, says Cox, in that "it may be the first time that indigenous people have extended their national sovereignty over a gene sequence."

Indigenous knowledge is increasingly being recognized as a valuable resource for commercial products such as pharmaceuticals. But the absence of a legally binding international treaty governing the intellectual property rights regarding such local knowledge means that it is open to exploitation.

The agreement signed in Samoa seems, on the surface at least, to be a win-win situation. According to one comment, the pact will "set a precedent for biodiversity conservation and genetic research" and for future commercial use of indigenous knowledge.

Not everyone is so positive, however. Rudolph Ryser, chair of the Centre for World Indigenous Studies, believes "the agreement is destined to falter".

According to Ryser, such agreements cannot be fairly made until mutually agreed international protocols are put in place. He adds that, rather than signing agreements to share profits with local people, drug developers should instead aim to provide drugs free of charge. (Source: *SciDev.Net Weekly Update*, 4–10 October 2004.)

Indigenous knowledge and rights must be protected

Indigenous knowledge of biodiversity is important to the lives of millions, not least through the provision of food and medicine. But, according to Alejandro Argumendo, director of Peru's Quechua-Aymara Association for Sustainable Communities International, intellectual property laws foster the privatization of such knowledge, rather than its protection.

He says that the definitions and uses of traditional knowledge are affecting indigenous rights. International frameworks, he says, are not able to establish or protect the rights of those who are the very source of traditional knowledge.

Argumendo highlights the importance of conserving both biodiversity and the traditional systems of knowledge transfer and exploitation that are central to its sustainable exploitation. (Source: *LA Press* [in *SciDev.Net Weekly Update*, 12–18 July 2004].)

Katemfe (*Thaumatococcus daniellii*): sweet prospects turn sour

A promising new crop in Ghana, with export potential, could be stillborn because of patent claims on genes and genetic engineering. The potential new crop is katemfe, an indigenous shrub, which is a source of the natural sweetener thaumatin. Non-sugar sweeteners are now a multibillion dollar industry, and demand continues to grow. Ghana had plans to benefit by growing katemfe as an agroforestry crop and building a processing plant to extract thaumatin. However, plans are stalled by patents filed in the United States, where researchers from the University of



California and Lucky Biotech Corporation may have enforceable patents on all transgenic fruits, seeds and vegetables responsible for producing thaumatin. It is also reported that the multinational food giant, Unilever, has successfully inserted thaumatin-producing genes into bacteria, which could provide a very low-cost alternative source of thaumatin.

According to Genetic Resources Action International (GRAIN), thaumatin production based on genetically manipulated bacteria would undermine any conventional production in Ghana. However, the Ghanaians and their German business partners hope that they may be able to develop a niche market for a "naturally" produced sweetener based on their conventionally grown *katemfe*, and that this will also benefit many thousands of growers in Ghana. (Source: New Agriculturist online [www.new-agri.co.uk/04-2/newsbr.html].)

BIOPIRACY WEB SITE

Amazonlink (Brazil) has launched a new site on biopiracy that contains documentation regarding 12 examples of biopiracy or illegitimate registering of trademarks. They involve well-known and other less famous cases, such as a substance – of the Wapixana People of Roraima, the biribiri (*Octotea radioei*) – registered by a Canadian company. (Source: ComCiencia, 22 March 2004 [in Amazon News, 25 March 2004].)

Malaysian state acts to thwart biopirates
The biodiversity-rich Malaysian state of Sabah, on the island of Borneo, is going to require non-governmental organizations to get approval from the state authorities before conducting any research there. The move was agreed after a discussion held by officials from state ministries in August 2004. It is intended to stop biopiracy – the act of gaining benefit from a country's biological resources without fair compensation.

The decision means that all applications to do research in Sabah will first have to be approved by the State Economic Planning Unit. The Research and Internal Affairs Office of Sabah's chief minister's department will then assess applications for final approval. (Source: Daily Express [Malaysia], 22 October 2004 [in SciDev.Net Weekly Update, 18–24 October 2004].)

Biopiracy of indigenous African knowledge

Tanzanian President Benjamin Mkapa criticized multinational corporations for their tendency to engage in biopiracy of indigenous African knowledge in order to reap huge profits.

The president said: "The global intellectual property rights regime must prevent biopiracy that seeks to patent biological materials, especially plants, known throughout our generations for their value and altered in laboratories to claim an invention and win a patent." He added: "... multinationals make huge profits from exploiting African biodiversity. It is imperative, therefore, that the Indigenous Knowledge (IK) within the intellectual property rights regime be reappraised to allow communities and countries to also lay claims to the intrinsic knowledge extracted from IK without recompense."

President Mkapa also said that Africans had in many cases been losing their own property based on IK as a result of ongoing biopiracy. "In many cases, we have lost what has been ours but which has been exploited by others and ultimately even rendered inaccessible to us as original contributors to the value chain of what turned out to be commercially available products."

"Africa has a rich reservoir of transgenerational knowledge and practical experiences that can be exploited to complement our development efforts," he said, adding that IK was an important tool for fighting poverty through locally based innovations. (Source: The Guardian [Dar es Salaam], 21 October 2004 [in BIO-IPR, 11 November 2004].)

UK wildlife must not be patented for profit
Patenting the genetic make-up of England's wildlife could lead to companies commercializing genes without any benefit for the British public or the environment and should be resisted by the government, according to Friends of the Earth.

The warning comes as England's official wildlife watchdog, English Nature, is said to be "on the verge of striking a deal to bioprospect some of Britain's most famous nature reserves" despite no legal or ethical framework being in place to ensure that any genetic exploitation benefits the British people. (Source: Press Release, Friends of the Earth, 23 March 2004.)



BIRCH BARK EXTRACT – A VALUE ADDED BOREAL PRODUCT

Chemist Pavel Krasutsky calls birch bark nature's "white gold". Betulin, a powdery substance in the outer bark of the birch tree, has been shown to help wounds heal faster and cut inflammation. Many cosmetic companies, touting it as a skin toner and restorer, add birch bark extract to some of their products. And a compound, betulinic acid, is being tested as a treatment for melanoma and other serious diseases.

But birch bark has largely been burned as fuel after the trees have been harvested for lumber. "This is a miracle which nature synthesized for us and we are burning this miracle like cheap fuel," Krasutsky said as he worked in his laboratory at the University of Minnesota-Duluth's Natural Resources Research Institute (NRRRI).



That is changing, partly through a partnership formed in 2000 by NRRI, Potlatch Corporation and Synertec, an Allele subsidiary, to build on research being done at the university. The Duluth-based partnership, NaturNorth Technologies LLC, has developed a patented process to isolate pure betulin and other compounds cost-effectively from birch bark in very large quantities. NaturNorth scientists have also patented a way to convert betulin to betulinic acid. The partners, opting to go into business instead of licensing the patents to others, hope that demand for the birch bark compounds will grow enough to give them a lucrative venture.

Potlatch, a wood products and paper producer, can contribute raw material – at least 45 360 kg of birch bark daily. The bark yields about 10 percent of betulin. Once the compounds are isolated, scientists can produce new derivatives to expand the range of potential uses. That's how NaturNorth creates betulinic acid from betulin.

NaturNorth, which has only small test production capabilities, pays a company in Canada to do the large-scale production work and another in the United States to do smaller-scale derivative work, mostly for cosmetics use. Although birch bark extracts are already used in some cosmetics, NaturNorth offers the pure compounds found in the bark. To get to this point, however, NaturNorth was forced to find a way of removing the small amount of betulinic acid that occurs naturally in birch bark before it could offer any compounds to the cosmetics industry. Unilever NV had patented the use of betulinic acid in cosmetics and licensed the exclusive worldwide patent rights to Premier Specialties Inc. of the United States. Premier has been selling birch bark extract to the cosmetics industry since the mid-1990s.

Although NaturNorth expects to benefit from supplying pure birch bark compounds other than betulinic acid for use in cosmetics, it is the ability to isolate and derive from the pure compounds – especially changing the betulin molecule

to create betulinic acid in large quantities – that has Krasutsky thinking of white gold.

Betulinic acid has been explored as a potential treatment for skin cancer for more than a decade, and that is one area NaturNorth is interested in. Betulin and its derivatives and other birch bark compounds are also being tested for effectiveness in treating HIV and respiratory syncytial virus. The bark compounds and derivatives are also being tested for effectiveness in crop disease management and preventing fungus growth on golf course turf. In addition to their other patents, Carlson, Krasutsky and colleagues have patented the use of betulin to treat herpes cosmetically and have other patent applications pending. Carlson said that NaturNorth hopes to supply betulinic acid and its derivatives to other scientists doing clinical tests on their use in treating disease and, ultimately – if the tests are successful – to become the supplier when the products are commercialized. No human testing has been conducted yet on betulinic acid as a treatment for melanoma, HIV or RSV, he said, but those tests are planned once researchers get regulatory approval.

A Russian company, Birch World Ltd of Moscow, has also developed a method of isolating betulin from birch bark and has been producing commercial quantities. Birch World sells cosmetics and food supplements containing betulin in Europe and Japan, but has no North American customers. (Source: "Using technology to tap birch bark's potential", Associated Press, in taiga-ntfp@taigaescue.org)



BUGGING SANDALWOOD TREES

The state of Kerala (India) is resorting to drastic measures to defend its dwindling forests of rare sandalwood trees from illegal logging: its Forest Department is planning to use satellite tracking to protect the trees. Under the plan, microchips will be embedded inside the trees. Forestry officials will then be able to use a satellite to monitor the trees. Not only will any attempt to cut them down be detected but the Forest Department will be able to trace the movements of any smugglers who try to take timber out of the area.

The trade in contraband sandalwood is one of the most lucrative in India.

Amid the money and greed, India's precious reserves are in increasing danger. Just three years ago, there were 62 000 sandalwood trees in Kerala's Marayur Forest. This year, there are 55 000. The last sizeable sandalwood forests in the world are in southern India, spread across Kerala, Karnataka and Tamil Nadu.

A properly managed and sustainable trade in sandalwood is vital to the region's economy. The sandalwood tree has been prized for its natural scent for centuries and its oil is used in the manufacture of perfumes worldwide. Sandalwood is also used in incense – an esoteric buy in the West, but a staple in much of Asia. And the soft, scented wood is prized for carving and it is used in some Indian medicines.

All this puts sandalwood in great demand – but there are relatively few sources. Sources elsewhere have been overexploited: in Australia, most of the little that is left is protected and Indonesia's stocks are almost exhausted.

With its huge reserves, India has done more than any other country to set up a sustainable trade in sandalwood, with strict laws on when trees can be felled and planting to replenish the forests. But the implementation of the laws is poor: local politicians are often



paid by smugglers and the huge forests are too big to patrol.

Satellite tracking will enable officials to monitor the forests and, hopefully, with publicity, shame the politicians into action. (Source: *The Independent* [Delhi], 12 November 2004.)

Three seizures of the CITES Appendix II-listed Red Sandalwood, an aromatic wood found only in India, have been made by Singaporean authorities in 2004. The shipments, totalling 56 tonnes, were all intercepted by customs officers after arriving from India. (Extracted from: TRAFFIC Press Briefing, 15 November 2004.)

BUTTERFLY FARMING



A group of some 300 farmers in the East Usambara mountains of the United Republic of Tanzania have abandoned subsistence farming and meagrely paid work on tea estates to become small-scale cash crop entrepreneurs. Their new venture? Butterfly farming. The farmers collect unhatched butterflies and send them on to Europe and the United States where there is considerable demand for butterfly exhibits.

This initiative is being undertaken within the framework of the Amani Butterfly Project which seeks to promote conservation by providing communities in the East Usambara Mountains with a sustainable income that is directly dependent on healthy forests. An estimated 61 percent of earnings go directly to the butterfly farmers, 7 percent to community development, 25 percent for project running costs, and 7 percent to the Tanzania Wildlife Division. (For more information, please visit:

<http://news.bbc.co.uk/2/hi/business/3569164.stm>) (Source: *Peak to Peak*, The Mountain Partnership Newsletter, September 2004.)

CERTIFICATION: COMMUNITY MANAGEMENT FOR MULTIPLE USES

The members of the Association of Rubberworkers of the Extractivist Reserve São Luiz do Remanso, in Acre state, are the first in Brazil to obtain Forest Stewardship Council (FSC) certification for community management for multiple uses.

Four certified community forests exist in Acre today, totalling 14 000 ha. The Porto Dias community management, also in Acre state, which had already received its certification for timber, in April obtained the certification for its first primary product: copaiba oil.

What is new with the São Luiz do Remanso's certifications is that various products have been certified, including jarina, also known as vegetable ivory, and tree barks. This settlement project has an area of 7 205 ha. The products to be extracted with the FSC green seal are timber in log form, tree barks, the copaiba oil and the jarina seed.

Jarina is a seed from an incredibly beautiful palm tree, used to make artesian jewellery. It is a rare species and sparked the interest of the pharmaceutical and cosmetics industry owing to its antiscarring, anti-inflammatory and diuretic properties. The certification will benefit 47 families. (Source: *Altino Machado*, 26 November 2004 [in *Amazon News*, 2 December 2004].)

CERTIFICATION PROBLEMS AND GUIDELINES FOR BOTANICAL AND FAUNA NON-WOOD FOREST PRODUCTS

In view of the current increasingly more globalized economy and trade, we urgently need tools to promote, ship and sell NWFP products.

Our non-governmental organization, Instituto de Investigación de la Biología de las Cordilleras Orientales (INIBICO), is specialized in neotropical faunal management and our first pilot projects in Peru cover the production of poison dart frogs for the pet trade. However, we also work with commercial insects and medicinal plants which are all based on totally sustainable production and management methods with a new biotechnology transferred to the poorest local forest inhabitants or native communities in Peru and, later, also to neighbouring countries.

The principal goal of our institution is to generate income from the standing rain forest; this is the only way to save it for the future. Poison dart frogs are CITES Appendix II species (some should be on CITES I). CITES tries to control the trade of the poison frogs, but with very doubtful results. Moreover, CITES does not solve the primary reason that poison frogs are endangered: the constant and unavoidable original habitat loss all over their distribution range in South and Central America.

Making our first medium-sized project with the World Bank's subunit, International Finance Corporation applying for a Global Environment Facility grant, we spent a lot of effort in our market study and presented a certification proposal for really sustainably produced frogs, using methods that create no impact on the natural ecosystems, the local fauna or the genetic primary resources of the countries of origin (the adult reproducers must stay in the original habitat). The methods were specifically designed to work in protected parks also or nature reserves and their buffer zones. The goods to be exported are live juvenile poison dart frogs obtained with our new production methods. For better access to future markets and to distinguish our totally sustainably produced frogs from the smuggled ones or captive bred ones in Europe, the United States or Japan, we need a certification similar to that of the Forest Stewardship Council for tropical timber. We proposed this to IUCN-World



Conservation Union and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), but they are not interested yet in resolving this urgent need. Therefore we discussed this matter with Trade Records Analysis of Flora and Fauna in Commerce (TRAFFIC), South America Office, who are interested in elaborating together with us certification guidelines, the certification procedure, the logotype and all other aspects of this process.

From the last four numbers of *Non-Wood News*, we see that there are a lot of problems with such certifications. Some of them we consider simply fake or even dangerous in the biological sense, such as the one for “ecologically produced coffee” in Peru and other countries. After legal and illegal timber, coffee is the worst crop worldwide, exterminating unique biodiversity in premontane and montane rain forest ranges in every country where coffee is produced. So one should think twice before drinking a cup of this biodiversity-killing product and any certification process treating with the “ecological” certification of coffee plantations must be extremely rigorous. Today, many people and certification institutions confuse agropesticide or toxin-free coffee certification with “ecological coffee certification”: such misuses of this term should be banned worldwide.

Moreover, one cannot certify as a “green” or “ecological” product any NWFP resource obtained by simple collecting procedures if there is no management involved which perfectly warrants the survival of the resource to be certified. The current problems Brazil (and Peru) has with the totally unsustainable simple collecting of the Brazil nut without warranting the natural regeneration of the nut-trees (*Bertholletia excelsa*) is a good example that such a product cannot be certified as “ecologically produced” and therefore is not qualified to receive a place in the international “green products” trade. Only forest ranges where a sufficiently high amount of young *Bertholletia* nut-trees are grown under the measured control of

“natural regeneration” or an improved nut-tree management with a controlled reforestation phase with young nut-tree saplings by local nut harvesting communities may receive a real “Green Product” certification. The problems Brazil has at the moment owing to high cancer-inducing fungal infection residues, such as aflatoxin in the nuts, is a clear indicator of incorrect post-harvest nut management. This may be improved with simple methods which prevent the fungus attacking the harvested fruits if stored and handled under very humid conditions. In a forest with abundant *Bertholletia* trees under management, it is even possible to harvest some of the trees if we ensure that enough young ones are growing up (nut-trees usually provide excellent wood for furniture).

In Brazil, many places with *Bertholletia* stands can also be used to produce high-priced poison frogs with our fully sustainable production methods, which considerably improve the cash output of such forest plots by linking in a faunal management (Manaus, Acre). We have observed that Brazil overprotects its natural resources at the moment without taking advantage of managing these resources for export. In addition, instead of producing those frogs, for example, with totally sustainable methods, market needs are met by illegally caught poison frogs smuggled with aquarium fish shipments from Manaus. Individuals and government authorities who are interested should contact us to help them improve rain forest management in order to keep it standing. This is also similar to World Bank strategies which state that “it is economically better to protect the still standing rain forests than reforesting them”. But this method is only successful if we give a monetary value to the surviving forest and learn to create incomes from it, thus also improving the life of poor farmers or native communities; this helps CITES to maintain intact the original habitat network of CITES II frogs and cut down illegal smuggling. Once the forest has been rescued, other resources such as birds, monkeys, medicinal plants, flowers,

commercial insects or aquarium fishes can survive together with the frogs and can be managed with similar methods.

Another problem we have is with the harvesting, production and certification of medicinal plants. At the moment, Peru is entering a control process for the use and production of medicinal plants which are important primary resources for a fast growing market of “natural medicine” products. More than 3 000 identified medicinal plants in Peru (and some 3 000 more not yet discovered) are a solid foundation for the future welfare of the country and its inhabitants if properly managed. We are working, for example, with *Dracontium* (Araceae), which has several new species in Peru. *Dracontium* (also called jergon-sacha) is particularly effective in curing gastritis and stomach ulcers and has antirheumatic properties and may improve Alzheimer’s disease. It grows in the humid parts of our local rain forests and is therefore a fine addition to forest-based frog and insect production. We produced a management manual for our farmers that explains a totally sustainable production process, which may be easily certified as “ecological”, but which also requires some post-harvest improvements to ensure the final quality of the product and avoid contamination.

The main problem of the Peruvian enterprises which are currently marketing final products of medicinal plant extracts is that they have no certification showing how and where they get the primary resources: by simple extraction (which may eliminate the resource in a few months or years) or by real management with well-organized producer groups.

Failures in those primary steps of production, harvesting and processing the raw material may have fatal outcomes such as the breakdown of the *Bertholletia* nut production and export observed in Brazil. Once a country obtains a bad “contamination” report from one or more NWFP products, it is very difficult to “clean” this negative image later, even if the problems can be resolved.

To access international markets with new or known NWFP products we need at least a four-step certification process:



1. Ecological production certification (may be combined with the Certificate of Origin), which ensures that the resource is managed at this locality or forest plot and will not become extinct (e.g. the Brazil nut) and the primary genetic resource or lineage will be maintained. (In commercial insect production, the short life span of butterflies makes it impossible to preserve the reproducers over longer times – but we may maintain the genetic lineage of a butterfly species in a project, so that it will not become extinct.)
2. Chemical certification, which checks that the product is free from contaminants (earth, sand, dangerous bacteria), dangerous pesticides or fungus-based aflatoxins.
3. Fair trade certification, which ensures that in commercializing this primary product the usually poor producers will receive a fair share of the incomes generated by trade in the product.
4. Rainforest Supermarket logo, an idea proposed first by the World Wide Fund for Nature (WWF)-Netherlands. Customers who purchase this product know that they help to preserve tropical rain forests and provide a better income to the poorest farmers and native communities. It will certify that this product is a totally sustainably produced one without any impact on the original genetic resources of the country of origin. This logo might be combined with a registered bar code, which identifies the producer group, production area, country and commercializing enterprise. Thus any problem with this product might be traced instantly to the primary producer and the distributors (important, for example, if dangerous aflatoxins are detected, indicating a wrong post-harvest management in a certain location).

There are a few simple but very important guidelines to make a functioning ecological certification process for any NWFP, whether flora or fauna. Today, for example, we know most of the technology and methods to produce frogs, reptiles, snakes (with snake toxins), parrots, commercial

insects, aquarium fishes, medicinal plants, orchids, bromeliads and many others, in a totally sustainable way – the only way to generate income with a standing forest to save it for the future.

Those basics are:

1. The resource or product must be managed in a totally sustainable way, without impacting on the primary genetic resource. In the case of living forest animals to be traded, the original reproducers must stay in the country of origin and, if possible, in the original site, and only juveniles produced from an artificially generated surplus should be traded. In the case of plants such as CITES I Orchids, those can be managed by cloning or from seeds via an *in vitro* laboratory.
2. The management process should not endanger other forest resources or impact in such places: cutting a road or a wide trail into the forest to collect seeds, palm fruits or nuts with a truck might be such an impact or cutting down an aguaje palm (*Mauritia flexuosa*) to obtain the palm fruits for export is another bad example. In forest animals, the “direct contingent catches” are harvesting methods that are so unsustainable that valuable original reproducers are lost, as is observed today in Suriname and neighbouring countries.
3. The natural regeneration of the resource must be secured at all costs. For tree and palm products or medicinal plants, the long-term survival and renewal of such tree stands and plant growths must be warranted. In managed frogs, for example, we must



produce a certain excess percentage of juveniles to be returned to the forest after having passed a programme to renew the original reproducer stock. Aguaje palms or fibre palms require a certain percentage of male plants in between female plant stands to ensure the fertilization of the flowers. If we do not observe this we risk getting no fruit from the female palms.

4. For any given rain forest plot, we can evaluate and draw a product web, which is like a food web, but treats the relations of the present lumber and NWFP products coming from this particular lot and shows their interconnections and values. It can happen that producing poison frogs in a forest plot provides more income than cutting the lumber out of this plot. If we cut a tree, for example, we will lose a unique ecosystem which has been growing a hundred years or more. To re-establish the same ecosystem in the same site where we felled this 25 m giant tree will require thousands of years if we do not secure and take care of young trees of the same species in the site. Usually, the first trees which are felled are the giant seed-producing trees. Therefore, correct lumber management in tropical rain forests is a very difficult task and to design harvesting methods with the lowest impact is not easy. If we know the product web, its interactions and values, we can estimate the damage we cause by harvesting a tree and can adapt methods to replace the lost habitat or keep a sufficient number of similar trees near by so that the species can migrate and survive – or we just avoid working with the lumber and go straight to NWFP management.
5. The NWFP to be exported should have an added value in any case. In our frog business, the frogs are raised after metamorphosis in glass cages or in special screened corrals, where we provide additional food, sunlight, water, home plants and, before exporting, a preventive medication against the fatal chytrid fungus. In this way we add a value to the frogs.



6. Rain forest plots can be improved artificially to attract species – this is especially of interest if we run ecotourist projects which always require a lot of fauna around such sites. An artificially created pond, for example, is a good magnet for attracting many different animals. Artificial tree cavities might provide shelter for forest birds, lizards, monkeys and so on. Frogs and fishes produced in those artificial sites may be managed and exported, giving an extra income to those projects. For example, in the lodges in Manu and Tambopata in Peru, artificial hollow palm stems are used for nesting sites by the Ara parrots which live totally free, feeding in the forest, but sleeping at the lodge and entertaining the tourists, thus considerably increasing visitor numbers. With rescued and raised *Sanguinus* monkeys, forest pigs and capybara there are similar models. This shows that often the NWFP produced can be more useful and cash providing in the same site without even exporting it.
7. A problem concerning NWFPs falling under CITES I and II rules is the marking of the products. With parrots and some bigger animals we can now use implanted codified microchips. In small animals such as our poison frogs, their individual pattern is registered by digital photography and stored on a CD which accompanies the shipment. In medicinal plants or orchids obtained from seeds or cloning we can use the batch record from the *in vitro* laboratory.
8. Biopiracy is a major threat when exporting NWFPs from developing countries. Therefore, some countries, such as Brazil, are closing their frontiers to external enterprises that want to make bioprospecting on native plants in the Amazon. Brazil is making great efforts to train national scientists and to construct advanced biochemical laboratories at Manaus and elsewhere. The boom Brazil is enjoying at the moment in the “rain forest resource cosmetics industry” [see *Country Compass for more information*] is one of the results of trained local scientists exploring and testing those resources.

But many poor countries with good resources lack such infrastructure or scientists. In these cases, the only solution is to make joint ventures with external universities first, and then, after finding a promising product, fair trade contracts can be made with commercial enterprises. It is also recommended that the external university construct investigation and bioprospecting laboratories in the country of origin and establish an exchange of scientists. This quickly provides trained specialists in the country of origin, closing the “knowledge gap” between developed and developing countries. Locally trained scientists are able to prescreen the NWFP products *in situ* and experiment with their management and production on site with local communities as producer groups, before a deeper screening is started at the external university. There are many small, but highly specialized, external universities which need to be linked to the origins of such medicinal plants or promising NWFPs. Funds for such strategies are available internationally and locally. The problem is always to find honest business partners. Germany, for example, issues “fair trade” certificates nowadays for many products coming from developing countries. This must also be introduced for “fair science” in order to make bioprospecting a really shared mission, where all partners win and no country of origin will be the loser. We must make new international rules and laws in this sense, which protect the property rights of medicinal plants and other NWFPs for the countries of origin – or we must delete worldwide any property rights or patents on such resources and allow any interested individual, enterprise or university to work freely with those substances (unlikely in the current rush for the best patent and highest profit). Therefore, such plants, resources or patents must first be registered in the country of origin and patents or property rights established in the United States or Europe for plants from developing countries should be invalidated. Our

organization also recommends the creation of an international commission to supervise fair trade, fair science, biopatenting and perhaps also provide the certifications.

We must resolve these problems soon as we have thousands of new NWFP products and medicinal plants waiting for exploration and commercialization worldwide which can improve the lives of everyone. We can also begin to break down the gap between developing and developed country economies if we take care of a fair bioprospecting, patenting and commercialization of NWFPs. (Contributed by: Dipl. Biol. Rainer Schulte, International Consultant for Neotropical Fauna Management, INIBICO, Jr. Ramirez Hurtado 608, Tarapoto, San Martín, Peru; tel./fax: +51 94 522618; e-mail: inibico@terra.com.pe; www.geocities.com/inibico/)

CONGO BASIN FOREST PARTNERSHIP

The Congo Basin Forest Partnership – a free association of public and private partners – is working to reduce poverty and improve the lives of the Congo Basin’s people through new and existing regional institutions and programmes by protecting the region’s biodiversity and promoting good governance and the sustainable use and management of its forests and wildlife. (For more information, please visit their Web site: www.cbfp.org/en/about.aspx)

CUPUAÇU CHOCOLATE

Scientists from the University of São Paulo, Brazil have patented a technology to fabricate chocolate made from cupuaçu, replacing cacao. Six products have been developed: three types of chocolate and three chocolate powdered drinks.

According to Suzana Lannes, the researcher responsible for the project, it is a refining of cupulate, the cupuaçu chocolate patented almost ten years ago by the Brazilian Company of Agribusiness



Research (EMBRAPA) but never commercialized. "Cupulate is an old product that required modifications to be marketed," she explained. "It melts very easily; it does not resist the heat." The new technology alters the properties of the fats fusion part of the cupuaçu, giving it more consistency.

The recipe is the same as for chocolate, except that cupuaçu is used instead of cacao. The flavour and the smell are almost identical, but as an Amazonian fruit it offers the advantage of being a native Brazilian product, with a decreased production cost.

Cupuaçu, which is related to the Amazonian cacao, has become a symbol in the struggle against biopiracy following its registration by Asahi Foods in Japan. This patent, as well as that for cupulate, was removed by the Japanese Government, but the company maintains its patents for these products in Europe. (Source: *Agência Estado*, 13 April 2004 [in *Amazon News*, 15 April 2004].)

DOMESTICATION OF NON-WOOD FOREST PRODUCTS: THE TRANSITION FROM COMMON PROPERTY RESOURCE TO CROP

The place of non-wood forest products in society is changing. As the common property resources of hunter-gatherers and subsistence farmers, these products are of course central to the lives of many people for domestic use. Subsequently, as forest resources become scarce and as people move to urban centres for employment in other activities, markets develop for these products (see Figure). The agricultural revolution, especially in the last 50 years, has, however, sidelined these forest products, labelling them of "minor" importance. Nevertheless, in many places around the world, rural people know the value of the species that provide for many of their daily needs for medicines, nutrition, fibres, gums and for other everyday products not provided by staple food crops. Consequently, as the

forest receded, subsistence farmers initiated their own silent revolution and started cultivating and domesticating these useful plants, many of which are trees.

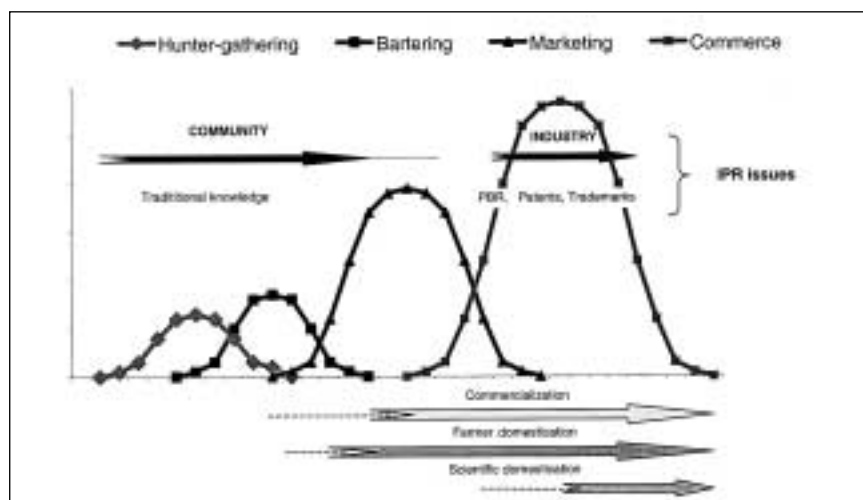
Today, the forests are gone, but trees are increasingly found in farmland and, counterintuitively, especially in areas of high human population density. A back-of-an-envelope calculation, which is difficult to substantiate, suggests that perhaps 1.52 billion people (24 percent of the world's population) use non-wood forest products. Possibly non-wood forest products are not so minor after all. Furthermore, because many of these are now cultivated on-farm (e.g. marula, *Sclerocarya birrea*; damar, *Shorea javanica*; shea nut, *Vitellaria paradoxa*; African plum, *Dacryodes edulis*), they need to be recognized as farm produce in production statistics. Consequently, they have recently been renamed agroforestry tree products (AFTPs).

Recognizing the importance of non-wood tree products, agroforesters at the International Center for Research in Agroforestry initiated a Domestication Programme for Agroforestry Trees in 1995, building on principles and practices developed in the 1980s and elaborated at an international conference in 1992. This programme has made considerable progress in several ecoregions of the tropics, developing a participatory approach, which is a politically and socially acceptable approach to biodiscovery that

empowers local communities to use and benefit from their traditional knowledge. The process is based on the characterization of tree-to-tree morphological variation, physicochemical and organoleptic properties of the tree products, with the objective of identifying product "ideotypes", which are targeted at specific market opportunities.

This global initiative to domesticate indigenous trees producing AFTPs that provide food and nutritional security and medicinal products also offers opportunities for subsistence farmers to generate income for food, medicines, children's school fees, agricultural inputs such as fertilizers, and other daily needs. In this way it is seen as a means of promoting agroforestry and achieving the UN Millennium Development Goals. However, for this to become a reality, it is essential that domestication proceeds in parallel with market development (see Figure). Ideally, this involves partnership in the domestication process with commercial companies. Interestingly, some multinational companies are now entering partnerships of this sort and recognizing agroforestry as a more appropriate production system than monocultural plantations. However, increasing commercialization raises a new problem, which is how to commercialize without undermining traditional and cultural values, and without exploiting the traditional knowledge of local communities.

THE DOMESTICATION AND THE COMMERCIALIZATION CONTINUUM





The participatory domestication process puts communities in a position to protect their intellectual property rights by, for example, the registration of Plant Breeders' Rights, but in most countries the legal process is expensive, bureaucratic and inappropriate for farmers and rural communities. Resolving this issue is recognized as an urgent priority, but progress is slow. Another constraint to achieving the scale of AFTP domestication and commercialization needed to achieve the Millennium Development Goals by 2015 is the lack of people with tree domestication skills in rural communities, especially for techniques such as vegetative propagation. Together, these opportunities and constraints indicate the need for greater recognition of the value and potential of non-wood forest products as new agricultural commodities (AFTPs). To this end, some policy guidelines have been published (Wynberg *et al.*, 2003; Tchoundjeu *et al.*, 2004; Ndoye *et al.*, 2004 [see *Publications of Interest*]). (Contributed by: Roger R.B. Leakey, Agroforestry and Novel Crops Unit, School of Tropical Biology, James Cook University, Cairns, QLD 4870, Australia; e-mail: roger.leakey@jcu.edu.au)

FORESTS AND HEALTH

Traditional medicines have "real benefits"
Scientists have shown that traditional medicines used in parts of Africa and Asia could help treat major diseases such as cancer and diabetes. They say their findings could lead to the identification of new compounds for use in drug manufacture.

Researchers at King's College London showed that extracts from India's curry leaf tree can regulate the release of glucose into the bloodstream, which could help diabetics who lack sufficient insulin to cope with excessive blood sugar. An extract of the climbing dayflower – used by traditional healers in Ghana – turned out to be both antibacterial and antifungal; an aquatic weed from Thailand and the Chinese star anise both inhibited the growth of cancer cells.

Any compounds identified from these plants will need to be investigated further with full clinical trials to confirm these initial results, say complementary medicine experts. (Source: BBC Online [in SciDev.Net Weekly Update, 27 September–3 October 2004].)

Jungle medicine has already cured 800 diseases

Two scientific investigations carried out recently in Pará and São Paulo states (Brazil) show how 800 health problems are treated in Amazonia, using almost 1 800 animals and plants. The research was carried out by the Museum of Emilio Goeldi Ethnology Department and the São Paulo School of Medicine.

The researchers went to 18 localities in eight Pará state municipalities, where they identified 200 diseases treated with so-called "popular recipes". They interviewed 65 *curandeiros* and identified 23 mammals, ten birds, eight types of reptile, fish and 15 invertebrates, in addition to 500 plants used in the remedies. Of the 1 800 investigated, 30 are of indigenous origin, 25 percent came from Africa and the rest were of varied origin.

A reason why cures with traditional medicines continue to be marginalized is also because international laboratories want to continue earning billions of dollars through biopiracy, practised in tropical forests worldwide. By robbing herbs and plants and the knowledge of traditional populations, these laboratories earn millions of dollars when their new products are introduced into the market. (Source: *Página 20*, 10 September 2004 [in *Amazon News*, 16 September 2004].)



Sustaining the supply of traditional medicines (DFID Forestry Research Programme R8305)

This document is an output from a project funded by the United Kingdom Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.

In Africa, livelihoods, health and natural resources are intimately entwined, most obviously through the collection, trade and use of medicinal plants. Traditional medicine which relies on native therapeutic plants is reportedly used by up to 80 percent of people in sub-Saharan Africa and is often the only source of health care for the poorest and the most isolated rural people. The advent of HIV/AIDS has increased demand for medicinal plants to alleviate the symptoms of AIDS. Demand for medicinal plants from urban populations has resulted in high levels of commercial harvesting which is often concentrated in forest reserves which are increasingly the only remaining habitat for significant populations of indigenous plants. Unsustainable harvesting of these plants threatens the species themselves, the income security of collectors and could compromise the health security of urban and rural poor people. Nevertheless, the sustainability of locally used medicinal species has been largely disregarded by natural resource managers, trade is an invisible part of the grey economy and exploitation is often illegal. This means that the impending medicinal plant crisis has been largely overlooked by the international research and aid communities.

The R8305 project is intended to help redress this imbalance within the Southern African Development Community region with South Africa, Malawi and Zambia as project partner countries. The project focuses on the development of scientific and collaborative tools to prepare sustained yield management plans for medicinal tree bark which forms up to 40 percent of the plant products traded wholesale in



South Africa. The project is a successor to the South African Innovation Fund "Commercial products from the wild" project which has also worked on bark and it seeks to extend the findings of this project to other species, ecosystems and countries in southern Africa.

Over the past five years, the Forestry Research Programme has supported the development of management systems for non-timber forest products (NTFPs). Part of this support was the identification of a need for better focused research on biometric sampling to determine the stocking and growth of NTFPs (ZF0192 and ZF0077). Several case studies of NTFP inventory methods were undertaken by the European Union-funded FAO GCP/RAF/354/EC project "Sustainable forest management in African ACP countries" [see *Non-Wood News* No. 9] and the present project builds on this experience and the relationships established between South African, Malawian and Zambian researchers. Technical backstopping for the project comes from United Kingdom and German universities.

The preliminary findings of R8305 are that tree species respond in different ways to the stresses of bark removal and not all can replace lost bark or even survive such wounding. This means that it is necessary to customize management plans for each species of tree being managed for bark. The project is developing the protocols by which this can be done in a form suitable for use by Forestry Department field staff working together with local bark collectors – as a bark management "toolkit". The management plans that will be facilitated by the trained Forestry Department staff should lead to a sustainable supply of bark which in turn should provide a sound and secure basis for collectors' and traders' incomes as well as contributing to health security.

The intention is that the toolkit will be adopted for use within the context of the recently introduced collaborative forest management principles in each country. This process is supported by bilateral projects in those countries, which means

implementation can be supported. This will be supported by training materials and courses to be delivered by forestry colleges in each country. Academic papers will relay the findings of the project to the international forestry research community and by peer review increase their credibility. Capacity building within the research, education and forestry organizations involved in the project and the development of an international network of NTFP researchers are also important outputs of this project.

A project workshop will take place in Johannesburg, South Africa, in October 2005.

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Forests, safety nets for HIV/AIDS-affected households

Forests provide emergency income, food and medicine for rural households affected by HIV/AIDS.

Households affected by HIV/AIDS rely on forest resources such as fuelwood, medicinal plants and wild foods for income and food, according to a recent study commissioned by FAO in five communities in Malawi and Mozambique.

Households experiencing the loss of an HIV/AIDS-affected working-age adult

are five times more likely to have increased fuelwood collection, the study reports. Because fuelwood can be collected with minimal and unspecialized capital input, robust markets for fuelwood provide affected households with a year-round opportunity to generate cash.

Sixty percent of affected households also relied on the use of medicinal plants as a primary response to illness. Herbal remedies have been observed to be effective in managing HIV/AIDS-related infections such as oral thrush, herpes and shingles, and in relieving appetite loss, nausea, fever, diarrhoea and cough.

Nearly a quarter of the households suffering the recent death of a working-age adult stated that the sale and consumption of medicinal plants, wild foods and other products such as reed mats and baskets, had become a more important source of income and food following the loss, with some households entering such activities for the first time. They were also twice as likely to have had a major forest products collection trip in the previous month.

Where forests provide a safety net for rural households coping with the short- and long-term impacts of HIV/AIDS, inadequate forest management is threatening the viability of these coping strategies.

Indicators of forest quality in two affected communities with similar access to forest resources revealed that in the community with a high level of HIV prevalence, forest resources were being depleted at a faster rate.

This is not to say that there is a causal relationship between HIV prevalence and deforestation, but this research does indicate that, for households in those rural communities most affected by HIV/AIDS, their ability to cope with the epidemic is undermined if forest resources are depleted.

The availability of medicinal plants used in the treatment of HIV/AIDS-related illnesses also decreased in affected communities. According to local herbalists, at least 13 species used in treating one or more of these illnesses have decreased in availability over the last five years.



FAO studies in Malawi and Mozambique indicate that the sustainable management of forest resources is a mitigation strategy in itself. The loss of forest resources not only undermines rural coping strategies, but aggravates the labour burdens of households constrained by sickness and care-giving. In addition to the health consequences at the household level, scarcity of forest resources for subsistence can create situations of vulnerability that perpetuate the epidemic in rural areas.

The lines between health and the environment are not distinct. It is necessary that responses to the HIV/AIDS crisis comprehensively address the realities of the affected rural communities.

FAO recognizes that empowering local institutions is key to building and maintaining local resilience in HIV/AIDS prevention, care and impact mitigation. It is facilitating national forestry departments to integrate HIV/AIDS-coping strategies into their programming.

FAO recommends policy and field programme implementation that ensures affordability, quality, sustainable management, domestication and use of medicinal plants; improved accessibility and availability of fuelwood; subsistence collection and domestication of nutritionally valuable foods for dietary diversification with an emphasis on micronutrient intake; and developing low-capital, income-generating activities from forests. (An online discussion-forum on the topic may be found at: www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=3561&siteTreeId=21328&langId=1&geold=0)

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Traditional medicines "must be registered and studied"

A World Health Organization official has urged traditional medicine practitioners in Africa to register their products to gain more benefits – including international trade – from their use. Speaking on

16 August at the first scientific meeting of the Western Africa Network of Natural Products Research Scientists, which focused on malaria and HIV/AIDS, Charles Wambebe said that only 22 of 46 African countries have policies or laws covering traditional medicine.

Wambebe said that traditional medicine was the most accessible form of treatment for most Africans, and underlined the need for more complementary use of traditional and modern medicine practices to meet the health needs of the majority. He also stressed the importance of research and conservation of medicinal plants to ensure their sustainable use.

The network's executive secretary was concerned that local pharmacists prefer to import foreign drugs rather than prepare traditional treatments, commenting that medicinal plants would be used more effectively and rationally and would have greater value if more were known about their scientific basis. (Source: GhanaWeb.Com [in SciDev.Net Weekly Update, 16–22 August 2004].)

Support for traditional medicine from African states

A number of African leaders last week used the second African Traditional Medicine Day (31 August) to confirm their commitment to national efforts aimed at ensuring the safety, efficacy and quality of traditional medicines. The African Union Commission called on its member states to ensure that research on traditional medicine is integrated with HIV/AIDS control programmes, as well as with all aspects of development policy.

Similarly, the newly established ministerial committee on traditional medicine of the Southern African Development Community stressed the importance of traditional medicine in addressing health challenges.

Since 2001, when the Summit of the Organization of African Unity declared 2001–2010 as the Decade for African Traditional Medicine, African countries have been developing both research programmes on traditional remedies and legislation regulating their use.

South Africa, for example, has set up a Traditional Medicines Database containing medical and botanical information on plants with healing properties, intended as a step towards setting safety standards. Earlier this year, the country's Medical Research Council started investigating seven traditional remedies to determine whether anecdotal claims of cures for several diseases – including HIV/AIDS – can be supported scientifically.

African countries, such as the United Republic of Tanzania, already have legislation regulating the use of traditional medicine.

The South African Parliament is expected to follow suit with the adoption of a bill setting up a Traditional Health Practitioners Council, as well as a regulatory framework for traditional health practitioners and services. This proposal has run into criticism from organizations such as Doctors For Life, who oppose the use of medicines that, they claim, have not been scientifically validated.

In Kenya, however, a similar bill has been given a cautious welcome by the medical community, even though physicians continue to express reservations about the ethical basis on which some traditional medicines are administered. [See next story.]

Ghana has launched a code of ethics for traditional medicine practitioners, developed by the Ghana Federation of Traditional Medicine Practitioners Associations.

In Senegal, it was announced that the fourth International Conference on Traditional Medicine will have a particular focus on HIV/AIDS. (Source: SciDev.Net, 3 September 2004.)



Hypericum perforatum



Traditional medicine action plan in Kenya
Kenya is to develop a national strategy for both promoting and regulating the use of traditional medicine, and providing alternative forms of treatment to the country's poor. The new arrangement will boost research into the use of both traditional knowledge and modern medicines to curb major diseases such as HIV/AIDS and malaria. It will also encourage the conservation of biological resources from which traditional medicines are drawn.

Kenya's Environment Minister suggested that increased research into developing traditional medicines for the poor could be used to encourage communities to conserve biological diversity. For example, he emphasized the need to preserve one of the most endangered tree species, *Prunus africana*, whose bark contains medicinal compounds. Kenya has already banned the tree's export in order to protect it. (Source: SciDev.Net Weekly Update, 28 June–4 July 2004.)

Centre of forestry health

To preserve the knowledge of traditional communities that utilize forest resources to combat their diseases in an ecological and sustainable manner is the objective of the New Life Health Project in Rio Branco—AC (Brazil). The idea is to form nuclei together with the state's traditional communities in a distinct manner to guarantee the preservation of people's health from the resources that are available in the forest.

"We all know that diseases such as malaria are treated with a tea of ten herbs that produces a cure as good as or better than the remedies from the pharmacy. We also have cures for parasites, rheumatism, stomach aches, skin problems and many more. All of these medications are at our reach in the forest in the areas surrounding where we live, we need to know how to use them in an appropriate way," affirms the director of the New Life Health Project.

In the health centres, the patients will not only receive conventional medications but also teas and other products elaborated with herbs and traditional

techniques. "In Croa we have 30 students who are dedicated to recuperating this culture that circulates within the community. We have more than 60 different types of traditional medicine ready to be tested and studied in the hope of being able to produce health as well as resources for the people of the forest."

The Centre of Forestry Medicine will function as a great formation centre for professionals who will then join their communities in the middle of the forest. Among them are health promoters of forestry medicine and environmental education. (Source: *Página 20*, 26 March 2004 [in *Amazon News*, 1 April 2004].)



INSECT ATTACKS EUCALYPTUS

The now popular hybrid eucalyptus tree faces destruction in Kenya by the blue gum chalcid, an insect in the bee-wasp family that invaded the country from Uganda. Scientists estimate that about 40 percent of Kenya's forests could be destroyed. Eucalyptus trees form the single biggest family of plantation species in Kenya's forestry.

Kenya has yet to come up with a solution to counter the destructive insect. However, trials are under way to introduce a biological control.

There are more than 800 species of *Eucalyptus* worldwide, with Kenya hosting some 600 of them. Where scientific evaluations are done in an exercise called species-site matching, the tree can be used to support local biodiversity. The sunbirds and many insects, for example, find eucalyptus forests a very conducive home owing to plenty of food in the form of flower nectar.

The tea and tobacco industries find it ten times cheaper to cure their leaves using eucalyptus fuelwood in their furnaces compared with fuel oil.

Eucalyptus is also widely used in the pharmaceutical industry, especially in making nose-unblocking sticks and skin-rubbing ointments. Sweets, toothpastes and confectioneries are also blended with eucalyptus oil for flavour.

Honey made by bees feeding on eucalyptus flowers is also recognized as one of the best in the world. As a result, Australia is a leading honey producer. (Source: *The Nation* [Nairobi], 18 November 2004.)

MANGROVE ACTION PROJECT

Naturally resilient, mangrove forests have withstood severe storms and changing tides for many millennia, but they are now being devastated by modern encroachments. Today, mangrove forests are among the most threatened habitats in the world – disappearing at an accelerating rate, yet with little public notice.

Today, less than half the world's original mangrove forest cover remains. There are many reasons for this decline, but in general the blame lies with unregulated and unsustainable developments, lack of clear understanding and recognition of the importance of mangrove wetlands, and a clear lack of law enforcement and monitoring to protect these fragile ecosystems from illegal encroachment. Nearly one million hectares of coastal areas, including valuable mangrove forests, have been cleared to make way for the shrimp aquaculture industry. Other unsustainable developments, such as timber and oil extraction, the charcoal and tourism industries, and unchecked urban expansion along the tropical and sub-tropical coasts, are also contributing to extensive tidal wetland losses worldwide.

To address these critical issues effectively, the Mangrove Action Project has taken a dynamically unique five-pronged approach to long-term mangrove conservation: education/awareness



raising; collaboration; restoration; conservation; and advocacy.

The Mangrove Action Project (MAP), in partnership with several Caribbean non-governmental organizations, is currently working towards a programme to restore degraded mangrove forests in the Caribbean region. This programme can serve as a demonstration project for other restoration efforts worldwide. MAP will train a group of restoration experts to

investigate several sites throughout the Caribbean and select suitable locations for the restoration programme.

MAP has successfully led small-scale, international volunteer teams on work/ecostudy tours in Ecuador, Thailand, Malaysia and Sri Lanka. These tours have raised public awareness locally as well as internationally on the importance of mangrove forests for both marine life and local communities.

MANGROVE FORESTS

Mangroves are rain forests by the sea. The majority of the subtropical and tropical coastline is dominated by mangroves, estimated to cover an area of 22 million hectares.

However, over the past several decades, the global area in mangroves has increasingly diminished as a result of a variety of human activities.

Mangrove forests comprise taxonomically diverse, salt-tolerant tree and other plant species which thrive in intertidal zones of sheltered tropical shores, "overwash" islands and estuaries. Mangrove trees have specially adapted aerial and salt-filtering roots and salt-excreting leaves that enable them to occupy the saline wetlands where other plant life cannot survive.

Mangrove ecosystems have traditionally been sustainably managed by local populations for the production of food, medicines, tannins, fuelwood and construction materials. For millions of indigenous coastal residents, mangrove forests offer dependable, basic livelihoods and sustain their traditional cultures.

The protective mangrove buffer zone helps minimize damage of

property and losses of life from hurricanes and storms. In regions where these coastal fringe forests have been cleared, tremendous problems of erosion and siltation have arisen, and sometimes terrible losses to human life and property have occurred owing to destructive storms. Mangroves have also been useful in treating effluent, as the plants absorb excess nitrates and phosphates, thereby preventing the contamination of nearshore waters.

The shallow intertidal reaches that characterize the mangrove wetlands offer refuge and nursery grounds for juvenile fish, crabs, shrimps and molluscs. Mangroves are also prime nesting and migratory sites for hundreds of bird species. In Belize, for instance, there are more than 500 species of birds recorded in mangrove areas. Additionally, manatees, crab-eating monkeys, fishing cats, monitor lizards, sea turtles, the Royal Bengal tigers and mud-skipper fish utilize the mangrove wetlands. Many endangered species are native to mangroves.

Mangrove forests literally live in two worlds at once, acting as the interface between land and sea.

MINILIVESTOCK



Minilivestock use implications

Although there are more than 15 million species of plants, animals and microbes on earth, more than 90 percent of the world's food supply comes from just 15 crop species and eight livestock species.

One way to augment the human food supply is to increase the diversity of plant and animal species used as food. A recent book provides stimulating and timely suggestions about expanding the world food supply to include a variety of minilivestock. It suggests a wide variety of small animals as nutritious food. These animals include insects, earthworms, snails, frogs and various rodents.

The major advantage of minilivestock is that they do not have to be fed on grains, thus saving many crop species for human consumption. The book suggests technologies for harvesting these small livestock. (Source: Paoletti, Maurizio G., ed. 2004. *Ecological implications of the use of minilivestock (insects, rodents, frogs and snails)*. Science Publishers, Inc., USA.)

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Insects are essential sources of proteins, fats and important vitamins in many parts of the world. For example, 100 grams of termites can provide more than 500 calories of food energy, while bee larvae contain ten times as much vitamin A as egg yolk does. (Source: Elevitch, Craig R., ed. 2004. *The Overstory Book: cultivating connections with trees*. Permanent Agriculture Resources, Holualoa, Hawaii, USA.)

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[Please also see *Mangroves and the tsunami*, on page 69.]



Contribution des insectes de la forêt à la sécurité alimentaire. L'exemple des chenilles d'Afrique centrale (Contribution of forest insects to food security. The example of caterpillars in Central Africa) is a new working document from FAO's Non-Wood Forest Products Programme. The document is in French, but the synthesis is also in English.

Hard copies are available free of charge from: **Non-Wood Forest Products Programme, Forest Products and Economics Division, Forestry Department, FAO.**

Fax: +39 0657055137;

e-mail: non-wood-news@fao.org;

online version: www.fao.org/docrep/007/j3463f/j3463f00.htm

Gecko breeding expansion in Viet Nam
The Non-timber Forest Products Subsector Support Project in Viet Nam is going to support target villagers in the project area of Van Don district, Quang Ninh province to establish and test two different gecko breeding models, and disseminate lessons learned throughout the country to improve household income generation and forest protection.

Geckos belong to the reptile family of Gekkonidae, and are known to occur throughout Viet Nam. In their natural habitat geckos live typically in forests at

elevations of less than 900 m. Geckos are commonly used as a remedy in traditional Chinese medicine; consequently, there is a huge demand for the species which continuously threatens wild populations. In addition, the current method of collection and harvesting of geckos is destructive because the geckos' habitat (old trees) is usually destroyed through chopping the trees and collecting the animals.

In theory, gecko breeding is not very labour intensive, which could be beneficial to several households of the most disadvantaged groups of the local community and, to some extent, of the whole country. Gecko breeding models were successfully introduced by an FAO project in Hoanh Bo district. However, for some reason the models have not been promoted outside the area. By testing the models in Van Don, a different geographic area, the NTFP project hopes to: meet the interest of local farmers in gecko breeding, thus decreasing the level of uncontrolled exploitation of wild populations in natural forests; and gather useful experience to expand the practice beyond the project field sites.

The project will subsidize 80 to 90 percent of the total costs for cages and breeding stock. According to project estimates, the two models will yield profits of up to D 350 000 after ten months of implementation and, since production costs for the second cycle are lower, net profits will increase by around D 200 000 in the subsequent production cycles.

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Bureau for Exchange and Distribution of Information on Mini-Livestock

The Bureau for Exchange and Distribution of Information on Mini-Livestock (BEDIM) has been active worldwide for many years in the controlled development of minilivestock, i.e. African and South American grasscutters, guinea pigs, frogs, giant snails, termites, butterflies, capybaras and other rodents.

BEDIM produces and publishes a *Semestral Information Bulletin on Mini-Livestock* with the financial support of the FAO Animal Production and Health Division.

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www.fao.org/ag/AGa/AGAP/FRG/FEEDback/War/W6437t/w6437t10.htm



The frog population in Russia is dangerously reduced because the Chinese food market is overconsuming them. (Source: Taiga Rescue Network.)



ORGANICALLY CERTIFIED NWFPs – HARVESTING WILD AND SEMI-DOMESTICATED SPECIES

As an outgrowth of the expanding market for organic food products, mechanisms are being developed to certify organically produced NWFPs.

Organic certification of NWFPs is still embryonic compared with the cultivated products that are the main focus of existing organic production systems. However, many organic standards provide specific sections on NWFPs, such as the International Federation of Organic Agriculture Movements (IFOAM) *Basic standards for organic production and processing*.

Organic certification promotes economically viable and environmentally friendly use of natural resources. The certification mechanisms that already exist for monitoring and evaluating production or commercialization of agriculture and timber products can be expanded and adapted for certifying organic NWFPs.

Four main certification schemes are relevant to NWFPs:

- *Organic certification* focuses on criteria such as the renunciation of synthetic fertilizers and pesticides. Under these criteria, wild and semi-domesticated NWFPs such as pinenuts, mushrooms and herbs could be considered organic.
- *Forest management certification* assesses the ecological aspects of resource management, both at the

forest and species or product level, and ensures the sustainable production of forest resources.

- *Social certification*, such as fair and ethical trade, assures that labour conditions are acceptable and benefits are shared equally among those involved in production and trade.
- *Product quality certification* covers production standards that focus on the product as well as on the way it is processed and manufactured.

Organic systems are based on precise standards of production that work towards supporting optimal agro-ecosystems. In order to be recognized as organic products, wild harvested or semi-domesticated products should meet explicit criteria. (Source: Fact sheet, FAO Inter-Departmental Working Group on Organic Agriculture, www.fao.org/organicag/)

ORGANIC PRODUCERS AND ASSOCIATION OF ZAMBIA

Honey production from the North-Western Province of Zambia has increased with an estimated export crop of 400 tonnes involving 3 000 bark hive producers in the 2003/04 season. According to the Organic Producers and Association of Zambia (OPPAZ), the last few years have seen numerous successes in the organic field with some of the honey producers being certified by the Soil Association of Zambia under the umbrella of the North-Western Beekeepers Association. Organic certification is carried out by Ecocert, a French certification body.

OPPAZ says that commercial agriculture has been producing certified organic vegetables for export and is now beginning to export essential oils using the outgrower schemes.

There is a growing interest in organically wild products such as manjeti (mongongo) nut oil, baobab oil and fruit, marula oil and mpundu (*Parinari curatellifolia*) nut oil.

Organically certified wild harvest mushrooms have been exported from Mpongwe for a number of years, according to OPPAZ. (Source: *The Times of Zambia* [Ndola], 10 March 2004.)



OUTLOOK STUDIES

Less natural forest cover, but more protected areas and forest plantations, and an increased share of international trade in forest products are expected by 2020 in Latin America and the Caribbean. This is the conclusion of an outlook study to be published at the end of the year by FAO. The forecasts were presented for discussion to country representatives at the Latin American and Caribbean Forestry Commission this week [October 2004] in San José, Costa Rica.

Country representatives at the meeting recognized the need for coordinated follow-up actions and programmes in response to the outlook forecasts. "The future of forests in the region in the coming decades depends on how countries react to, and what kinds of actions they take in view of these expected changes," said Mr Merilio Morell, an FAO forestry expert, at the meeting.

Natural forest cover is expected to continue decreasing between now and 2020, according to the study. It is expected to shrink from 964 million hectares in 2002 to 887 million hectares in 2020, or 47 percent of the total land area of the region. Planted forests are forecast to increase from 12 million to more than 16 million hectares. Protected areas are also likely to expand. Between 1950 and 2003, protected areas had already increased from 17.5 million to 397 million hectares, reaching 19 percent of the region's total area and 23 percent of the world's protected areas. Between



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now and 2020, new protected areas are expected to be created in the region, including mega-parks and biological corridors.

With appropriate means, it is possible to reverse the trend of deforestation.

Costa Rica reported how forest cover in the country increased from less than 30 percent to 47 percent in little more than a decade thanks to its National Fund for Forest Financing. The fund spends 3.5 percent in tax charged for the use of fossil fuels to support landowners and local communities in maintaining protected areas, planting trees and managing their natural resources.

Uruguay and Cuba also described how their policies helped slow down and reverse the deforestation rate.

"To guarantee protection and sustainable use of forests, the multiple benefits and services provided by forests have to be valued in monetary terms by those who benefit," Morell said. "Forests not only offer timber and non-wood forest products such as fruits and natural medicines, but also contribute to ecotourism, the conservation of watersheds and biodiversity, and to the mitigation of climate change. All this should be valued to raise funds needed to pay for the conservation of forests." (Source: FAO Newsroom, 20 October 2004.) [See page 71 for more information on outlook studies.]

PLANT AND CLAY DYES

The plants used by weavers and potters in West Bengal, India, for extracting natural dye include *Acacia catechu* (heartwood), *Albizia lebbeck* (fruit), *Butea monosperma* (flowers), *Camellia sinensis* (leaves), *Ceriops decandra* (bark), *Ceriops tagal* (bark), *Citrus aurantifolia* (juice mixed with palash), *Daucus carota* (roots), *Mimusops elengi* (bark), *Punica granatum* (fruit rind), *Rhizophora apiculata* (bark), *Rhizophora mucronata* (bark), *Rhizophora stylosa* (bark), *Swietenia mahagoni* (fruit), *Tagetes erecta* (flower), *Ziziphus jujuba* (ash of twig) and *Ziziphus oenoplia* (ash of twig).

Diospyros peregrina fruit extract is smeared on thread to increase its longevity and the bark extract of *Mimusops elengi* is used in textiles to increase the lustre. (Source: Ghosh, A. 2004. Plant and clay dyes used by weavers and potters in West Bengal. *Natural Product Radiance*, 3[2]: 91.)



PLANT MORE TREES

FAO advised countries in the Near East and North Africa to plant more trees to improve the quality of water and increase food production.

In a statement coinciding with the start of a five-day meeting of experts in the Lebanese capital, Beirut, Hosny al-Lakany, FAO Assistant Director-General for Forestry, said that "planted trees not only help the region to have better quality water, but trees serve as windbreaks and shelterbelts against desertification."

Forest cover in the region amounts to around 110 million hectares, equivalent to 5.9 percent of the total land area. But the Sudan accounts for more than half the total forested area and in other countries forests on average cover less than 3 percent of the land.

The overall forest cover in the region declined by nearly 1 million hectares a year in the last decade and six countries recorded a drop in forest cover.

FAO estimates that about 8.3 million hectares, around 5.5 percent of the total forested area in the Near East, consist of trees which have been planted, and that almost half of them are in Iran or Turkey.

The statement noted that forests are important as a source of fuel and livestock fodder. Forests in the region also provide about 2 million cubic metres of wood products and more than US\$100 million

worth of exported non-wood forest products, such as gum arabic, cork, pistachios and honey. (Source: *The Daily Star* [Lebanon], 25 May 2004.)

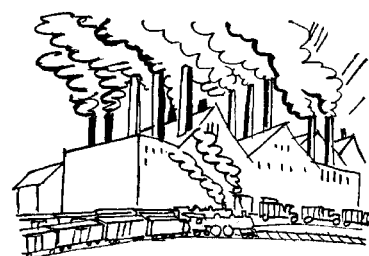
PONGAMIA PINNATA OIL

Pongamia pinnata produces seeds containing 30 to 40 percent of oil. This natural pongamia oil is being substituted for petroleum diesel oil in local power generators in Powerguda village, Adilabad district, Andhra Pradesh, India, thereby reducing carbon dioxide emissions.

The carbon dioxide emission reduction comes from the substitution of about 51 tonnes of diesel oil by biofuel produced from *Pongamia pinnata*, a native tree species found in the local forest. The people of Powerguda planted 4 500 pongamia trees in 2002 on the edges of their agricultural land. Oil from the pongamia seeds is extracted in the village's oil mill which was installed by a local government agency.

The World Bank's ESSD Forest Team has recently purchased the equivalent of 147 tonnes of carbon dioxide in verified emission reductions from Powerguda village. The emission reductions over ten years come from the production of this natural pongamia oil which is substituting petroleum diesel for use in power generators and other engines. A Certificate of Recognition of Global Environmental Leadership has been given to the World Bank to confirm their purchase.

For more information, please see:
www.profor.info/pdf/PowergudaCertificate.pdf; and
www.profor.info/docs/PressReleasePowerguda.doc





PROBONA

The Programa Regional de Bosques Nativos Andinos (PROBONA) works with non-wood forest products: food products, such as the Andean honey bee, cheese, fishery, organic coffee and Andean fruits, as well as with non-food products, such as leaves (*Blechnum* sp.), natural fibre (cabuya), duda (*Aulonemia queko*) and Latin bamboo (caña guadua). Their objective is to raise awareness and increase knowledge concerning these products and those who produce them, and to create markets for them.

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PROJET D'APPUI TECHNIQUE À LA FILIÈRE KARITÉ (PROKARITÉ)

An initiative of the World Agroforestry Centre (ICRAF-Sahel) with support from the Common Fund for Commodities, FAO and the Government of the Netherlands, the *Projet d'appui technique à la filière Karité (ProKarité)* is a concerted regional, technical and commercial programme for the development of the shea resource to serve all the stakeholders of the shea sector, from rural producer communities to urban and international end users, including both industry and consumers.

The product certification system established under ProKarité will enhance the "traceability" of the regional supply chain, thus serving all sector stakeholders.

ProKarité will reinforce the value of the living tree, for the primary benefit of the producers who manage the shea stands across the African continent, their households and future generations.

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www.prokarite.org/index-eng.html;
www.thesheanetwork.net/

SUDAN SILVA

Sudan Silva is a specialized journal published biannually by the Sudanese Forestry Society and the Forests National Corporation. It publishes original research and critical reviews in all areas of forestry and related fields.

For more information, please contact:
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TAIGA NON-TIMBER FOREST PRODUCTS

An NTFP workshop, held during the Taiga Rescue Network 7th Biennial Meeting, took place on 21 September 2004 in Vladivostok, Russian Federation. The major outcomes of the session were:

- Nature tourism will reduce logging and save NTFPs.
- Growing medicinal plants for sale will protect wild plants.
- Need to protect NTFPs from overharvesting for profit.
- Wild plants are needed for medicinal and spiritual practices.

- Map critical areas of NTFPs for government land-use planning and protection from logging.

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TRADE

ASEAN committed to controlling wildlife trade

The ten members of the Association of Southeast Asian Nations (ASEAN) [meeting in Bangkok, Thailand] today announced a bold initiative to work together to address the region's wildlife trade crisis.

WWF and TRAFFIC called upon the global CITES community to support action in Southeast Asia, a region which has long played a role as supplier and trade entrepôt for a significant portion of the global trade in wildlife. The region's own rich biodiversity makes it a target for traders interested in a variety of animals and plants ranging from tigers and elephants to rare orchids.

The ASEAN Statement on CITES focuses on six key areas of cooperation. These include the need for increased law enforcement cooperation, comprehensive legal frameworks and more scientific information to be made available to guide wildlife trade management by CITES authorities. Beyond the ASEAN Statement itself, the ten countries have agreed to develop an Action Plan for 2005–2010.

As economic growth has increased, demand has risen in Southeast Asia for products such as birds and reptiles for the pet trade, luxury items made from ivory and hawksbill turtle shell products, and high-value traditional medicines such as musk and ginseng. (Source: WWF-TRAFFIC Press Release, 11 October 2004.)

Biotrade

Environmentally sustainable "biotrade" is gaining ground among the longstanding



commercial products that the Andean region puts on the international market.

The extraordinary biological wealth of South America's Andean countries is beginning to pay off for those who take advantage of it. Despite the ecological and economic importance of preserving biodiversity, the notion of leaving nature untouched is falling by the wayside.

Colombia, Ecuador, Peru and Venezuela are four of the 12 countries in the world with the greatest biodiversity. They are Andean countries, but they also hold portions of the vast Amazon Basin. According to the development agency of the Andean Community of Nations (CAF), "We are facing a new wave, marked by the possibility of a boom in the intelligent use of biodiversity, taking advantage of it in a sustainable way."

Taking advantage of autochthonous resources for biotrade entails identifying niche markets and even developing new forms of organization. A success story is Bambú de Colombia, in business for more than 30 years, and employing hundreds of families in planting and prevention of deforestation.

The Andean countries are trying to promote production for biotrade, "and in each one we face difficulties in obtaining financing, the lack of research, the lack of development of new products and a failure to consolidate what we have to offer," said a consultant to the "green markets" group in the Colombian Environment Ministry.

CAF has already earmarked US\$900 000 for programmes to fortify institutional, business and community development geared towards biotrade.

Trade and organizing rural and indigenous communities to make the most of their natural resources are part of the first phase in the "new wave", before full sustainable exploitation of biodiversity, which requires financing and research, and the region is far from obtaining those, said CAF.

Biotrade could be a boon to the Andean countries, which also hold part of the Amazon, as a platform to pursue development in biodiversity and gain access to hungry markets, according to

studies that CAF entrusted to United States technology research centres.

As for the field of applied sciences in health and industry, in 2003 there were 370 biotechnology pharmaceuticals in development to treat more than 200 diseases.

The Andean countries should step up value-added activities by taking advantage of their biodiversity, and intensify efforts to regulate and jointly negotiate their potential in integration and free trade agreements that are under way.

One of the key aspects of the free trade agreement that the United States is negotiating with Colombia, Ecuador and Peru refers to access to the biological wealth of the three South American countries. (Source: [BIO-IPR] Resource pointer, 16 August 2004, bio-ipr@grain.org citing Tierramérica.)



Trade controls on hoodia and Asian yew trees

A United Nations conference approved on Friday a proposal by African countries to control trade in a rare plant sought by drug companies for its appetite-suppressing properties. The hoodia cactus in question has been used for thousands of years by southern Africa's San Bushmen to dampen their appetites during long treks through the harsh Kalahari desert and holds the key to potentially lucrative anti-obesity drugs.

The Convention on International Trade in Endangered Species (CITES) listed the hoodia plant in its Appendix II – which will regulate global trade in the species – at the behest of South Africa, Namibia and Botswana.

It also adopted a Chinese and United States proposal to put Asian yew trees,

which provide the compound for one of the world's top-selling chemotherapy drugs, in the same appendix.

That will give added protection to plants which could save untold human lives while earning billions of dollars for big drug companies.

Hoodia. South Africa's Council for Scientific and Industrial Research (CSIR) has patented the chemical entity extracted from hoodia and licensed British drugs-from-plants firm Phytopharm Plc to develop the plant's commercial potential. Phytopharm said in July it welcomed moves to protect hoodia from illegal cultivation. "We would like pharmaceutical companies to produce finished products in the three countries," said the South African delegate, adding that there were structures in place to ensure that the San Bushmen derived benefits from the product.

Valuable but fragile yew. For years Chinese herbalists have used trees of *Taxus* species, also known as yew trees, to treat common ailments. In the late 1960s, scientists in North Carolina found that the extract of yew bark fought tumours. In the early 1990s, the United States Government approved the use of paclitaxel, also known as taxol, by drug company Bristol-Myers Squibb for chemotherapy. Taxol, whose patent expired in the United States in 2001, is one of the best-selling drugs for treating a variety of cancers. In 2003, drug firms sold more than US\$4 billion worth of products with taxol and other drugs derived from yew trees known as taxanes. But conservationists say the various *Taxus* species are under threat from illegal harvesting and habitat destruction in China. "This is a win for conservation as well as for trade," said the head of the United States delegation. "It ensures the products come from legal and sustainable resources. And it's important to preserve the species because it has a great impact on the lives of many people." (Source: Reuters, cited in *Sustainable Africa Newsletter*, 9 October 2004.)



Global trade in agarwood

Governments today voted by an overwhelming majority to regulate the global trade in agarwood, a little known but high-demand product that is possibly the most valuable non-timber forest product worldwide. The efforts of Indonesia and other range states in Asia to request additional management controls under CITES should help ensure that the centuries-old trade continues at more sustainable levels, says TRAFFIC, the wildlife trade monitoring network.

"After more than a decade highlighting the dangerous trends of overharvesting to supply this trade, TRAFFIC is very pleased to see some collective action on this issue," said James Compton, Director of TRAFFIC Southeast Asia. "TRAFFIC's work with range states from India eastwards to Papua New Guinea has shown that this unique group of agarwood-producing tree species is clearly threatened by trade and that, unless this is better regulated, long-term supplies remain in jeopardy."

The trade in agarwood, resinous deposits of which are found in tree species of the genera *Aquilaria* and *Gyrinops*, dates back two thousand years and meets the cultural, medicinal and religious needs of societies from the Near East right across Asia to China (including Hong Kong Special Administrative Region and Taiwan Province) and Japan. It is also used in the production of high-grade incense and perfumes. In addition to the Appendix II listing endorsed today, CITES Parties have called for an important dialogue between producers and consumers to be held prior to the next meeting of the Conference of the Parties to CITES.

"It is important to remember that CITES Appendix II is not a trade ban, but a management intervention that will help ensure legality, promote sustainability and enable more accurate monitoring of the agarwood trade," Compton continued.

Increasing scarcity of supply has driven agarwood prices progressively higher, to the extent that mid-level grades are sold for US\$1 000 per kilogram in markets such as Bangkok and Singapore, and can fetch more than US\$10 000 per kilogram in the

end-consumer markets of the Near East and East Asia. Although harvest and trade is controlled by permit systems in major exporters such as Indonesia and Malaysia, the monetary incentives to extract agarwood illegally from the lowland forests of Asia far outweigh compliance with the law. Organized groups of illegal harvesters have been documented encroaching national parks in countries including Cambodia, Indonesia, Malaysia and Thailand.

A single agarwood-producing species, *Aquilaria malaccensis*, has been listed on CITES Appendix II since 1995. But having only one species out of more than 20 listed on CITES has caused implementation and law enforcement difficulties, particularly as agarwood is traded in the form of wood, wood chips and oil, which makes it almost impossible to distinguish between species. The harmonizing of trade controls for all *Aquilaria* and *Gyrinops* species under CITES, therefore, should streamline management of the trade. (Source: TRAFFIC Press Release, 13 October 2004.)



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TREE AID

Tree Aid works in Africa's drylands to reverse poverty and environmental degradation through skills transfer and community forestry projects that include income generation. Income from non-wood forest products is a focus of their new "Community Forestry and

Sustainable Livelihoods" Programme in West Africa.

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WHO CONSERVES THE WORLD'S FORESTS?

Indigenous people and other communities who live in and around the world's tropical forests are often as effective as their national governments at conserving forests, and are outspending foreign donors by as much as two to one, according to a new study by Forest Trends, an IUCN member organization based in Washington, DC.

Some 240 million indigenous and local community people own and manage about one fifth of the world's tropical forests, and invest US\$1.2 billion to \$2.6 billion a year in forest management and conservation, according to the study *Who conserves the world's forests? Community-driven strategies to protect forests and respect rights*, by Augusta Molnar, Sara J. Scherr and Arvind Khare (online at: www.forest-trends.org/resources/pdf/Who%20Conserve%2007-23.pdf). (Source: IUCN, 26 July 2004 [in CENN, *Daily Digest*, 27 July 2004].) ●





AÇAÍ

Açaí gives energy and strength

Rio de Janeiro is the city that worships health and beauty and where the healthy and the beautiful drink açai. Pronounced ah-sah-yee, açai is more of a lifestyle option than a foodstuff.

The berry juice is served half-frozen and its thick gloopiness means that you slurp it up with a spoon. The way it looks is integral to its appeal. It is made from dark violet berries about the size of a raspberry and has a deep, dense colour. It is fruity with a chocolaty kick.

The nutritional breakdown of açai is prodigious. It has high levels of iron, calcium, carbohydrates, fibre and antioxidants: and energy. A small 100 g cup has almost 300 calories. Combined with the mystique of its Amazonian origins, açai's contents have made it the beverage of choice for Rio's sporty elite.

Açai is indigenous to the flood plains of the Amazon estuary. The açai palm regenerates with ease and in areas where human development has destroyed natural vegetation the first tree that grows in its place is açai. (Açai palms cover an area equivalent to half the size of Switzerland.) In this region, its abundance and role as a primary nutritional resource cannot be overestimated: it is literally the fruit that has saved many poor families from starvation.

Açai is the main food staple of river communities in the Amazon estuary. It is drunk at every meal – in much the same way as bread or rice are eaten in other cultures.

Belém is the main city in the Amazon estuary and world centre of açai. In Belém more of the fruit is drunk than milk. An estimated 200 000 litres of the purple liquid is consumed per day among a population of 1.3 million.

Açai is highly perishable and the only way it gets to Rio is in frozen packages. In Belém, the fruit is always consumed fresh since it goes off within 24 hours. In order to service the population with fresh açai on a daily basis, an enormous

infrastructure has grown in Belém that employs an estimated 30 000 people.

The cycle starts in the rain forest. The açai palm has a long thin trunk up to 25 m tall and a clutch of branches at the top from which hang ribbon-like leaves. Hundreds of açai fruits dangle from branches in clusters.

The fruit picking is done by hand. In the afternoons, river-dwellers scramble up the trees, cut off the branches and climb back down again exactly as they have done for hundreds of years. In the evening, boats containing baskets of açai leave the rain forest heading for Belém's market, where they arrive in the middle of the night.

The açai market is a dockside next to the city market. By the early hours small boats have started arriving with baskets of the fruit which quickly fill the quay and by 3 a.m. the traders and açai vendors arrive. There are about 3 000 açai points where the fruit is pulped into juice. Customer demand for açai is mainly at lunchtime, when it is prepared fresh.

Açai is not a versatile fruit since it can only be stored frozen and cannot be cooked, so for the most part it continues to be drunk just as the Indians have drunk it for centuries.

Scientists have discovered that açai is rich in anthocyanins, the group of chemicals in red wine that are believed to lower the risk of heart disease; açai contains more than ten times of them than red wine. It is also rich in essential fatty acids, calcium and vitamins. Açai's recent success is also changing the nature of agriculture in the Amazon estuary. Agronomists have been successful in developing ways of cultivating açai sustainably with high yield. In the last five years, açai production has tripled and brought work to poor rural areas.

Belém now has more than 60 factories exporting açai.

Açai was an Amazonian secret that conquered Brazil. A company in California now imports it to the United States and next month it will be introduced to British palates. (Source: Alex Bellos, *Observer*, 18 April 2004 [in *Amazon News*, 22 April 2004].)

Açai berry sales to United States brings security to Amazon farmers

For more than 30 years, Raimundo Julião da Costa has eked out a living by selling a dazzling array of wild tropical fruits that grow naturally on his land in the lush floodplains of the Amazon rain forest. His biggest seller has always been açai. But, like thousands of other poor farmers, until recently Mr da Costa found himself at the mercy of traders who have had a strong hold on the local fruit market for generations.

That started to change two years ago, when a few environmentally conscious surfers from a small California company called Sambazon (short for Saving and Managing the Brazilian Amazon) offered to buy Mr da Costa's açai harvest at a 25 percent premium over the market price. The only catch – he had to designate a piece of his land as an ecological reserve and carefully manage the rest of his terrain to protect the biodiversity of the rain forest.

Because Sambazon offers guaranteed contracts, hundreds of peasant families are able, for the first time, to lock in a price for the bulk of their crop before the harvest. And as their sales become more lucrative, people have an incentive to preserve their habitat instead of abandoning it in search of work in nearby cities such as Belém, where many former river-dwellers live in poverty in crime-ridden shanty towns.

Rich in antioxidants and amino acids, açai is thought to be one of the most nutritional fruits of the Amazon Basin.

Sambazon açai is now carried by thousands of juice bars and grocery stores across the United States. However, in most Brazilian cities, açai is a recent phenomenon, even though it has been a staple for indigenous communities in the Amazon for centuries.

The rising demand for açai is good news for both Sambazon, and the families along the Amazon who depend on the palm berry for their livelihood. Sambazon buys açai from more than 750 families organized into four fruit cooperatives in the Várzea Flooded Forest, an unusual microclimate in Pará state where the Amazon river rises about 10 m every year



and floods the surrounding jungle. As word travels that a foreign company is paying a hefty premium for açai, many families are rushing to join the cooperatives.

However, a few local fruit processors complain that the company is artificially forcing up açai prices. And entrepreneurs, who often work for fruit merchants in nearby cities, are starting to put pressure on açai pickers to stop selling their crops to Sambazon. Despite the complaints, Sambazon represents only a sliver of the market, around 2 percent of the region's crop. (Source: *The New York Times*, 4 August 2004 [in *Amazon News*, 5 August 2004].)

Açai in Australia

At the beach, parties and bars, açai is becoming popular in Australia. Behind the fascination of this dark-skinned fruit is Amazon Mix, created three years by a Brazilian and an Australian. Moises Rodrigues Oliveira and Richard Jardine today sell 1.5 tonnes of açai per month, principally in Sydney and the Gold Coast region.

Oliveira believes that part of the success should be credited to the product's social marketing. "Our açai is bought from rural communities in Igarape-Mirim, Pará state, which are supported by Amazonia's Environmental and Poverty Programme (POEMA)." (Source: *O Estado de S. Paulo*, 26 August 2004 [in *Amazon News*, 2 September 2004].)

Açai used to create orthodontic solutions

From the natural dye of the açai, a typical Brazilian fruit, researchers from the Brazilian Company of Agribusiness Research (EMBRAPA) have developed a substance that will be useful for revealing the existence of bacterial plaque on teeth. In addition to being natural, the orthodontic substance is easy to remove, tasteless and not harmful to health. The researchers stated that the next step is to construct a factory to process açai, which will contribute to new job sources in Amazonia. (Source: *O Estado de S. Paulo*, 21 May 2004 [in *Amazon News*, 27 May 2004].)



BAMBOO

Bamboo – money that grows as you watch

A giant bamboo, introduced into Kenya last year which achieves the phenomenal growth rate of one metre per day, could be a possible money-spinner for local farmers.

The World Agroforestry Centre has already distributed more than 800 seedlings of the giant bamboo, *Dendrocalamus giganteus*, to farmers in Kericho, Kisii, Nandi South, Nyamira, Nyando, Siaya and Vihiga districts. The giant bamboo is nature's fastest growing woody plant. Its culms (poles) are the strongest, lightest natural material known. A square metre of flooring derived from this plant will sell for as much as KSh 8 000, while in southern Asia it is used for reinforcing concrete and for scaffolding on skyscrapers.

It absorbs water faster than most plants and is used in some parts of the world for cleaning sewage. Even more important, it soaks up heavy metals. It is a potential answer to polluted waters in Kenya, including Lake Victoria whose shores are dotted with large urban centres that discharge domestic and industrial waste into its waters. Working with municipal authorities, the International Center for Research in Agroforestry (ICRAF) has plans to introduce the bamboo for waste water treatment in Kisumu and Kakamega. Further afield, ICRAF is also looking at local authorities in Nairobi, Mwanza and other towns dotting Lake Victoria's shores.

No other woody plant matches bamboo's versatility in environmental conservation and commerce. It is a viable replacement for both hardwoods and

softwoods. Its growth rate is three times that of eucalyptus, and it matures in just three years. Thereafter, harvests are possible every second year for up to 120 years.

India has some 8 million hectares of commercial bamboo that account for 60 percent of the country's massive paper requirements and much of its commercial timber needs. More than 2 million tonnes of edible bamboo shoots – rich in vitamins and low in carbohydrates, fats and proteins – are consumed worldwide every year, mostly in Asia.

However, bamboo remains an untapped resource in Africa, a state of affairs ICRAF is addressing through a pilot project in Kenya. The project aims to create awareness on the environmental and economic benefits of bamboo in the Lake Victoria basin, and hopefully popularize it throughout the region.

Interestingly, bamboo, a member of the grass family, is not new in Kenya. According to Professor Chin Ong, a hydrologist with ICRAF, Kenya's water catchments were once covered in bamboo, but most of these forests have since been cleared.

This commercially attractive species can grow in areas traditionally used for sugar cane and coffee cultivation, thus providing an alternative or additional cash crop. *Arundinaria alpina*, a species of bamboo native to Kenya, will yield as many as 20 000 culms per hectare per year – with each culm growing to a height of 12 m. Most species, in fact, grow to over 30 m at full maturity.

Kenya has few privately owned commercial timber plantations. Most of the country's timber comes from government forests managed by the Forest Department. However, these forests have been severely overexploited with only limited replanting. Timber firms are now reportedly forced to import timber from the Congo and the United Republic of Tanzania to manufacture hard and soft board. The country's leading paper manufacturer, PanPaper of Webuye, is also reportedly using plantation softwoods to fuel its boilers and make paper pulp. With its rapid growth and high woody fibre



production, bamboo would supply both industrial needs.

At the household level, bamboo would be a valuable source of fuelwood and charcoal. It yields more than 7 000 kilocalories per kilogram, equivalent to half the yield from an equivalent amount of petroleum. Some species of the plant have large thorns, making them ideal for security hedges. Others grow tall, straight culms that form ideal windbreaks that can be sustainably harvested annually. And, of course, edible bamboo shoots would be a nutritious addition to the family table. These shoots, mild and very crunchy, can be eaten raw or cooked. The Kenya Forestry Research Institute already grows several high-quality edible varieties.

Bamboo rhizomes anchor topsoil along steep slopes and riverbanks, very effectively controlling erosion. Bamboo leaves, sheaves and old culms that die and fall to the ground decompose and create a thick humus layer that enriches the soil. Studies in Southeast Asia and Kenya have also shown that natural bamboo forests have excellent hydrological functions that promote soil health. Some species of bamboo absorb as much 12 tonnes of atmospheric carbon dioxide per hectare, a valuable asset to deploy against global warming.

Bamboo can be propagated from seeds, although most species flower just once every 15 to 120 years. More viable mass propagation techniques include tissue culture. (*Source: The Nation [Nairobi], 10 June 2004.*)

Earthquake-proof house shakes bamboo world

The bamboo-based building system developed by TRADA International in partnership with the Indian Plywood Industries Research and Training Institute (IPIRTI) has passed a full-scale earthquake resistance testing programme with no damage whatsoever. The testing programme was carried out in collaboration with the Central Power Research Institute (CPRI) in Bangalore.

The work is part of an ongoing project in India, Bangladesh and Sri Lanka, funded by the United Kingdom Department for

International Development (DFID). "The project demonstrates a sustainable livelihoods approach to bamboo development for economic, environmental, social and infrastructure improvement," said Lionel Jayanetti, head of TRADA International. The building system, under development since 1998, has already shown that it is "affordable, safe, durable and sustainable".

Mr Jayanetti added, "This latest phase of the project, some four years in the planning, has confirmed that buildings constructed in bamboo using this method are able to withstand the highest levels of earthquake loading likely to be experienced in India, and probably worldwide."

A 2.7 m² test building, complete down to the last detail including surface finishes, was constructed on site and craned into position on the state-of-the-art shake table.

The test building resisted seven repetitions of a typical Zone 5 earthquake, the highest in India and equivalent to 7 on the Richter scale, as well as a replication of the notorious Japanese Kobe earthquake (Richter 7.8), "without any damage whatsoever", said TRADA International's Paul Follett. "This means that such buildings could easily have withstood the recent earthquakes in Gujarat, Maharashtra and Bam which caused such devastation and loss of life."

One week after the test, on 27 February 2004, the work was presented at the VII World Bamboo Congress in Delhi, which was inaugurated by Prime Minister Vajpayee and attended by Mr Michael Parkes, who is the Senior Adviser responsible for the DFID project.

Bamboo development in India is now a national goal, as evidenced by the establishment of the National Mission on Bamboo Applications, under the country's Technology, Information, Forecasting and Assessment Council, Department of Science and Technology. "Given the acknowledged demand for affordable, safe and secure housing, it is hoped that the positive results of this international collaboration will bring benefits to some of the poorest and most vulnerable members of society," said Mr Follett.

Details of the building system can be found in the training manual "Building with Bamboo", prepared by Paul Follett for the Indian National Mission on Bamboo Applications.

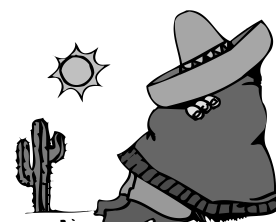
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Mexican farmers eyeing international bamboo market

Mexican farmers are taking an interest in bamboo production, according to a recent Associated Press report. Bambuver, a private group in Mexico that was formed to promote the bamboo industry, receives government funds and coordinates its activities with private organizations and universities. It is also talking with private Mexican industries about using bamboo in construction and paper production and as a fuel. A type of grass that thrives in diverse climates, bamboo can grow into 30 m timber stalks. It also grows quickly, taking only three years for a farmer to develop a bamboo plantation.

China currently claims about half the global bamboo market, which is valued at approximately US\$10 billion. Analysts predict the market could be worth US\$20 billion by 2015, led by the United States demand for paper.

Bamboo from Mexico could reach Europe in 11 days versus the 44 days required to transport imports from China and Thailand. Mexican bamboo producers also see their efforts as one way to reclaim the United States market share that has been lost to China over textiles, television sets, cars and computer parts. (*Source: Linkages Update, 13 November 2004.*)





The proceedings of the October 2003 International Workshop on Bamboo Industrial Utilization are now available from INBAR.

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Bamboo under extinction threat

As much as half of the world's 1 200 woody bamboo species are in danger of extinction, a United Nations report has revealed. Urgent action is needed to protect the plants and the species that depend on them, the study's authors conclude.

Deforestation is known to be robbing many bamboo species of their native habitat. Yet, the effect this is actually having on their distribution is not well understood, as many of the areas where the plants live are extremely remote.

To get a better idea of how much bamboo is left, researchers at the International Network for Bamboo and Rattan and the United Nations Environment Programme World Conservation Monitoring Centre combined hundreds of academic reports about the distribution of different bamboo species with global maps of forest cover, and have produced a colour-coded chart of bamboo hot spots.

They found that about 600 species are "endangered", with less than 20 000 km² of native habitat. And some 250 varieties have less than 2 000 km² of land (the size of London) left to live in. "A few of these species have virtually no forest left," says ecologist Valerie Kapos, who helped draw up the report.

One reason bamboo has been hit so hard is because of its distinctive cycle of

mass flowering and death. Individuals in any one species tend to flower together, once every 10 to 100 years, and then die. [See *next story*.] If a forest is cleared at this time, the bamboo will not grow back.

The report's findings mean the many vulnerable species that rely almost entirely on bamboo for food and shelter, such as lemurs, giant pandas and mountain gorillas, face an even greater struggle for survival. (Source: Helen R. Pilche, *Nature*, 11 May 2004.)

India braces for fallout from flowering bamboos

Northeastern India is gearing up to protect itself from possible famine triggered by a huge surge in the rat population, itself the result of the flowering of bamboo plantations that began in April and is expected to peak in 2007.

Most species of bamboo in India – home to the world's largest bamboo forests – flower simultaneously every 50 years, then set seed and die. In previous years, the simultaneous production of seeds by millions of bamboo plants has caused a surge in the number of seed-eating rodents. The rodents then move to nearby paddy and potato fields in search of food, with a devastating effect on staple crops.

Furthermore, the lack of adequate storage facilities needed to cope with the glut of harvested bamboo in the remote hills of northeastern India means that most of the bamboo that is harvested quickly rots. And the soil, which was previously bound together by bamboo roots, erodes away.

India's Ministry of Environment and Forests has set up two committees to recommend ways to limit crop losses. One has suggested that bamboo is extracted before it flowers, and that mixed vegetation is planted immediately after flowering to stop soil erosion. The second recommends improving harvesting and storage facilities for the extracted bamboo, and removing export restrictions to find additional outlets for harvested bamboo.

In a separate proposal, the Centre for Indian Bamboo Resource and Technology (CIBART) is exploring a pilot project with

the Ministry of Rural Development and Manipur state government, which involves creating a buffer zone – in which bamboo would be completely removed to deter rats – around bamboo-growing villages in the state's Tamenglong district.

CIBART says that in areas in which bamboo has already flowered, the seeds could be collected and immediately planted in the buffer zone. This would limit the number of seeds available to rats and would also reduce the time during which bamboo would not be available to local communities.

Most scientists agree that it is too early to gauge how effective the measures will be. They also agree that a lack of detailed information on bamboo plantations is one of the biggest hurdles in the management of bamboo resources in India.

According to the National Technology Mission on Bamboo Technology and Trade Development, more research is urgently needed into the best way to manage bamboo flowering in a way that provides economic security to those rural people and small-scale industrial workers who depend on bamboo for their livelihood.

The Ministry of Environment and Forests says that 26 million tonnes of bamboo, spread over more than 10 million hectares, will be affected by the imminent bamboo flowering. Only 10 percent of this bamboo grows in accessible areas and can be retrieved for industrial use.

Bamboo last flowered 48 years ago in northeastern India, where Mizoram state was particularly hard hit by widespread crop losses. Famines in 1911–1912 and 1861 in Mizoram have also been linked with bamboo flowering.

The exact reason for the synchronized bamboo flowering is unclear, but some scientists believe that it is triggered by a genetically programmed internal clock. (Source: SciDev.Net Weekly Update, 19–25 April 2004.)

Utilization, marketing and socio-economics of bamboo in Nepal

A recent paper by Chhote Lal Chowdhary explains the current pattern of the



utilization, marketing and socio-economics of bamboo growing in Nepal and its income-generation aspect. Bamboo is one of the most important renewable, natural, fast-growing woody perennials contributing to the rural economy. It is one of the best substitutes for timber since the forest is degrading rapidly in Nepal. Fifty-three species of 12 genera bamboos are reported in Nepal. Bamboos are domesticated in a large number of bamboo farms, with an area of 1.25 to 2.5 ha each, in the eastern Tarai. Natural stands are mixed with deciduous subtropical forest vegetation in the lowland. Bamboo represents 1 to 2 percent of the 12 percent that the forestry sector contributes to the national GDP.

Because of its multiplicity of uses, bamboo has been an important source of income, sustaining the livelihoods of bamboo-grower households, craftworkers and traders. Bamboos are used in more than 180 ways in Nepal, the most popular being house construction, rafters, pillars, fence posts, weaving material and basketry. People in 53 districts manufacture traditional baskets for domestic utilization as well as for sale. The supply of and demand for bamboo and rattan are irregular, demand being about three times the supply.

Some 4 604 buildings were approved for construction from 1989 to 1991 in Kathmandu, Lalitpur and Bhaktapur. At least 25 bamboo culms are required to construct one house; 115 100 would be required to construct all the houses. Since each culm costs NRs 60, the total cost of bamboo would be NRs 6 906 000. The monthly expenditure on bamboo equals NRs 402 057, and the bamboo requirement is approximately 6 700 culms per month.

Despite the wide uses of bamboo in Nepal, the actual status of utilization and commercialization has not yet been explored to its full potential. Bamboo and rattan utilization in Nepal needs promotion of traditional uses with modern technology.

Uses of bamboo

Local name	Scientific name	Diameter	Major uses
Bhalu bans	<i>Dendrocalamus giganteus</i>	≥30	Buckets, water containers, posts
Dhanu bans, Bhalu bans	<i>Bambusa balcooa</i>	12-16	Scaffolding, storage bins, fencing, roofing
Kalo bans, Bhalu bans	<i>Dendrocalamus hookeri</i>	≥8	Small poles, weaving, fodder, construction
Kante bans	<i>Bambusa arundinacea</i>		Construction
Kath bans, Lathi bans	<i>Dendrocalamus strictus</i>	≥7	Rafters, posts, walking sticks, fuel, charcoal, fodder, construction
Koraicho bans	<i>Bambusa oxytenathera</i>		Fencing, construction, weaving
Mal bans	<i>Bambusa nutan</i>	9-12	Construction, fencing, fodder
Nigalo	<i>Drepanostachyum</i> sp.	2-5	Weaving, low-grade shoots, basketry, furniture
Malingo, Nigalo	<i>Drepanostachyum</i>	2-4	Weaving, construction, mats, fodder, sticks
Mokla bans	<i>Bambusa</i> sp.		Construction, woven mats
Nibha bans, Lyas bans	<i>Dendrocalamus pateliaris</i>	≤4	Flutes, weaving
Pahelo bans	<i>Bambusa glauscens</i>	medium	Ornamental uses
Phusre bans, Khasre bans	<i>Dendrocalamus</i> sp.	2-5	Weaving, basketry, fodder
Tama bans, Ban bans, Choya bans	<i>Dendrocalamus hamiltoni</i>	8-10	Multipurpose bamboo: construction, weaving, bamboo shoots (edible)
Tharu bans, Seti bans	<i>Bambusa tulda</i>		Basketry, scaffolding, low-grade weaving

Price of bamboo in its different forms

Type of bamboo	Farmgate price (NRs)	Retail price (eastern Nepal) (NRs)	Kathmandu (NRs)
Weaving bamboo	30	60	100
Construction	25	56	88
Bamboo	43	70	113
Scaffolding	10	26	46

After the Government of Nepal enforced the Forest Policy Act of 1995, a large part of forestlands was handed over to communities for reforestation and utilization. However, the government is unable to meet the administrative, institutional and technical support needed for the successful and timely implementation of the recently enacted policy reforms and institutional mechanisms.

The government should provide strong leadership and financial support to bamboo-based enterprises; the private sector should invest in the bamboo plantations and processing activities; a coordination mechanism should be

developed between growers, collectors and processors; a good marketing infrastructure should be developed; and skills-oriented training should be organized for forestry stakeholders.

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BRAZIL NUTS

Contraband lowers production

The contraband of Brazil nuts leaving Brazil for Bolivia has caused Brazil to lose its position as the world leader in exports of this product. First place has been taken by Bolivia, which has tripled its commerce in Brazil nuts which are being sold in their natural state in the European Union, the United States and Asia. According to the Brazilian Association for Brazil Nut Exports, in 2003 approximately 16 000 tonnes were removed from Brazilian forests and transported across the frontier with Bolivia, at a loss of US\$20 million, which does not include federal tax evasion.

Assisted by Brazilian traders, the Bolivian smugglers enter Brazil through its borders with the states of Acre and Rondonia, where monitoring is almost non-existent. They also operate in the Amazonia territory, principally in the Purus River area – a region that has nuts that have hardly been explored, and where the product is much larger than in other areas. It is due to this difference in size that the Brazilian exporters discovered the smuggled goods. It was noted that Bolivia was selling much larger nuts, similar to those that are found in Acre, while the nuts from Bolivia are small. Although the nut is of good quality, its shell is fragile, making its export more difficult. (Source: *O Liberal*, 25 January 2004 [in *Amazon News*, 29 January 2004].)

Production of Brazil nut decreases

Biscuits, flour, oils, soap, Brazil nut milk, ice-cream and wood: these are some of the products that the seed of the Brazil nut, popularly known as the para nut, could produce when processed. According to the Brazilian Institute of Geography and Statistics (IBGE), the Amazonia region is responsible for 98 percent of the national production of this nut, an activity that employs directly and indirectly one million people in the region. Despite its importance for the regional economy, Brazil nut production

is falling. This year, Bolivia became the world's major exporter of Brazil nuts, a title once held by Brazil.

According to IBGE, total Brazil nut production fell 20 percent between 2000 and 2002. EMBRAPA believes that the decline in production is related to the lack of governmental incentives for extractivist producers and to the organizational problems in the cooperatives, the principal Brazil nut producers.

According to investigators from the University of Campinas, the drop in production could also be related to the deforestation of the Amazonia region and the consequent reduction of areas of Brazil nut plantations to offer space to new cultivars, despite the prohibition on cutting native species. A new cultivar in the area, which is stimulating deforestation, is soybean production. (Source: *ComCiencia*, 15 April 2004 [in *Amazon News*, 22 April 2004].)



Devastation of Brazil nut trees presents challenge to IBAMA

From January to March 2004, agents of the Brazilian Institute for the Environment (IBAMA) in Pará state have confiscated 1 140 m of both processed and trunks of wood of the Brazil nut (popularly known as the para nut) tree. The cutting of this tree species is prohibited by law. However, with an average of three trees per day this year, IBAMA's regional director, Ademir Martins dos Reis, is worried. Pará state is enormous, with 37 municipalities, 281 km² and 1.2 million inhabitants; Reis has 18 agents, but he needs at least 50.

Bertholletia excelsa, whose burs hold the nutritious and valuable Brazil nut, is,

ironically, the most legally protected tree in Amazonia. Notwithstanding that, in the south and southeast of Pará, more than 70 percent of the stock has been destroyed.

EMBRAPA agronomist, Alfredo Homma, describes incalculable socio-environmental prejudice in addition to the reduction in production of the Brazil nut. He states that in 1990 production throughout the Amazonia region reached 50 500 tonnes; in 2000 it fell to 33 400 tonnes; and in 2002 to 27 300 tonnes.

On top of this, the European market (a major consumer) imposed rigid health restrictions in 2000 when, according to the Brazilian Ministry of Agriculture, many batches presented a toxic fungal substance that occurs with incorrect storage procedures and which can provoke vomiting, allergies and, in some cases, cancer.

The continued devastation in the south and southeast of Pará is exacerbating the situation. "Sawmills continue to fell live and dead Brazil nut trees", says Homma.

Maria do Espírito Santo da Silva, president of the Agro-extractivist Small Producers Association, Praia Alta Piranheiras, located about 50 km from Marabá, is one of the majority who are affected. *Bertholletia excelsa* are scattered throughout the 22 000 ha divided between 400 families. Some families that are members of the association continue to sell wood from what should be a sanctuary. Individuals with chainsaws and connections to sawmills visit families and offer \$R 50 per adult tree, and the families accept.

The Mayor, IBAMA and the association believe that the destruction could be deterred but it depends upon a true commitment by the federal government and its plan for Amazonia, with its \$R 349 million budget.

With no solution in sight, dos Reis is donating the confiscated timber to churches, schools, day cares and military bases before it rots. Last year more than 176 trees were donated.

(Source: *O Estado de S. Paulo*, 9 May 2004 [in *Amazon News*, 13 May 2004].)



Ministerio de agricultura del Brasil establece nuevas reglas para la certificación de la castaña

El Ministerio de Agricultura del Brasil publicará en los próximos días un reglamento en el Diario Oficial del Brasil, para establecer las nuevas reglas para la certificación sanitaria de la castaña del Brasil con cáscara. Según el Ministerio, la medida tiene como objetivo atender a los requerimientos que la Comunidad Europea exige para la adopción de nuevos procedimientos técnicos para el manejo de la castaña con cáscara, con el fin de reactivar las exportaciones hacia el mercado europeo, que se encuentran suspendidas desde julio de 2003.

De acuerdo con el Ministerio, el objetivo es prevenir la contaminación por aflatoxina, toxina que puede traer riesgos para la salud del consumidor.

La Unión Europea importa aproximadamente el 65 por ciento de la producción brasilera de las castañas con cáscara. En la última cosecha, la producción total (con cáscara y en almendra) fue de 26 000 toneladas. De esa cantidad, aproximadamente 19 000 toneladas, fueron destinadas al mercado exterior. Se espera que para el 2004 la producción de castaña con cáscara sea de 30 000 toneladas y las exportaciones asciendan a 20 000 toneladas. (*Fuente:* Sitio web de Brasil Ecología [en *Bosques amazónicos virtual*, Año 4, Nº 9].) [*Para más información sobre la castaña del Brasil, véase la pág. 9.*]

BUSHMEAT

Bushmeat commodity chain

Bushmeat, the meat of wild animals, is a highly valuable non-timber forest product in West and Central Africa. The trade in this commodity is currently of great interest to development and conservation agencies, owing to concern over the sustainability of its use and the implications of its loss for poor rural households. Based on semistructured interviews and participant observations undertaken in January and February 2000, the authors of a recent article



describe the bushmeat commodity chain that supplies the city of Sekondi-Takoradi in Ghana. There are five primary actors in the trade: commercial hunters and farmer hunters, all of whom are men based in local rural areas; and wholesalers, market traders and chopbar owners, all of whom are women based in the city. Bushmeat is freely traded between all actors and actor groups, but the main trade route is from commercial hunters to wholesalers to chopbars. Wholesalers are the smallest actor group but handle the largest per capita market share, while chopbars are the most numerous group and together account for 85 percent of retail sales. The costs of participating in the trade appear to be lowest for hunters and highest for chopbar owners. Kin support networks play an important role in minimizing these costs, especially with respect to entry costs (nearly half of all bushmeat traders inherit their business) and labour costs (many employees are family members); kin also assist in other ways, especially through sharing knowledge and supplying credit. Among the urban actors, the bushmeat trade as a whole is perceived as a low-status occupation, although individual reputation remains important. In Takoradi, the bushmeat trade is largely unregulated by either state or local institutions, and there is no evidence of any individual actors or actor groups exerting control over the market. Hunters make significant profits, indicating that the bushmeat trade has the potential to make a substantial economic contribution to rural households. In contrast, urban actors appear to make relatively small profits. Comparison with the existing literature suggests that the structure and

operation of the bushmeat trade in Takoradi is typical of the trade in many other parts of West Africa. (*Source:* Mendelson, S., Cowlshaw, G. & Rowcliffe, J.M. 2003. Anatomy of a bushmeat commodity chain in Takoradi, Ghana. *Journal of Peasant Studies*, 31[1]: 73–100.)

Anthrax now jumps to wild chimpanzees

Anthrax has killed several wild chimpanzees in the tropical rain forest of Côte d'Ivoire – the first time the disease has been seen in these animals and in this type of habitat. As well as threatening great ape populations, the discovery raises fears that the disease could spread to humans through the illegal trade in bushmeat.

"Finding anthrax was a big surprise," says Georg Pauli from the Robert Koch Institute in Berlin, Germany, who studied the primates. There have been no previous reports of anthrax in wild chimpanzees, and the bacterium, which also infects humans and hoofed animals, has not been found in Africa's tropical rain forests before.

The disease could also spread to humans. Although illegal, the bushmeat trade continues to thrive, so hunters could catch anthrax when handling infected corpses. The threat of the disease affecting humans is real with the current levels of illegal bushmeat trade. Although monkey and chimpanzee are not the delicacies in East Africa that they are in West Africa, the proliferation of bushmeat trade in Kenya cannot rule out the presence of these meats in the local outlets.

An ongoing analysis of meat sold in Nairobi markets indicates that more than a third of samples analysed so far are not from beef, mutton or goat. They are from bushmeat. [*See story below.*] The preliminary analysis so far only differentiates between bushmeat and the three mentioned but a further analysis that identifies the bushmeat up to the species level is under way and will be released soon.

The analysis, which is supported by the Kenya Wildlife Coalition, is bound to



send out shockwaves in Kenya's conservation circles, as well as to nyama choma (roasted meat) enthusiasts.

Statistics indicate that after drugs, the bushmeat trade is the second largest illegal trade in the world, worth in excess of US\$5.5 billion. Fifteen million animals are killed each year in the Brazilian Amazon alone.

Statistics indicate that after drugs, bushmeat trade is the second largest illegal trade in the world, worth in excess of US\$5.5 billion.

Forty-four tonnes of bushmeat are consumed in logging camps in Peru.

Ghana trades in approximately US\$260 million worth per annum of bushmeat. Twenty-one tonnes of bushmeat are sold in Ghana in one month at more than US\$50 000.

In Côte d'Ivoire, about US\$117 million is received from the bushmeat trade per year.

In total, 2 million tonnes of illegal bushmeat are harvested each year in Africa, with an estimated 300 000 tonnes being consumed in Kenya.

Nigeria is the largest exporter of bushmeat in Africa, yet it has a low wildlife population and thus may be obtaining the bushmeat from other countries.

Wildlife experts fear that the trade is getting out of the hands of poor people and is financed by fairly wealthy people. The bushmeat trade is now recognized as a major direct cause of wildlife decline in eastern and southern Africa.

A recent survey shows that 58 percent of Kenya's wildlife has been lost in the last 20 years and most of this is attributed to the bushmeat trade. (Source: *The Nation* [Nairobi], 29 July 2004.)



Beware, that juicy meat could be from the bush!

The chances of the sizzling, mouth-watering meat served to Nairobi's residents being from wild game are as high as 30 percent, a report revealed yesterday. And the experts who carried out the survey say they do not know from what animal species the meats used in their samples were extracted.

The survey, conducted by a youth lobby, Youth For Conservation (YFC), and the Kenya Wildlife Service (KWS), showed that Nairobians unknowingly buy bushmeat from butchers across the city. According to the report, 25 percent of the meat being sold is bushmeat, while 19 percent is domestic meat mixed with bushmeat. It further states that only 42 percent of the meat is domestic meat, while 13 percent could not be identified.

This shocking report was developed and funded by the globally renowned Born Free Foundation of the United Kingdom.

The report says it is vital to educate Kenyans on the impacts of the bushmeat trade and its effects on people's health and the wildlife.

The YFC will now start to identify the specific animals from which the meats are extracted in order to determine the areas from which the animals were poached. (Source: *The East African Standard* [Nairobi], 10 November 2004.)

AIDS warning over bushmeat trade

A study of African hunters has shown that a virus similar to HIV has passed from apes to humans from bushmeat of the kind that is being sold illegally in the United Kingdom.

A leading scientist has told the BBC File On 4 programme that the virus was probably passed on to tribespeople via body fluids when the animals were slaughtered and butchered. Assistant Professor Nathan Wolfe, who tested more than 1 000 hunters for Johns Hopkins University, United States, found a retrovirus from the same family as HIV in a number of them.

Although the full public health implications are still unknown, the fear is

that the new virus could result in a new disease which would have global impact.

United Kingdom imports. The File On 4 team accompanied environmental health officers to spot inspections at London shops where they found illegal bushmeat from West and Central Africa. About five million tonnes of bushmeat, originating from animals such as antelope, snakes, gorillas and elephants, is eaten in these regions of Africa every year. It is estimated that 12 000 tonnes of all manner of illegal meat is smuggled into the United Kingdom annually, a significant proportion of which is thought likely to be bushmeat. There may also be serious implications for the health of British domestic livestock as the foot-and-mouth outbreak was linked to illegal meat imports in 2001.

Under cover. Posing as rich white loggers and accompanied by an undercover worker from the Last Great Ape project, File On 4 journalists travelled to Cameroon where pygmy hunters offered to kill gorillas, seen as the best meat. All they wanted in return was the ammunition and the meat of the gorilla to eat. One pygmy said they had lost count of the number of gorillas they had killed. Abject poverty forces such hunters to kill any animal, no matter how rare or unfit for human consumption, and transport it out of the country through black markets.

It is not known whether anybody has become sick from the virus. (Source: File On 4, BBC, 26 October 2004.)

Fewer fish means more bushmeat eaten in Ghana

Declines in fish catches lead directly to increased hunting and consumption of wildlife, according to a study published on 12 November in *Science*. The research shows that unsustainable fishing practices can have far-reaching consequences for poverty alleviation, food security and biodiversity conservation.

By comparing fish catches in Ghana between 1970 and 1998 with mammal



populations in six of the country's nature reserves, researchers from Ghana, Canada, the United Kingdom and the United States found that when fish were plentiful, mammal populations increased. When fish were scarce, the numbers of mammals fell.

The increased consumption of bushmeat in apparent compensation for declines in other foods has long been suspected, but this is the first time this "protein limitation hypothesis" has been tested. It suggests that wildlife is not consumed as a luxury good but as an essential source of protein in Ghana.

"Bushmeat is an important contributor to household income and food supply not only in much of Africa but also in South and Central America, and parts of Asia," says Justin Brashares, lead author of the *Science* paper. "Ongoing work in other parts of West and Central Africa and the Americas and Asia suggests a strong link between fish supply and people's reliance on wildlife on land for food and income." (Source: *Science* 306: 1180 [2004], in [SciDev.Net Weekly Update, 8-14 November 2004].)

Hunting to extinction

The project "Hunting to extinction: addressing the threat of the bushmeat trade to wildlife in the Upper Guinea Forest" was carried out by Conservation International from January 2001 to April 2004. The project has been extremely successful in increasing the public's awareness of the crisis created by the bushmeat trade for biodiversity conservation in the country. It established a National Stakeholders task force which mobilized stakeholders (chiefs, elders, non-governmental organizations, government officials, bushmeat traders and representatives of development organizations) to adopt a concerted effort and a multifaceted approach to deal with the crisis. During the National Conference on the bushmeat crisis, stakeholders adopted a National Bushmeat Extinction Declaration as a guiding principle for the conservation of wildlife in Ghana, which is now known as the Accra Declaration.

The project has been instrumental in

the drafting of new legislation to control bushmeat trade and indiscriminate hunting which is currently under parliamentary review.

Owing to research conducted by the project, and results publicized through national media campaigns, the general public has now been alerted to the public health implications of consuming bushmeat caught with pesticides, and has reduced public demand.

Project reports and resource documents are available upon request. (Source: CEPF E-News, November 2004.)

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CAMU CAMU



Camu camu (*Myrciaria* spp.)

El camu camu ya es fruta de exportación
 ¿Sabía Usted que el camu camu (*Myrciaria dubia*), una fruta exótica de la Amazonía, contiene entre 40 y 60 veces más vitamina C que el limón y la naranja?

Es gracias a esta cualidad que el camu camu se sitúa en los últimos tiempos como el producto estrella de la exportación agroindustrial del Perú y se está abriendo paso en el competitivo mercado internacional sobre todo porque se trata de la mayor fuente natural de vitamina C.

Durante los primeros cuatro meses del presente año las exportaciones de esta fruta se incrementaron en más del 96 por ciento, si se comparan las ventas registradas el mismo período del 2003. Entre enero y mayo del 2003 las exportaciones ascendieron a 137 544 dólares EE.UU. En el mismo período del 2004, totalizaron 269 261 dólares.

Múltiples propiedades

Esta fruta no sólo tiene demanda por su alta concentración de vitamina C, sino también por sus propiedades para la prevención del cáncer. Además se la utiliza en la industria para la elaboración de jugos naturales.

El país que concentra la mayor demanda es el Japón. El 91 por ciento del producto exportado entre enero y mayo de este año va a ese país. El segundo importador es Estados Unidos, seguido de Alemania.

"Las cifras son alentadoras y significa que hay un interés creciente en el mercado internacional. Los análisis e investigaciones que realizan estos países están dando resultados positivos con relación a este producto", afirma José Ordóñez Chávez, gerente del sector agro de la Asociación de Exportadores (ADEX).

¿Y el valor agregado?

Ordóñez Chávez sostiene que el producto está en proceso de "despegue", pero que aún hace falta exportar el camu camu con mayor valor agregado. En la actualidad la producción de camu camu en pulpa o en polvo destinado a la exportación se limita a unas diez empresas.

Ello evidencia que falta más trabajo conjunto y coordinación comercial entre los Ministerios de Agricultura, Relaciones Exteriores y los productores. Sin embargo, las propias empresas buscan nuevos mercados.

Se estima que en la región Loreto se cultivan aproximadamente 630 hectáreas de camu camu. En la región Ucayali se prevé la producción de 133 hectáreas, según información del Cite Frutas y Plantas de Loreto, una asociación



conformada por el Instituto de Investigaciones de la Amazonía Peruana (IIAP) y el Ministerio de la Producción.

Comercialización

El camu camu de Loreto es vendido como fruta fresca en los centros de abastos de la zona. En Iquitos se lo consume principalmente en refrescos, chupetes, mermelada y néctar. Los rendimientos varían según la edad de la plantación y el manejo del cultivo. Las plantaciones tienen un rendimiento de entre una y dos toneladas por hectárea. El objetivo primordial ahora es el de articular la oferta con la demanda.

(Por: Rossana Manrique, según el Diario *La República*.) (Fuente: *Bosques amazónicos virtual*, Año 4, N° 11.)

Camu camu (*Myrciaria* spp.): a conservation and development issue in Peru

Camu camu is a small tree native to the wetlands of the Amazon Basin. It is especially abundant in the Peruvian Amazonia. Although very high in vitamin C, until recently camu camu was used almost exclusively in Peru as fish bait and a convenient source of fuelwood when dead. The fruit is now popular in drinks, popsicles, sweets and even cosmetics. Trees of this genus can also grow to be very large (e.g. the "shahuinto" variety). Camu camu fruit pulp is exported from Peru, with most of it going to Japan.

As most *Myrciaria dubia* has at least 2 700 mg of ascorbic acid per 100 g of fruit, this small tree has been planted in experimental agroforestry systems since the 1960s. Some *riberaños* were also planting it on their own because it soon had a demand in urban markets. Large-scale planting has now begun throughout the region owing to the current export of the fruit. However, the results of recent planting programmes have often been poor. Many non-governmental organization projects have been overly concerned about signing up large numbers of people and quickly planting fields in order to impress funding agencies and governments with the number of plants and participants. Meanwhile, poor

execution of the projects and a lack of proper field maintenance have limited fruit production from projects with communities in the region of Loreto. At the same time, the harvesting of wild camu camu has increased in intensity.

There is concern over how much harvesting the wild stands can endure. Fish, such as the large *Colossoma macropomum* (gamitana, tambaqui) feed on the fruits, and they have disappeared from places where camu camu fruit is no longer available to them. Sustained and equitable programmes are needed to assist the people with the cultivation and management of camu camu. Unfortunately, discrimination against rural people of the Amazon frequently ruins conservation and development plans.

In spite of the current situation, there is reason to be optimistic. Camu camu is relatively easy to cultivate, and in six years can bring excellent returns. If prices for the fruit remain high, more rural people will dedicate their time and efforts to growing camu camu. As is the case with aguaje (*Mauritia flexuosa*), camu camu is becoming an important component of floodplain agroforestry systems in the region of Loreto, Peru. Meanwhile, there is a need to improve extension work, as well as access to processing facilities and markets. (Source: Rainforest Conservation Fund, www.rainforestconservation.org/articles/camu-camu.html)

Camu camu: la Unión Europea y otros cooperantes internacionales

La Unión Europea y otros cooperantes internacionales impulsan la cadena productiva del camu camu (*Myrciaria dubia*), mediante el «Programa integral para el aprovechamiento sostenible del camu camu en cuencas seleccionadas del departamento de Loreto». La Unión Europea en alianza estratégica con Agro Acción Alemana, CESVI de Italia e Hivos de Holanda se proponen así impulsar uno de los recursos de la biodiversidad amazónica con mayores perspectivas en los mercados internacionales. Esta fruta, además de otras propiedades medicinales, posee 30 veces más vitamina C que el limón.

El monto de financiamiento de este importante proyecto para el desarrollo de la Amazonía asciende a 1 164 084 Euros. La ejecución está a cargo del Centro de Desarrollo para la Competitividad de la Amazonía (CEDECAM), organización que tiene como misión formular y ejecutar proyectos de desarrollo con enfoque de sostenibilidad.

La principal característica de este proyecto es su enfoque integral orientado a desarrollar la cadena de valor de un producto altamente aceptado a nivel internacional. La concepción integral del proyecto se sustenta en apoyar los temas clave en las tres fases de la cadena productiva: agrícola, industrial y comercial. En la primera etapa, se promoverá una sólida, homogénea y permanente oferta exportable de la fruta. En la siguiente fase, se preocupará de generar valor agregado para ser competitivos. Finalmente, se buscará posicionar el camu camu en el mercado nacional e internacional.

Es proyecto constituye una valiosa oportunidad pero al mismo tiempo un reto. Una oportunidad, porque ofrece a los agricultores e instituciones directamente vinculadas a este cultivo la posibilidad de utilizar eficientemente los recursos económicos y materiales disponibles; de formar alianzas estratégicas con inversionistas e instituciones internacionales académicas; y de investigación, a fin de superar los cuellos de botella que confronta el camu camu y que actualmente impiden su despegue. Un reto porque coloca a los beneficiarios y los agentes económicos involucrados en la cadena productiva frente al desafío de realizar los mejores esfuerzos para, de una vez por todas, comercializar el camu camu en sus diferentes formas tanto en el mercado nacional como en el internacional.

Sin duda alguna, por su magnitud y trascendencia, el proyecto dinamizará la economía regional, especialmente en los caseríos que se dedican a este cultivo en las cuencas de los ríos Ucayali, Napo, Mazán y otros. (Fuente: *Bosques amazónicos virtual*, Año 4, N° 16 [mateluf@terra.com.pe].)



GUM ARABIC

Nigeria export to United States begins
Jigawa Gum Arabic Processing Company has concluded arrangements to export more than 120 tonnes of gum arabic to the United States. Some 145 professionals in 15 local government areas of the state have already commenced tapping the product.

The Managing Director of the company, Alhaji Imam Mohammed, said the state expected more than US\$240 000 from the sale of the product. He said efforts were being made to secure new agreements with more United States companies to supply gum arabic. Mohammed commended the renewed interest of the Jigawa government in expanding gum arabic plantations. He said the plantations would earn the government foreign exchange and help curb desert encroachment.

The company has already set up a gum arabic processing laboratory with the assistance of USAID. (Source: *This Day* [Lagos], 20 October 2004.)

Uganda may export gum to the United States

Uganda may benefit from the export of gum arabic to the United States under the African Growth Opportunity Act (AGOA) if the samples there pass the functionality tests. The success of the tests will open an automatic door for Uganda to export directly to the United States duty- and quota-free market under AGOA.

This information is contained in a paper by Ugandan scientists (Dr W. Kakuru of ICRAF, Mr J. Okorio of the Forestry Resources Research Institute [FORRI] and Mr C. Okia of the Uganda Agroforestry Development Network), entitled "Agroforestry development in Uganda's drylands". which was presented recently at a workshop at the International Center for Research in Agroforestry (ICRAF) in Nairobi. According to the paper, it has been confirmed that Uganda has reasonable quantities of *Acacia senegal* and *Acacia seyal* trees used for

the production of gum arabic, which is in high demand in the United States.

The trees grow in the wild in Uganda's dryland regions, especially in Teso and Karamoja, stretching up to the Sudan. The trees grow in about 36 districts of northern, southwestern and central Uganda, most of which are relatively dry areas. (Source: *The Monitor* [Kampala], 18 October 2004.)



Acacia senegal (gum arabic)

MEDICINAL PLANTS

Sutherlandia frutescens

With its scarlet flowers and strange, swollen seed pods, the so-called "cancer bush" is a distinctive plant in the three Cape provinces of South Africa. It is an attractive small shrub, with silvery-grey foliage and is cultivated as a popular garden plant in many countries around the world.

This plant has been used as a traditional medicine for hundreds of years, but it is only recently that its true pharmacological values have come to light. The Khoi and Nama people of the southwestern Cape and Karoo used parts of this plant to treat fevers and other ailments, and its medicinal uses were quickly adopted by the Dutch settlers. The traditional procedure has been to boil the leaves, or other parts of the *Sutherlandia* plant, to make a decoction or powdered herb. A modern and commercially available product, Promune, claims to be the first supplement made from the extract of the plant rather than from the powder, for it is known that plant extract is many times more concentrated than dried particles.

Studies by the Medical Research Council of South Africa and other bodies have demonstrated that *Sutherlandia*

extract is safe, and that it is almost certainly the most profound and multipurpose of the medicinal plants in southern Africa. Taken as a tonic, *Sutherlandia* assists the human body to mobilize its own resources to cope with diverse physical and mental stresses. Because it boosts the immune system, it can assist those suffering from cancer and tuberculosis, and is also being increasingly used by people with AIDS. One particular compound in the plant – pinitol – has a hypoglycaemic effect with the ability to reduce blood sugar levels, and can therefore benefit diabetics. The tonic is also widely used to treat chronic fatigue syndrome and "yuppie flu".

Sutherlandia is inextricably linked to the natural habitat in which it has evolved, where it is pollinated by sunbirds and carpenter bees. Although it is now cultivated, the future viability of domesticated stock is likely to rely on the genetic make-up of wild plants. We need, therefore, to recognize that representative areas of natural habitats should be conserved worldwide, not only for the wild species we know that are there, but also for the potential values which exist in species that remain to be studied. (Source: *WildWatch*, 21 May 2004 [on African Conservation Forums Web site, www.africanconservation.org/dcforum/DCForumID27/29.html].)

Cancer bush has medicinal properties

An indigenous plant used for centuries as a tonic and treatment for cancer has been scientifically shown to have medicinal properties, according to researchers.

Two independent studies at South African universities have demonstrated the stress-relieving and anti-oxidant properties of *Sutherlandia frutescens*, otherwise known as the cancer bush, "the one that dispels darkness", said Phyto Nova, a company that produces medicines from the plant.

"The plant is very variable. It grows wild all over the country," said botany professor and medicinal plant expert Ben-Erik van Wyk. He said the particular strain used in the research had been



developed by his company from plants that had been cultivated for medicine for many generations. This strain (*Sutherlandia* SU1) is already available at pharmacies and health stores, costing about R 35 to R 50 for a month's treatment. It had been tested and shown to be safe by the Medical Research Council, van Wyk said.

Medicines made from the small red-flowered legume are used by people from many different cultures, and there are several companies that produce, and even export, *Sutherlandia* products.

However, until these two studies, and another study by Canadian researchers, were accepted for publication earlier this year, there was no scientific evidence of the plant's curative effect. (Source: *Sapa*, 15 November 2004 [on African Conservation Forums Web site].)

Namibia seeks to commercialize hoodia

Namibia has requested CITES to list the Carrion Flower (*hoodia*) in Appendix II, to enable it to sell the natural resource. Plants and animal species classified in the Convention on International Trade In Endangered Species of Wild Fauna and Flora (CITES) Appendix II can be sold in controlled commercial trade. Appendix I contains highly endangered species and no trade in them is allowed.

Namibia made the proposal as *hoodia* was not at present listed at all. Botswana and South Africa have also made the same proposal.

Hoodia has appetite-suppressing properties and is found only in the arid regions of Namibia, Botswana and South Africa. It has dominated discussions in the pharmaceutical industry in Europe and the United States over the past five years.

In February, the Environment Minister told a CITES' Plants Committee in Windhoek that Namibia was conducting cultivation trials to get small-scale farmers involved in the growing of *hoodia* for commercial purposes. He said that the cultivation of *hoodia* for commercial purposes would reduce the pressure on wild harvesting and prevent overutilization. (Source: *The Namibian* [Windhoek], 3 June 2004.)

Research confirms medicinal promise of Kenyan plants

Kenyan plants used in traditional herbal medicine are showing promising medicinal properties in scientific assessments of their ability to treat diseases such as herpes and malaria, according to presentations made at the 25th African Health Science Congress in Nairobi earlier this month (4–8 October).

The Kenya Medical Research Institute (KEMRI) is assessing how two Kenyan medicinal plants work against the herpes simplex virus (HSV). When the researchers treated mice with extracts from the African cherry (*Prunus africana*) and the chinaberry (*Melia azedarach*) trees, then infected them with HSV, both infection and disease progression were slower than in untreated mice.

KEMRI scientists are also investigating the antimalarial effects of other Kenyan medicinal plants, either alone or in combination with chloroquine – the drug widely used to treat the disease in Africa.

KEMRI's researchers have screened 60 extracts of 11 plants, used for the control of malaria by local communities in Kenya's Kisii district, for activity against the malaria parasite. Four plants – *Ekebergia capensis*, *Stephania abyssinica*, *Ajuga remota* and *Clerodendrum myricoides* – gave encouraging results against both chloroquine-sensitive and chloroquine-resistant strains of the parasite. In later studies, the researchers found that using extracts of *E. capensis* and *C. myricoides* in combination with chloroquine was more effective than using the drug on its own.

KEMRI's researchers are continuing to document and collect data on medicinal plants used in areas of Kenya where malaria is endemic. (Source: *SciDev.Net Weekly Update*, 18–24 October 2004.)



Prunus africana

HIV research in danger

The Head of the Virology Department at the Noguchi Memorial Institute for Medical Research (NMIMR), Ghana, Professor Nana Kofi Ayisi has warned that he is closing research on eight Ghanaian medicinal plants which have the potential of being developed into an HIV and other sexually transmitted infections preventive drug as a result of lack of funding.

He said that although USAID funded the initial research that led to the discovery of the plants, further funding which will make clinical research possible had not been forthcoming. He also said he had to abandon a patent right he was pursuing for the drugs after spending US\$7 000 of his own money in vain.

Prof. Ayisi said the eight selected plants include: *Ficus polita* – HIV, HSV, GHX-36-HIV, HVS; *Ocimum gratissimum* – HIV, HVS; *Alchornea cordifolia* – HIV, HVS; and *Elaeophorbium drupifera* – HIV. Three of them, he said, have the potential of being developed into vaginal microbicides which is widely accepted as the best form of HIV and vaginal herpes prevention.

Prof. Ayisi, who is also an expert in microbiology and toxicology, said that big pharmaceutical companies are making millions out of a single drug that is discovered. Although the research now appears to be expensive, only societies that invest in science will reap from the benefits of science. "It is not an exaggeration to say that a single medicinal plant that is moved into mainstream medical practice has the potential to pay for the entire health budget of the nation and make the cash and carry system redundant," he said. "We owe it to ourselves, our country and our children yet unborn to develop our medicinal plants," Prof. Ayisi said, adding, "We are losing our forests and plants at a faster rate and the people with knowledge in medicinal plants are dying without leaving any knowledge behind." (Source: *Public Agenda* [Accra], 26 April 2004.)

Treating malaria with herbal medicines

More than 1 200 plants are used to treat malaria and fevers, and the two main



WILD HARVESTING VERSUS CULTIVATION OF MEDICINAL AND AROMATIC PLANTS

A summary of: ▲ advantages; ▼ disadvantages.

FOR SPECIES AND ECOSYSTEMS IT IS BETTER TO...

WILD HARVEST BECAUSE...	CULTIVATE BECAUSE...
<ul style="list-style-type: none"> ▲ it puts wild plant populations in the continuing interest of local people ▲ it provides an incentive to protect and maintain wild populations and their habitats and the genetic diversity of MAP populations but... ▼ uncontrolled harvesting may lead to the extinction of ecotypes and even species ▼ common access to the resource makes it difficult to adhere to quotas and the precautionary principle ▼ in most cases knowledge about the biology of the resource is poor and the annual sustained yields are not known ▼ in most cases resource inventories and accompanying management plans do not exist 	<ul style="list-style-type: none"> ▲ it relieves harvesting pressure on very rare and slow-growing species which are most susceptible to threat but... ▼ it devaluates wild plant resources and their habitats economically and reduces the incentive to conserve ecosystems ▼ it narrows the genetic diversity of the gene pool of the resource because wild relatives of cultivated species become neglected ▼ it may lead to conversion of habitat for cultivation ▼ cultivated species may become invasive and have negative impacts on the ecosystem ▼ reintroducing plants can lead to genetic pollution of wild populations

THE MARKET DEMANDS...

WILD HARVESTED PLANTS BECAUSE...	CULTIVATED MATERIAL BECAUSE...
<ul style="list-style-type: none"> ▲ they are cheaper since they do not require infrastructure and investment ▲ many species are only required in small quantities that do not make cultivation economically viable ▲ for some plant parts extra-large cultivation areas are required (e.g. arnica production for flowers) ▲ successful cultivation techniques do not exist, e.g. for slow-growing, habitat-specific taxa ▲ no pesticides are used ▲ it is often believed that wild plants are more powerful but... ▼ there is a risk of adulterations ▼ there is a risk of contaminations through non-hygienic harvest or post-harvest conditions 	<ul style="list-style-type: none"> ▲ it guarantees a continuing supply of raw material ▲ it makes reliable botanical identification possible ▲ genotypes can be standardized or improved ▲ quality standards are easy to maintain ▲ controlled post-harvest handling is possible ▲ production volume and price can be agreed for longer periods ▲ resource price is relatively stable over time certification as organic production is possible but... ▼ it is more expensive than wild harvest ▼ it needs substantial investment before and during production

FROM A PEOPLE'S PERSPECTIVE IT IS BETTER TO...

WILD HARVEST BECAUSE...	CULTIVATE BECAUSE...
<ul style="list-style-type: none"> ▲ it provides access to cash income without prior investment ▲ it provides herbal medicines for health care needs ▲ it maintains the resources for rural populations on a long-term basis (if done sustainably) but... ▼ unclear land rights create ownership problems ▼ this income and health care resource is becoming scarce through overharvesting 	<ul style="list-style-type: none"> ▲ it secures a steady supply of herbal medicines (home gardens) ▲ it provides in-country value-adding but... ▼ capital investment for small farmers is high ▼ competition from large-scale production puts pressure on small farmers and on wild harvesters ▼ benefits are made elsewhere and traditional resource users have no benefit return (IPR)

(Source: Schippmann, U., Leaman, D.J. & Cunningham, A.B. 2003. Impact of cultivation and gathering of medicinal plants on biodiversity: global trends and issues. In FAO. *Biodiversity and the ecosystem approach in agriculture, forestry and fisheries*. Rome, FAO [www.fao.org/DOCREP/005/Y4586E/y4586e08.htm#P1_0].)



sources of antimalarial drugs used today are derived from plants that have been used traditionally for hundreds or thousands of years.

In an article in the *British Medical Journal*, Merlin L. Willcox and Gerard Bodeker provide an overview of research on herbal medicines used to treat malaria. Few trials of antimalarial plants have been conducted, and studies often do not have enough detail on how medicines are prepared or sufficient data on the efficacy of such plants. Although most studies provide little information on side effects, some patients in one trial stopped the treatment because of minor side effects.

Prioritizing species for future research can be facilitated using the researchers' "Ivml" index of how widely used different plants are. This allowed the identification of 11 species of plants used to treat malaria in all three tropical regions – Latin America, Africa and Asia. Although such plants may be the best targets for future research, the authors suggest that variations between formulations of individual remedies – rather than the species they are derived from – should also be considered. (Source: *British Medical Journal* [in SciDev.Net Weekly Update, 8–14 November 2004].)

Nepal's Maoist insurgent movement has apparently funded rebel activities with profits from products such as marijuana and medicinal herbs harvested in forest lands. (Source: Taylor, D. 2004. Abuse, scarcity and insecurity. *Environmental Health Perspectives*, 112[3]: 172–175.)

Back to medicinal roots in Hawaii

There was a time when someone's backyard, including the mountains and wild pastures beyond, was the common person's pharmacy, says Malcolm Naea Chun, a translator of Hawaiian historical documents and a cultural specialist at the University of Hawaii-Manoa College of Education and the Department of Education Pihana na Mamo programme.

Almost 20 years ago, Chun discovered a treasure trove of native plant potions. The original records of

these remedies were written in longhand and stashed in an old cardboard box in the Office of Hawaiian Health.

His main reason for translating these documents was not to publish recipes for people to try, but to "show how earlier generations and native Hawaiians used these plants," he said. But it takes more than just learning the language to translate them [the documents], Chun said. "You have to know the culture to get an understanding of what the writer meant. People today would find the language secretive, esoteric and boring. But it's our culture, and if we don't understand it, it will be lost forever."

The publication of Chun's three-volume series, based on work by three authors, releases "primary source material, never published before for the general public."

"Native Hawaiian Medicine Vol. III", written by the Rev. David Kaluna M. Ka'aiakamanu, of Kipahulu, Maui, from 1917 to 1921, is the last in Chun's translated series. It is the culmination of work that he began on an old-fashioned typewriter in 1990. (Extracted from: Starbulletin.com, 5 July 2004.)

Amazonia loses medicinal plants and knowledge

Chainsaws that advance into the Amazonia forest not only knock down trees. With the loss of plants, knowledge about them, principally their medicinal characteristics, is also being lost. This has been confirmed by researchers from the Federal University at Minas Gerais, Brazil, who are comparing two studies, one conducted in 1984 and the other in 2001, on the use of medicinal plants, specifically those used against malaria, for the population in the south of Pará state.

According to one of the study's authors, through deforestation Brazil is losing a wealth of which no one is aware of the dimensions. "We are not only talking about material wealth, our work has shown that we are also actually losing the culture/knowledge related to these medicinal plants," the author stated. "For us it was horrendous to confirm that in such a short period of

time they no longer know the medicinal plants of the region." The intention was to collect more data and samples of plants that were used against malaria. "But there was nothing left. When the plants disappear, traditional knowledge becomes forgotten. Future generations do not learn about their properties", the study concluded. (Source: *O Estado de S. Paulo*, 9 August 2004 [in *Amazon News*, 12 August 2004].)

Amapá offers treatment with medicinal plants

Amapá (Brazil) is one of the four federal states that have an agency dedicated exclusively to the use of natural medicine – the Reference Centre for Natural Treatment (CRTN). The centre will take patients referred by public and private hospitals and from health centres. Local people testify the great success of home remedies using natural medicines. When asked about the CRTN, one interviewee responded, "We cannot underestimate nature. This Centre is good. What are we without nature?" (Source: *Diário do Amapá*, 13 May 2004 [in *Amazon News*, 20 May 2004].)

MUSHROOMS



Matsutake and exports to Japan

In Japan, *Tricholoma matsutake* is highly regarded and eating ceremonies are culturally important. Originally collected from Japan's forests, production declined steeply in the 1980s. The search for new sources identified American matsutake (*Tricholoma magnivelare*) as an acceptable substitute and it was quickly realized that substantial amounts could be harvested from the Pacific northwest of North America, where local use was minimal. The burgeoning trade with

PRODUCTS AND MARKETS



Japan coincided with a downturn in jobs in logging and timber extraction. Export businesses based on *T. matsutake* have also been established in Sichuan, China, Bhutan and notably the Democratic People's Republic of Korea.

Exports of *T. magnivelare* and other closely related species occur from North Africa, Turkey and Mexico, but details are sketchy. The amounts earned by these countries are small compared with Asia and North America. The prices paid by the Japanese vary considerably depending on the available supply each year and the quality of mushrooms when they arrive at market.

Matsutake is particularly valuable at an early stage of development and this requires careful searching in the upper humus layers of forests. Some collectors are not so careful: they rake the ground to uncover emerging fruit bodies, damaging the humus layer and affecting future harvests.

Matsutake is a mycorrhizal fungus and efforts have been made to "manage" natural ecosystems in the Republic of Korea and North America in an attempt to maximize production. Annual yields are still heavily influenced by available rainfall and ambient temperature at key times during the year. (*Source: Wild edible fungi. A global overview of their use and importance to people.* FAO, Rome [2004].)

United States mushroom pickers protesting plummeting prices

Matsutake mushroom pickers in Oregon, United States are protesting plummeting prices for the delicacy by staying off the job for five days. Their hope is they can turn back a global economic tide that has pushed down the price they receive from local buyers to US\$3 a pound (405 g) from about US\$30 two weeks ago. The matsutakes retail for US\$35 to \$45 a pound in United States markets, and more in Japan.

A good picker can harvest anywhere from 5 to 20 pounds (2 to 8 kg) of the firm, white mushrooms daily, bringing good money in normal times and small fortunes when prices hit the hundreds of dollars a pound, as they have in years past.

It is unclear whether the walkout can make a difference. Buyers contend they simply take their marching orders from bosses whose eyes are fixed on the Japanese auction markets, where the global price of matsutakes is set. A global glut of matsutakes has forced down prices, they say.

Cheap supplies of matsutakes are available from China, the Korean peninsula and British Columbia.

The pickers' protest appears to be unprecedented, said Denise Smith, director of the Alliance for Forest Workers and Harvesters, a Californian group that advocates fair treatment of harvesters. (*Source: SF-Gate.com, 28 September 2004.*)

Mushrooms offer opportunities in Africa

African communities are growing mushrooms and harvesting seaweed, water hyacinth and other biological resources that were ignored or considered waste as part of an effort to improve livelihoods and help conserve the environment.

The United Nations Development Programme ZERI regional project on sustainable development from Africa's biodiversity, based at the University of Namibia, is promoting these activities. It is based on the Zero Emissions Research Initiative (ZERI) pioneered at the United Nations University, which has focused on using waste products as raw materials.

Namibia's President Sam Nujoma calls the concept a "win-win situation, where the private sector will improve their profits and even create new employment opportunities, while at the same time contributing to the sustainable conservation of our environment." He spoke at a recent donor conference in Windhoek, the capital, to discuss the project's next phase. Namibia has hosted the project since 2001. Other participating countries are Gambia, Lesotho, Malawi, Senegal, Swaziland, the United Republic of Tanzania and Zambia.

The project provided training in mushroom growing, mainly for women, leading to profitable businesses in

Namibia, the United Republic of Tanzania and Zambia that supply mushrooms to local markets, restaurants and hotels. Communities in Zambia are gathering water hyacinths and exchanging them for banana and orange seedlings. A ZERI pilot project with the University of Zambia and other partners is showing how the hyacinths, rich in nutrients, can be made into fertilizer and used for growing mushrooms.

For its next phase, the project is looking at other potential resources such as ganoderma mushrooms for medication to strengthen the immune system, possibly for treating HIV/AIDS. *Termitomyces titanicus*, the world's largest umbrella mushroom, with an edible cap up to one metre in diameter, and the edible goliath frog, the largest in the world, from the Congo region could become marketable products.

The project's emphasis on improving livelihoods makes it an effective instrument for reinforcing democratization, economic reform and poverty reduction, the president said. (*Source: Newsfront [newsfront@undp.org], 11 May 2004.*)

Giant mushroom baffles experts in the Republic of the Congo

A giant three-tiered mushroom, which measures one metre across, was found in the tropical forests of the Republic of the Congo. The giant fungus stands 45 cm high and has three tiered caps on top of a broad stem. The bottom cap measures one metre across, the second one 60 cm and the top one is 24 cm wide. "It's the first time we've ever seen a mushroom like this so it's difficult for us to classify. But we are going to determine what it is scientifically," said the head of the Congolese veterinary and zoology centre.

The bizarre-looking mushroom was found in the village of Mvoula about 60 km from Brazzaville and transported carefully to the capital by the local chief. (*Source: Planet Ark, 5 June 2004.*)

Scientists discover Europe's largest fungus
Swiss scientists have discovered what they believe is Europe's biggest fungus, stretching wide under an Alpine forest.



The "honey mushroom", also known by its Latin species name *Armillaria ostoyae*, was found lurking in the Engadine national park in the eastern Swiss Alps, said the Federal Institute for Forest, Snow and Landscape Research. Spanning 35 ha (86 acres), the fungus is believed to be 1 000 years old, the institute added.

The underground fungus is only visible in the autumn, when its mushrooms break through the earth and grow around the roots of trees, the institute said.

Although harmless to humans – its mushrooms are edible – the parasitic fungus can colonize trees, killing off swaths of pine forest.

In terms of size, the Swiss fungus is beaten by another honey mushroom growing in the United States. Found in the Malheur National Forest, in eastern Oregon, that fungus covers 890 ha (2 200 acres) – making it the largest living organism ever discovered. (Source: *Associated Press*, quoted in *Daily Times* [Pakistan], 28 September 2004.)

RESINS



Nouveau procédé de gemmage – «le gemmage en vase clos» – dans le cadre du développement durable des forêts de résineux

Le développement durable, dont l'origine du principe remonte à la Conférence de Stockholm de 1972 sur le développement humain, a été bien défini en 1987 dans le rapport Brundtland.

Il s'agit «d'un développement qui satisfait les besoins du présent sans compromettre l'aptitude des générations futures à satisfaire leur propre besoin».

Comment peut-on appliquer le principe de développement durable dans

l'exploitation des forêts de résineux formées de différentes espèces de pins?

Le pin fournit comme tous les arbres du bois pour différentes utilisations (bois d'œuvre, de chauffage et pour le charbon), mais il a également la particularité de produire de la résine. Ces deux possibilités de production (bois et résine) firent appeler le pin maritime «arbre d'or» en France au 20^{ème} siècle.

La production de résine par le pin provient d'une blessure («la pique») faite à l'arbre. La réalisation de cette blessure et le ramassage de la résine produite s'appellent «le gemmage».

La production de résine est indispensable aux grands pays industriels comme l'Union Européenne, les États-Unis, le Japon et la République de Corée.

Cette production est assurée dans de nombreux pays par le gemmage de plusieurs espèces de pins.

Ainsi sont gemmés actuellement d'après la FAO:

le pin maritime – au Portugal et en Espagne;

le pin sylvestre – en Pologne, Bulgarie, dans l'ex-Tchécoslovaquie, dans l'ex-Yougoslavie et dans la Fédération de Russie;

le pin halepensis – en Grèce;

le pin oocarpa – au Mexique, au Honduras et au Brésil;

le pin elliotii – aux États-Unis, au Brésil, en Argentine, au Zimbabwe, au Kenya, en Afrique du Sud et au Malawi;

le pin caribaea – au Honduras, au Brésil, au Venezuela, à Cuba, au Kenya, en Afrique du Sud, en Ouganda et au Sri-Lanka;

le pin tadea – au Brésil;

le pin radiata – au Chili et au Kenya;

le pin patula – au Malawi;

le pin massoniana – en Chine;

le pin yunnanensis – en Chine;

le pin latteri – en Chine;

le pin tabulaciformis – en Chine;

le pin kesiya – en Chine;

le pin merkusii – en Indonésie et au Viet Nam;

le pin roxburghii – en Inde, au Pakistan, au Népal et au Bhoutan;

le pin wallichiana – en Inde.

Actuellement le gemmage consiste à faire de très larges blessures aux pins afin de retirer un maximum de résine. Cette façon de gemmer porte une très grave atteinte à la vitalité des résineux ainsi traités.

En 1994, j'ai mis au point un nouveau procédé de gemmage, le «gemmage en vase clos» (Brevet Français FR 2.746582). Avec une poche à bavette en matière plastique j'ai récolté la résine à l'abri de l'air et de toutes salissures. Puis l'entreprise landaise DRT (dérivés résiniques et terpéniques) a mécanisé le procédé manuel que j'avais mis au point. Après plusieurs années d'expérimentation, DRT a déposé deux brevets internationaux: Brevets WO 99/39565 et WO 99/39566.

Ainsi les carres ou entailles très larges très souvent pratiquées sont remplacées avec le nouveau procédé de gemmage par une entaille circulaire de 8 cm de diamètre.

Après l'aspersion d'un activant, un boîtier auquel est raccordé une poche en plastique est fixé à l'entaille.

La blessure faite au pin avec le nouveau procédé de gemmage ne gêne en rien la croissance des arbres.

Cela permet donc de récolter de la résine de bien meilleure qualité tout en préservant la croissance des arbres.

Cette nouvelle technique de gemmage entre bien dans les perspectives de la gestion durable des forêts de résineux dans le monde qui sont d'une très grande utilité pour l'équilibre écologique de la planète terre. Ce point de vue est vivement soutenu par l'association Nature-Environnement-Bassin-Versant d'Arcachon, qui lutte pour la défense de la forêt landaise en France.

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El hombre se complace en enumerar sus pesares, pero no enumera sus alegrías.

Fyodor Dostoevsky



ARMENIA

Armenia Tree Project

The Armenia Tree Project (ATP) is a non-profit organization that was founded in 1994 with the vision of safeguarding Armenia's future by protecting its environment. Funded by contributions from Diasporan Armenians, ATP has planted and restored more than half a million trees in Armenia, while providing jobs for hundreds of people. Plans for the next decade include expanding community reforestation programmes in partnership with villagers and other organizations, which will also provide social and economic development opportunities.

The forests, which recently covered only 10 percent of Armenia, now cover even less, threatening rare and endangered flowering plants that rely on the rapidly disappearing forest habitats.

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AZERBAIJAN

Memorandum of Understanding between Azerbaijan Government and WWF

A Memorandum of Understanding has been signed between the Minister of Ecology and Natural Resources Protection of Azerbaijan and the World Wide Fund for Nature (WWF) Europe and Middle East Programme. The key objectives are to elaborate mutual initiatives in environment protection and natural resources sustainable use in Azerbaijan and development of cooperation between the ministry and international environmental organizations.

The Memorandum of Understanding addresses: biodiversity conservation, establishing and expansion of protected territories, sustainable use of natural

resources, legislative, social and economic sides of environmental activity, protection of flora and fauna, combating deforestation and desertification, climate change, forest policy, restoration of forest areas, programmes for international environmental education and exchange of experience. (Source: INFO CENN, CENN 73, 28 October 2004.)

BANGLADESH

Patipata: a potential species for agroforestry in low-lying areas of Bangladesh

Patipata or mastak (*Schumananthus dichotoma* syn. *Clinogyne dichotoma*) belongs to the family Merentacy. It is a shrubby plant and generally grows by the edge of canals, ponds, roadsides and other water bodies. In Bangladesh, it is generally grown in low-lying marshy areas of greater Sylhet, Mymensingh, Barisal, Noakhali, Chittagong and Pabna districts. It is sporadically planted along roadsides and around ponds, primarily for checking soil erosion countrywide. Formerly, fallow and unproductive paddy fields were used for the large-scale cultivation of patipata. It is one of the most important raw materials for cottage industries, thus prospectively lucrative traditional novelty items were introduced in those areas in view of the availability and sustained supply of the raw material. A number of cultivators adopted it as their part-time profession and earned substantial incomes for their livelihood. Besides shitalpati prayer mats, etc., various novelty items produced from patipata are very popular with the people of Bangladesh and are also in great demand abroad. Patipata products, if properly managed, attract a good foreign market, especially in the Near East, and thus can earn valuable foreign currency. A valuation study revealed that the cane harvested from 100 ha of land, worth 65 lakh taka (US\$108 300), can produce products such as shitalpati worth 1 crore 80 lakh taka (approximately US\$300 000).

However, more and more fallow land is now being converted for agricultural production and thus patipata production

has declined considerably. If this process continues, production of the popular shitalpati prayer mat will decrease and ultimately be lost forever, making thousands of people jobless. Therefore, all possible measures should be taken for the conservation and extension of patipata cultivation through agroforestry programmes in those areas. Land scarcity as a result of population pressure is the major threat to patipata cultivation; it can be planted as an agroforestry component along with other crops in the same land use system, which has already proved to be successful.

Once the patipata plantation is established, it can be harvested for a long period, as with rattan and bamboo. The Bangladesh Forest Research Institute has developed a propagation technique for patipata, which is economic and has a high success rate. The government sector should come forward to assist interested farmers through technical support and financial assistance to help the patipata-based cottage industries flourish. If managed properly, it will not only attract foreign currency but also create employment opportunities for thousands of unemployed villagers of Bangladesh. (Contributed by: A.Z.M. Manzoor Rashid and Zihan Sabah, Bangladesh.)

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Rubber cultivation and latex production

Latex (raw rubber), a Spanish word meaning milk, is a biological product from rubber trees. About 2 200 unique items have been prepared from rubber and latex. Owing to its importance, the cultivation of rubber plants has spread from its native Brazil to the Indian subcontinent and many other parts of the world.

Latex from *Hevea* species is a hydrosol that contains rubber; it contributes 22 to 48 percent solid rubber excluding watery substances. Rubber tree products have an important role in society and rubber plants are no less important than other forest crops.

In addition to its latex, its wood and seeds, etc. are used for various purposes. A study on the physical properties of rubber wood showed that the timber is suitable for making furniture and is categorized as B-grade timber, i.e. next to teak.

The branch wood, about 40 percent of the total rubber wood, could be used as fuelwood in the domestic sector and in rubber manufacture. Stem wood may be utilized in various industrial uses.

Rubber seeds contain oil, which is about 12 to 16 percent of the total seed weight under commercial conditions. Rubber seed oil is mainly used for manufacturing inferior-quality washing soaps. A small quantity is used in the paint, varnish and leather tanning industries.

Seed cakes are produced in India, where rubber plantations are also prolific honey producers.

Even the rubber factory effluent, a highly polluting substance, may be used as liquid fertilizer in rubber plantations after 60 days of pounding for microbial alteration.

Malaysia tops the list in natural rubber production and the United States in synthetic rubber, with an estimated world production in 1981 of 3.085 million tonnes of natural rubber and 8.06 million tonnes of synthetic rubber. However, emphasis is being given to increasing natural rubber production since the estimated demand for natural rubber in

the twentieth century should have been 6.07 million tonnes. In Bangladesh, owing to its increasing population and rubber consumption, production should be enhanced in existing plantations and more areas need to be brought under rubber cultivation.

Natural rubber is cheaper, more durable and more easily obtained than synthetic rubber. Natural rubber may be obtained from the latex of widely different plant species but some of the genus *Hevea* (family Euphorbiaceae) are particularly known for their quantity and quality of latex. The most popular natural rubber-producing plant by far is the *Hevea brasiliensis* Muell. Arg., a native of Brazil but cultivated widely in many countries and contributing about 99 percent of natural rubber. It is primarily a tropical perennial tree but has acclimatized in many environmental variations.

In Bangladesh, rubber cultivation was introduced during the 1960s. In the National Fourth Five Year Plan, the government proposed to raise rubber plantations to 37 000 ha from the present 20 000 ha of land. Bangladesh has targeted planting about 40 000 ha of land for rubber within 2010. The Bangladesh Forest Industries Development Corporation is maintaining about 1.50, 0.35 and 2.50 million mature, overmature and immature plants, respectively. The organization's goal is to achieve around 5 500 tonnes of rubber per year. National production is currently 3 000 tonnes, with a national target of 7 000 tonnes by 2010, which will meet 40 percent of national demand. Present findings show that carefully selected fertilizer doses can considerably increase latex yield but very little systematic investigation has been made in the country.

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BOTSWANA



Botswana communities rehabilitate arid rangeland, save livelihoods

Standing atop a sand dune, Klaas Matthuis can see more dunes almost surrounding Struizendam, his village in Botswana on the border with South Africa. They are bare of vegetation except for the one he is standing on, which has large clumps of grass, trees and shrubs – the dune has been stabilized by a new community resource management committee by fencing out goats and cattle and planting various indigenous species.

People in most remote villages in Botswana, as elsewhere in the arid zones of Africa, depend heavily on natural resources for their livelihoods, as there are few alternatives other than government welfare. But poverty often pushes them to overexploit resources to meet immediate needs.

Mr Matthuis, vice-chair of the resource committee, dreams of seeing the sand dunes stabilized so they no longer threaten to engulf houses. Through a regional project to restore indigenous vegetation implemented by the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP), with support from other partners, he and his neighbours are beginning to turn that dream into reality.

One of the committee's first priorities was to help the community to draw up an action plan to reverse environmental losses and improve livelihoods. The project covers steps to conserve the whole spectrum of local resources,



including wildlife and products such as fuelwood; grass for grazing and thatching; medicinal plants such as devil's claw (*sengaparile* – *Harpagophytum procumbens*), sold to European markets, particularly Germany, to make medication for controlling high blood pressure; a caterpillar known as phane, a local delicacy sold widely in the region; and the morula tree (*Sclerocarya birrea*), whose nuts are used for oil and sweets, fruit for jam and beverages.

Thirteen other villages hard-hit by environmental degradation have recently completed similar plans. In addition, villages in two areas in Kenya and two sites in northern Mali are following a similar strategy.

All the local plans benefit from indigenous knowledge and traditional land management systems. A key element is for community members to take the lead role in conserving biological diversity and improving income-earning opportunities.

The Global Environment Facility is providing US\$8.7 million for the five-year pilot initiative through UNDP and UNEP, and another US\$3.5 million comes from the German Technical Cooperation (GTZ), the University of Oslo, and the governments of Botswana, Kenya and Mali. (Source: UNDP Newsfront, 2 June 2004.)

BRAZIL

Law to regulate the exploitation of NWFPs in Acre state

Non-timber forestry products from areas smaller than 500 ha will now have regulations for product exploitation and commercialization. Acre's Institute of the Environment (IMAC) and the Brazilian Institute for the Environment (IBAMA) signed an interinstitutional agreement that will require that native seeds, fruits, leaves, roots and skins that are destined for medicinal, ornamental, aromatic or industrial uses may not be transported to other regions in their natural form.

IBAMA reported that the concern is to avoid natural resources and dividends for

the state that come from forestry products being freely transported to other regions, without contributing to Acre's development. The new law will permit better control and inspection of NWFPs through sustainable management of the forest. (Source: *O Rio Branco*, 13 August 2004 [in *Amazon News*, 19 August 2004].)

More than 2 million hectares declared protected in Brazilian Amazon

Brazilian President Luiz Inacio Lula da Silva created two new environmental reserves in the Amazon region on 9 November 2004. The reserves are to be classified as "extractivist" reserves, meaning that the local population will be allowed to remain in the area to tap rubber, pick fruits and nuts and extract regenerating goods from the forest. The new reserves will protect more than 2 million hectares in the Amazon state of Pará.

The announcement came on the heels of the release, at the October meeting of the Latin American and Caribbean Forestry Commission, of FAO projections that the region will see less natural forest cover but more protected areas and forest plantations by 2020. (Source: *Linkages Update*, 13 November 2004.) [Please see *Outlook studies on page 71 for more information.*]

Amazonia hype

It is tapicoquinha here, boi-bumba there and priprioica over there. The Amazonian influence and the crafts of its indigenous people are everywhere and have begun to win over trend-setters. Brazilian fashion promotes the national identity line: necklaces created with guarana, coco and açai seeds can cost up to \$R 490 in New York City. In addition, Brazilian cosmetics companies are producing soaps made from copaiba and andiroba. (Source: *Jornal do Brasil*, 6 June 2004 [in *Amazon News*, 11 June 2004].)

Amazonia's cosmetics conquer the world Shampoos, conditioners, hair dyes and cosmetics made from Amazonian fruits and plants have begun to occupy the

competitive international market, offering great business opportunities for national manufacturers. Mixing cupuaçu, guarana, copaiba and buriti, cosmetic companies have conquered clients in Europe, Asia and the United States by offering genuine Brazilian products and opening doors for export growth in this sector.

During the last Cosmoprof, a worldwide cosmetic trade fair, Amazonian products drew a lot of international attention. At present, 5 percent of Farmaervas' production is exported, with a projected increase to 15 percent during the next two years; their Green and Amazonia lines use para nut, pequi, copaiba, andiroba, jaborandi and other typical Brazilian plants. Surya Henna presented its line of hair dyes produced from Brazilian fruits and herbs from India; international sales represent 20 percent of their total sales with plans to double its exports this year. (Source: *O Estado de S. Paulo*, 22 April 2004 [in *Amazon News*, 29 April 2004].)



Women to export handicrafts

Women with low incomes from the Pantanal neighbourhood, some of the most needy in Porto Velho, are exporting hammocks, baskets and other pieces made from prime materials from the forest to France, Belgium and the United States. The first cargo sent in March was valued at \$R 30 000. Through the Salesian Socio-education Centre, connected with the Union for Micro and Small business (SIMPI), women learn to make straw baskets and cotton hammocks that are now exported to Europe. They earn US\$35 for every hammock exported. (Source: *O Estado de S. Paulo*, 12 August 2004 [in *Amazon News*, 19 August 2004].)



CANADA

Québec devrait protéger davantage la forêt boréale

Un sondage sur la conservation de la forêt boréale québécoise, menée par l'Initiative boréale canadienne, révèle que trois Québécois sur quatre souhaitent que Québec protège davantage la forêt boréale.

L'organisme vient de publier les résultats d'une vaste étude menée entre le 26 août et le 1er septembre auprès de 626 personnes.

Les Québécois ne sont pas impressionnés par les objectifs de conservation des décideurs. Les résultats du sondage suggèrent que le gouvernement devra faire beaucoup plus.

À l'heure actuelle, Québec protège environ 3 pour cent de la forêt contre l'exploitation commerciale de la ressource. Mais le gouvernement souhaite augmenter cette proportion à 8 pour cent d'ici quelques années.

D'après le sondage de l'Initiative boréale canadienne, 98 pour cent des répondants trouvent que c'est insuffisant. La majorité d'entre eux, soit 65 pour cent, estiment que Québec devrait protéger entre 40 et 80 pour cent de la forêt.

Le sondage nous apprend aussi que les citoyens font peu confiance à Hydro-Québec, aux sociétés forestières et au gouvernement pour assurer l'avenir de la forêt. Ce sont plutôt les organismes de conservation et les Premières Nations qui ont l'aval du public.

Autre bémol à signaler: en 2003, 30 pour cent des répondants à un sondage similaire avouaient avoir beaucoup entendu parler de la forêt boréale. Cette année, cette proportion est descendue à 24 pour cent, alors qu'un répondant sur cinq n'a tout simplement pas entendu parler de la forêt boréale. (Source: Radio-Canada.ca, 19 octobre 2004.)



The Centre for Indigenous Environmental Resources

The Centre for Indigenous Environmental Resources (CIER) is a First Nation-directed environmental non-profit organization, based in Winnipeg, Manitoba, Canada. It was created by a small group of First Nation leaders, who felt it was critical for First Nations, and other aboriginal people, to have access to a technical environmental organization.

There are approximately 418 million hectares of forested land in Canada. These forested areas are home to approximately 80 percent of aboriginal peoples in Canada. CIER believes that sustainable forestry development is a viable venture for long-term economic development and employment for some First Nations. Their staff have experience and expertise in many fields, including non-timber forest products and ecotourism.

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CHINA

China to restore forest coverage to 19 percent by 2010

The Chinese Government has set an ambitious goal in its forestry restoration work, saying that it will improve its current forest coverage rate of 16.55 percent to more than 19 percent in the coming six years. Other goals include restoring national forest coverage up to 23 percent by 2020 and to 26 percent by 2050. Much of China's natural forests have been destroyed to make way for economic development. Over the past half century, China consumed 8.6 billion cubic metres of forestry resources, producing more than 5 billion cubic metres of timbers for construction. In the process, the country's forest coverage

rate dropped to 62 percent of the world's average. (Source: Xinhuanet, 19 July 2004 [in Community Forestry E-News, 2004.07].)

Work begins on major collection of Chinese biodiversity

China began building a repository to house samples of its biodiversity this week. It hopes that the centre will become one of the largest collections of its kind in Asia and a world-class research centre.

Based at the Kunming Institute of Botany in China's southwestern Yunnan province, the collection will include samples of 19 000 species. Most of these will be collected from Yunnan province – which is home to more than half of China's biodiversity – and from the neighbouring Tibet Autonomous Region. It will eventually include nearly 200 000 samples in seed and DNA banks, a collection of living plants, and specimens of animals and micro-organisms. It is expected that it will take between ten and 15 years to collect all the specimens.

The project is being jointly developed and managed by the Chinese Academy of Sciences and Yunnan's provincial government at a cost of 148 million yuan (US\$18 million). According to the academy's Web site, the repository will oversee foreign research on China's genetic resources. In recent years, Chinese media reports have repeatedly accused foreign researchers of biopiracy – gaining benefit from a country's biological resources without fair compensation. (Source: SciDev.Net, 3 December 2004.)

COLOMBIA

Colombia debt swap yields US\$10 million for tropical forest conservation

Colombia unveiled a debt-for-nature swap with the United States that will allow it to invest at least US\$10 million over the next 12 years to protect nearly 4.5 million hectares of its tropical forests. Under the agreement, the United States



Department of the Treasury will contribute US\$7 million to the deal, while Conservation International's Global Conservation Fund, Nature Conservancy and the World Wide Fund for Nature will contribute an additional US\$1.4 million.

The funds will go towards cancelling part of Colombia's debt to the United States. In exchange, Colombia will invest at least US\$10 million to protect tropical forests in key areas of the Andes, the Caribbean coast and the llanos (plains) along the Orinoco River. Colombia is one of the five most biologically diverse countries on the planet, harbouring one of every ten species of plants and animals in the world.

Under the agreement, Colombia will commit half the funds to financing local environmental organizations that are working in selected areas. The other half will go towards the Fondo Patrimonial, or Heritage Trust, which the government expects to use as leverage for additional loans of up to US\$40 million that will guarantee the long-term financial sustainability of Colombia's existing protected areas.

Funds from the debt swap will be focused in three areas key for tropical forest conservation. In the tropical Andes, funds will go towards 1.7 million hectares that are home to some of the nation's last remaining stands of oak. In the llanos of the Orinoco River basin, the funds will go towards the 1.4 million hectare Tuparro National Park and its buffer zone. A UNESCO Natural Biosphere Reserve since 1979, the park is also home to dozens of unique species. Along the Caribbean coast, conservation efforts will focus on 1.3 million hectares, including the world's highest coastal mountain range, the Sierra Nevada de Santa Marta.

Debt-for-nature swaps were established under the Tropical Forest Conservation Act (TFCA) of 1998 to allow nations to reduce their foreign debt burden in exchange for making local-currency investments in conservation work. In the past, Bangladesh, Belize, El Salvador, Panama, Peru and Thailand have benefited from the TFCA. (Source: CEPF E-News, June 2004.)

CÔTE D'IVOIRE



Knowledge of our ancestors

In the close and humid forest of the Taï National Park there are a large number of trees, shrubs, lianas and herbaceous plants to which medicinal qualities are ascribed. However, the knowledge of these qualities is fragmentary because traditional African medical knowledge is passed on by word of mouth from generation to generation within the family circle. This constitutes a real cultural heritage. Often, the healers save their knowledge jealously to ensure their own authority and to benefit from the use of the plants. Some of them have a high reputation, but refuse to spread their knowledge and disappear without having ensured that their secrets are passed on.

Thanks to observations and ethnobotanical studies, knowledge of the medicinal plants has improved and some achievements of the traditional medicine can be saved.

But the forest is also a reservoir of plants that can ensure our future. There is, for example, a wild coffee plant growing in the Taï forest that could become very important if the coffee plantations were to be affected by a serious disease. (Source: Paroles de Forêts (Forest Wisdom) newsletter, No. 2, June 2004.)

DEMOCRATIC REPUBLIC OF THE CONGO

Stop the carve up of Congolese forests
New laws and "re-zoning" of the Democratic Republic of the Congo's forests being developed during 2004 threaten millions of hectares of rain forest and the rights of the people living in them.

Improvements in Congolese forest laws could be an opportunity to ensure that local forest communities' rights are properly protected. However, there is a real danger that it will only be the logging companies that are the winners.

"Pygmy" peoples urged World Bank President James Wolfensohn to halt plans that could unleash a wave of destruction on the rain forests of the Democratic Republic of the Congo where they live. They put their case directly to Mr Wolfensohn during a video conference organized by the Rainforest Foundation UK, which is challenging Bank plans for a massive increase in industrial logging in the country. The Bank is pushing through new laws and a "re-zoning" of the Congolese forests – the second largest in the world – that could see up to 60 million hectares (an area the size of France) handed out to logging companies.

"You must not forget that the lives of indigenous peoples depend on the forest," Adolphine Muley of the Congolese Union of Indigenous Women (UEFA) told the World Bank President. According to the Bank's own estimates, as many as 35 million of the 50 million Congolese people depend on the forests for their very survival.

Responding to these pleas, James Wolfensohn pledged the Bank to further discussion with Congolese people and non-governmental organizations about the future of the country's rain forests. (Source: Community Forest Resource Center, 15 July 2004.)

Condemnation of rain forest logging

British Member of Parliament Bob Blizzard yesterday said in a Westminster Hall debate that "there was no chance at all" that a World Bank-backed plan to "develop" the rain forests of the Democratic Republic of the Congo would bring any benefits to impoverished local people. Instead, the planned expansion of the timber industry would, the MP said, damage the livelihoods of some of the poorest people on earth, including those of local "Pygmies".

The parliamentary debate followed a visit to Congolese rain forests by



members of the All-Party Parliamentary Group on Great Lakes and Genocide Prevention. The group also announced the publication of a new report, *To elections and beyond*, which details the group's visit to the Democratic Republic of the Congo and sets out their recommendations on the future of the country's vast rain forests. The report calls for the continuation of a moratorium on the issuing of any new logging concessions in Congolese forests.

***To elections and beyond* is available online (www.appggreatlakes.org). The report also recommends that the World Bank, in conjunction with the Ministry of Environment and local civil society organizations, send monitors into the forest to ensure that local people are consulted and acknowledged as residents. It also calls for international donors, the United Kingdom Department for International Development especially, to fund a comprehensive study in order to provide an estimation of the value of the forest, based not only on the commercial worth of its timber, but also on the value of forest products such as animal products, vegetable foods, building materials, medicinal plants and fuelwood, as well as ecological functions and services such as watershed maintenance and biodiversity protection.**

Responding to the debate, the Parliamentary Under-Secretary of State for Foreign and Commonwealth Affairs said that he would draw the attention of the World Bank to the concerns raised by the Members of Parliament. The Director of the Rainforest Foundation UK welcomed the United Kingdom Government's commitment to raising concerns with the World Bank about the future of the Congolese rain forests and said that, as a major shareholder in the Bank, the government has a

responsibility to ensure that United Kingdom taxpayers' money will not be spent on destroying Congolese rain forests and wrecking local peoples' livelihoods. (Source: Press Release, The Rainforest Foundation, 14 December 2004.)



GHANA

Forest watchers call for more transparency and accountability
The Ghana Forest Watch, a coalition of concerned civil society organizations, says more transparency and accountability are absolutely necessary to curb the massive destruction of Ghanaian forest.

The spokesperson of the coalition, Albert Katako, described the state of the Ghanaian forest as alarming, saying in the last century the rate shrank from 8.2 million to 1.8 million hectares in the whole country. According to him, 80 percent of the forest had been destroyed. Only 20 percent, including wildlife reserves and protected areas, are healthy.

The timber industry, he said, is currently felling trees at four times the sustainable rate. He cautioned that if nothing is done now to curb the wanton felling of trees "Ghana's forest will disappear completely in five to ten years."

Mr Katako, who is the coordinator of CARE International's Forest Resources and Livelihoods programme, said that 70 percent of Ghana's rural population, the poorest segment of the society, depend on forest for their livelihoods.

The Forest Watchers urged the Forestry Commission to perform its role as an organization that conserves and develops the forest and wildlife resources in Ghana, including creating, protecting and managing the permanent forest

estates and regulating the harvesting of timber. (Source: *Ghanaian Chronicle* [Accra], 7 April 2004.)

People living beside rain forests in Ghana receive more protein from forest products than from crops or livestock. (Source: Peoples and Forests, FAO.)

Ghana's forest resources under threat
The country's loss of more than 75 percent of its original high forest cover and other valuable structures and resources through wildfires has been blamed on human activities and climatic hazards. The remaining 25 percent of the forest resources still faces enormous threat owing to rapid population growth, general disregard of environmental conservation, improper disposal of industrial and domestic waste, illegal and uncontrolled logging and the annual ritual of wild and bush fires. (Source: *Ghanaian Chronicle* [Accra], 17 June 2004.)

INDIA

Greener pastures for forest tribals
The recent announcement of the state government allotting all minor forest produce – such as herbs, lichens, honey, tubers, tamarind fruits, etc. – free of cost for the tribals has provided livelihoods for the people and prevented them from degrading the forests the way they had been doing for generations.

By coopting villagers in the task of forest and environmental protection, the forest department has helped to expand their horizons. (Source: *News Today* [Chennai, India], 12 October 2004 [in Community Forestry E-News 2004.10].)

Non-wood forest product collection, utilization and value: evidence from a protected area in India
Non-wood forest products (NWFPs) are particularly important as a source of



livelihoods for indigenous and other local people living in and around protected areas. A recent study by C.S. Shylajan examines the nature and extent of NWFP collection in a protected area in India. The collection trend of some major NWFPs was examined over a period of time. Owing to the high demand for some NWFPs from Ayurvedic companies, selected products (especially medicinal plants) have increasingly been extracted by the forest dwellers.

The paper also discusses the present institutional mechanism for managing NWFPs in the study site and observes that proper institutions are needed for regulating the unsustainable and destructive extraction of highly demanded NWFPs from the protected area. An analysis of overall dependence on protected areas shows that two major indigenous communities (Kattunaikan and Paniyan) with differing expertise in collection depend heavily on forest products for their livelihood needs. Annual household income generated from NWFP collection for these two communities is estimated at Rs 9 542 (US\$208.88) and Rs 1 936 (US\$42.39), respectively.

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Quantification and financial valuation of non-timber forest product flows

A study was undertaken in the Uttara Kannada district, one of the Western Ghats (a biological hot spot), Karnataka, to evaluate the flow of non-timber forest products (NTFPs). A wide diversity of NTFPs was collected in the different forest zones of the district. The diversity, however, varies with availability and local knowledge systems. Significant quantities of NTFPs are gathered in all the four zones and the financial value realized per hectare ranged from Rs 634 in the dry

deciduous zone to Rs 1 801 in the evergreen zone with a mean of Rs 1 159 per hectare per year. (*Source:* Abstract of a paper by I.K. Murthy, P.R. Bhat and N.H. Ravindranath.)

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Government preparing model legislation on non-timber forest products

Model legislation was being prepared for adoption by states conferring rights in respect of non-timber forest products for weaker sections working in the forests. The legislation will safeguard the legal rights of tribal communities over mineral and water resources and protect their livelihoods.

The Draft National Environment Policy has been formulated by the Union Environment and Forests Ministry and is intended to be a guide to environment protection throughout the country, while at the same time taking care of the livelihoods of the poor.

An Action Plan was being developed to increase the country's forest and tree cover from about 23 percent of the land area to 33 percent by 2012. (*Source:* *Team India*, 4 November 2004 [in Community Forestry E-News 2004.11].)

IRELAND

Non-wood forest products in Ireland

In Ireland, limited markets already exist for a variety of non-wood forest products such as game, fruit, fungi and foliage; however, these are at the earliest stages of development. The National Council for Forest Research and Development (COFORD) recently launched a new publication, *Markets for non-wood forest products*. The publication examines the potential markets for the main categories of non-wood forest products.

Forest foliage. The report defines the foliage market in the United Kingdom and

Ireland as being worth €195 million. Market information suggests that there are opportunities for the development of foliage as a subsector of the forestry industry; however, a strategy must be developed to realize these opportunities. In this strategy, technical research, market research and enterprise need to be developed in a coordinated way.

Forest tourism. Irish forests provide opportunities to engage in a range of outdoor pursuits and the overall picture is that forestry plays a very important role in tourism and particularly recreation in Ireland.

Alternative health care. In the last ten years there has been an enormous increase in the popularity of alternative health care. A wide range of herbs can be grown under a forest canopy including some that are top selling in world markets. Some of these are successfully grown in other countries but their cultivation under Irish conditions has yet to be established. A number of Ireland's native trees including ash, birch, cherry, elder and yew have long traditions of use in alternative medicines, according to the report.

Oils and oleoresins. Essential oils are aromatic oily liquids obtained from plant material such as flowers, buds, seeds, twigs, leaves, bark, woods, fruits and roots. They are used in the food industry as flavouring, in the perfume industry for fragrances and in the pharmaceutical industry for their functional properties.

The report concludes that there is little or no potential for import substitution in this sector as the main imported oils into Europe are orange, lemon and lime, which are sourced from warmer fruit-growing countries.





Edible forest products. Forests generate a number of wild edible products. The report concludes that data on wild foods are hard to find, however it goes on to state that those that are harvested from the forest include berries, nuts, mushrooms and maple syrup. These foods are harvested in developed and developing countries. The need for ongoing market intelligence regarding trends in wild food products is highlighted.

This report is the first comprehensive examination of the area of NWFPs in an Irish context. Recently, the area of NWFPs has been receiving extra attention in the media and in his report, *A review and appraisal of Ireland's forestry development strategy*, author Bacon highlights the non-timber value of forestry.

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JAPAN

Mountain forests imperilled by increase in deer population

Mountain forests across Japan are being endangered by an increased number of deer feeding on grass and trees. Huge trees are dying in the Tanzawa mountain area, a famous hiking spot, after deer gnawed off their bark. In many areas of the forest, there are now sweeping vistas unbroken by any trees. Bamboo and other bottom grasses covering the land were also devoured.

Global warming and animal protection are considered the main causes of the increase in the deer population. Damage caused by deer could lead to secondary damage such as soil erosion, and some local governments are considering lifting the ban on hunting to control the number of deer. (Source: *CFRC Weekly Summary*, 23 September 2004.)



JORDAN

Jordan conserves forest and helps communities' livelihoods

Jordan is creating a nature reserve in one of the largest natural forests remaining in the kingdom to conserve habitat for endangered species and generate jobs in tourism and enterprises making wood products without damaging biological diversity.

The Dibe'en forest north of the capital Amman, one of the best examples of pine-oak woods in the region, is home to at least 17 endangered species, including grey wolves, imperial eagles and other migratory birds, Persian squirrels and wild orchids.

Deforestation is an acute problem, and Jordan has less than 1 percent of its original trees, making conservation a priority.

Eight square kilometres will come under protection, part of a broader effort to create a unique regional forest park covering 200 km² in three local municipalities: Jerash, Al Meirad and Burma. The reserve is near the ancient Roman city of Jerash, a popular tourist destination, which can help draw visitors to enjoy its natural beauty. It will have a headquarters, visitor centre, camping area, trail system and parking facilities.

Local communities will learn to use the forest's resources in ways that conserve the environment, curtailing excessive timber cutting, grazing, hunting and trapping of wildlife and gathering of wild herbs.

The Global Environment Facility is providing US\$1 million for the four-year project and UNDP US\$100 000, with in-

kind contributions from Jordan's Royal Society for the Conservation of Nature and other local organizations.

The project includes preparation of by-laws and a land use plan and setting up a management team to run the reserve. (Source: *UNDP Newsfront*, 13 April 2004, newsfront@undp.org)

KENYA

Kenya Association of Forest Users (KAFU)
 KAFU was established as an umbrella organization that could bring together all stakeholders working towards sustainable agriculture, land and forest use to address issues related to quality, pricing and marketing on a continuous basis.

The mission of KAFU is to provide a forum for sustainable production, utilization, certification and marketing of forest and tree products in Kenya through capacity building, information and experience sharing, and policy advocacy. One of KAFU's priority areas is to unlock trade opportunities for non-timber forest products, conservation and organic products by putting in place a Kenyan movement for certification and marketing of non-timber forest products, conservation and organic products.

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MADAGASCAR

Projects to boost food security, conserve environment

Madagascar is to benefit from two funding initiatives that aim to boost food security and harness the ecotourism potential of the island.

The World Bank has announced that it had approved an International Development Association (IDA) grant of



US\$40 million, as well as a US\$9 million Global Environment Facility (GEF) grant, of to support the implementation of Madagascar's National Environment Action Plan. The IDA is the Bank's financing arm for the poorest countries, while the GEF is a mechanism for providing grant and concessional funding to meet the incremental costs of initiatives for achieving global environmental targets.

The World Bank said in a statement that its grant "constitutes the single largest concessional financing package for the environment provided by the Bank in its 60-year history", and habitat protection and biodiversity conservation were expected to contribute directly to poverty reduction and economic growth in Madagascar.

Apart from expanding Madagascar's protected areas network, the programme will establish conservation sites in natural forests, and transfer forest management responsibilities to communities. "These will be complemented by measures aimed at reducing existing pressures on natural forests, including reforestation and the scaling-up of the usage of efficient wood-fuel technologies," the Bank said, adding that "biodiversity conservation efforts are essential in unleashing the significantly high revenue-generating potential of the ecotourism sector in Madagascar." (Source: *UN Integrated Regional Information Networks*, 13 May 2004.)

MALAYSIA

Nomadic Malaysian tribe tells of life in the forest

Aina Ikeda (not her real name) launched her oral history collection project in Sarawak near the border of Kalimantan, which is known as the place of origin of the Penans, said to be the last nomadic people on earth. Only about 400 of the 10 000 Penans still follow their traditional nomadic lifestyle. Penan guardianship of the forest and its natural resources is reflected in the custom of "molong" that requires an individual or community to

control the use of resources for the sake of future generations, and is visualized by a special symbol created by natural materials such as rattan.

The forest provides the Penans with all their needs for survival – food, shelter and medicine – but it is threatened by logging activities. The village studied by Ikeda has already lost nearly half of its communal forest area and a road now crosses their land. The Penans have demanded that the government protect the forest, which they claim belongs to them as communal property and not to the concessionaires. Timber products are a major source of Sarawak's income and, according to the International Tropical Timber Organization, Japan imported 40 percent of its timber products from the state in 2002. (Source: *Daily Yomiuri*, 1 May 2004 [in Community Forestry E-News, May 2004].)



MOROCCO

Environmental impact of the cosmetic valorization of the leaves of *Argania spinosa* (L.) Skeels

Argania spinosa (L.) Skeels is an endemic tree from southwestern Morocco, covering about 830 000 ha in a semi-arid region. The forests are mainly state-owned with a large right of use for local people. It is a multipurpose tree, its main product being a high-value oil produced from seeds. The low density of the stands allows agriculture, mostly cereals, on the forest ground. Human pressure on the ecosystem is consequently high. A Biosphere Reserve of argan forest was created in 1998 to preserve the forest as a unique ecosystem against desertification.

The increasing economic value of argan forest products may encourage people to preserve the forest and strengthen local development. The use of the leaves in cosmetics is an additional economic benefit of the argan tree. Its impact has been calculated in a study on the global context of the argan region, the implementation of an experimental site to follow up the reaction of argan trees after harvesting the leaves, and an analysis of different ways of obtaining a supply of argan leaves.

The experiment consists in the measurement of the length of the current year's twigs as a good marker of the trees' growth. These are easy to recognize since they have a red colour because of the non-lignified wood and simple leaves, whereas older twigs have grouped leaves. The bloom on those twigs is also measured: 32 twigs were measured per tree. The experimental site was implemented on 1.2 ha of argan forest. On one third of the trees 700 to 800 g of fresh leaves per tree were harvested, on another third 350 to 450 g and on the remainder there was no harvesting. The harvesting and measurement experiment are to be repeated each year for at least four years.

Three methods for regulating the supply of leaves have been studied:

- Harvesting leaves directly from the trees. This creates two sensitive points: the difficulty of controlling the quantity cut off per tree and of obtaining an official permit as there is no clear provision in the legislation.
- Collecting leaves that are turning yellow and falling off naturally during the summer. The difficulty is the great variation in the behaviour of argan trees, which does not ensure a regular supply.
- Finally, the best way of collecting the leaves with the lowest environmental impact: according to legislation and local practice, leaves should be taken from the branches which have been lopped during silvicultural operations.

In conclusion, the value of argan leaves in the cosmetic industry could finance the silvicultural operations and would thus have a positive environmental



impact. In this way, the argan oil cooperatives involved in the project could provide the supply of leaves in a sustainable way.

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NAMIBIA

World Bank grant for community-based ecosystem project

The World Bank this week approved a US\$7.1 million Global Environment Facility (GEF) grant to Namibia for scaling up community-based ecosystem management to the benefit of rural people. The grant is a part of a total US\$32.43 million intended for the project, with contributions from the Namibian Government, the French GEF, USAID and the German Development Bank (KfW) making up the balance.

The five-year initiative to improve rural livelihoods, promote sustainable environmental management, biodiversity conservation and sustainable land use will run as part of Namibia's Community Conservancy programme.

The project encompasses the development of community-based tourism facilities, including joint ventures with the private sector, trophy hunting, game meat production, the commercialization of indigenous plants and craft production. (Source: *UN Integrated Regional Information Networks*, 3 June 2004.)

Conservancies a major success

Community-based conservancies such as those in Uukwaluudhi in Kaokoland, the Nyae-Nyae, Salambala and Torabaai are just a few which have successfully managed to create what the Permanent Secretary in the Ministry of Environment and Tourism, Dr Malan Lindique, termed "community based-entrepreneurism". He indicated that the Ministry of Environment

and Tourism, together with non-governmental organizations and the private sector, have had substantial success in the 31 registered conservancies in the country.

Eighty percent of the income derived through wildlife tourism is ploughed back into the community. Sustainable development means development that meets current needs, without compromising the ability for the future generations to meet their own needs. In the light of this, conservancies having trophy hunting, community campsites and mid-market lodges have become a viable industry in the country.

The decade has been fruitful for community-based tourism ventures, where revenue of up to US\$5 million was generated, employing close to 100 000 Namibians. Trophy hunting also generates an income of \$N 160 million (about US\$64 million) annually. Under the 2001 Forest Act, provision has also been made to proclaim the first 15 community forests before the end of this year. (Source: *New Era* [Windhoek], 27 October 2004.)



Torra Conservancy wins UNDP award

Namibia's Torra Conservancy has made history by becoming the first southern African rural community to win the prestigious US\$30 000 UNDP Equator Prize. The Equator Prize, which was first introduced in August 2002, honours outstanding community projects that effectively reduce poverty through conservation and sustainable use of the biodiversity-rich equatorial belt. Torra Conservancy comprises the Damaraland Community, who were one of the first communities to form a community

conservancy in Namibia in recognition of the need to protect wildlife and other natural resources on their land. (Source: *Zimbabwe Standard* [Harare], 21 March 2004.)

Harvesting and processing of indigenous fruits shows promise

An FAO project is helping to improve the use of wild fruit-trees to supplement diets and incomes in rural communities.

The Caprivi region comprises 500 km of grass and forests, irrigated by the Okavango and Zambezi rivers whose seasonal flooding forces people to evacuate their homes and lands each year. The northeastern communities cultivate sorghum, millet and maize on the fertile ground, but the nearby bush and forests have always been an important source of nutritious wild fruits. In the regions of Caprivi and Kavango, about 66 wild fruit-tree species have been identified that contribute to the daily diets and income of the local communities, mostly during the rainy season when the crops are not ready for harvest.

"The Kavango and Caprivians have beyond a doubt accumulated sound traditional knowledge and understanding on the utilization of their indigenous fruit-tree species," recognizes Syaka Sadio, an FAO forestry expert, who initiated and supported a two-year community-based project to assist the Namibian Government in enhancing the contribution of indigenous fruit-trees to food security.

The project, "Domestication, post-harvest handling and marketing of selected indigenous fruit tree species", implemented from 2002 to 2004 by the Namibian Government with technical support from the Forest Conservation Service of FAO's Forestry Department, aimed to provide local communities and national institutions with improved technologies for wild fruit-tree domestication and processing for sustainable livelihoods.

According to Mr Sadio, project activities included transfer of technology and capacity building through the exchange of knowledge and training for professional staff and communities in the



selection and domestication of fruit-tree species and in the harvesting, storage, processing and marketing of fruit products. "Further attempts should be made, however, to improve genetically and propagate the three selected fruit-trees – marula (*Sclerocarya birrea*), eembe or bird plum (*Berberia discolor*) and monkey orange (*Strychnos cocculoides*) – most preferred by local communities for their fruit quality and other desirable characteristics."

Through training, the project enhanced the skills of local women in harvesting and processing the fruit. "We used to only eat them fresh and throw the seeds away," recalls Dorothee Manyemo-Maluta, a women's group leader in Kasheshe, near Katima, Caprivi region. "Now, with the training here and a study tour I made last year in Malawi, where I learnt from other women, I can make juice, jam, jelly or drinks from marula," she says. Dorothee sells pots of eembe jam to her neighbours for \$N 10 (US\$4) each.

However, it will take some time before women's groups become independent of the Directorate of Forestry and rent their own location for fruit processing and marketing activities. John Sitwala, Senior Forestry Officer at the Katima Regional Office of the Namibian Directorate of Forestry, appealed to all local stakeholders to invest in indigenous fruit-tree species for the benefit of local communities, domestic trade and environment protection through the preservation of the plant biodiversity. (Source: FAO Newsroom, www.fao.org/newsroom/en/field/2004/47587/index.html)

NEPAL

Ecogeographical distribution of rattan

Many species of rattan are believed to be native to Nepal; however, nine species have been reported in Nepal, five of which have been taxonomically identified and validated with the help of a rattan scientist.

Rattan is mainly distributed in tropical to subtropical climates and even in temperate climates: Tarai (plains) and the mid-hills (mountains). Evergreen, semi-evergreen and tropical deciduous forest is the most suitable habitat for rattan. Rattan is found both in forested areas and in pure form. In the Tarai, rattan is found where there is abundant rainfall and a warm climate: it prefers a perennial source of water and well-drained soil. Thick-sized rattans (*Calamus inermis* and *Calamus leptospadix*) are associated with evergreen tree species, at roughly 800 to 1 850 m altitude where there is difficult terrain forming a basin and a generally southeast-facing aspect. In Dhorbarahi, Tanahu district, *Calamus inermis* also thrives on rocky terrain where there is no visible soil for the roots. Sunlight is the most important factor for rattan growth, although fairly shaded places produce satisfactory growth for some species of rattan. It has been observed that rattan always prefers clean running water: no rattan has been observed growing in stagnant water. Rattans are distributed in more than 28 districts of Nepal, mainly in the eastern, central and western regions, with varying population status.

The rattan species reported and identified in Nepal are: *Calamus tenuis*, *Calamus leptospadix*, *Calamus acanthospathus*, *Calamus latifolius*, *Calamus erectus*, *Calamus khasiyanus*, *Calamus inermis*, *Calamus gracillius* and *Plectocomia himalayensis*.

The rattan species that have been identified and validated in Nepal are:

Calamus inermis is mostly found in the mid-hills of well-drained areas associated with evergreen tree species on southern aspects and slightly steep-sloping land at an altitude of around 800 m. The

population status of this species is very poor.

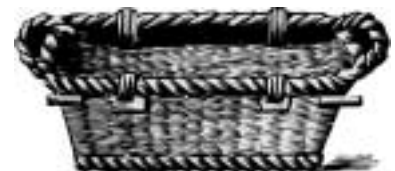
Calamus latifolius is found on hill slopes of evergreen forest in the mid-hills. It grows well on moist sandy loam soils, and performs well in shade. The condition of this species is very poor; only four to five clustered clumps were recorded.

Calamus leptospadix is found in swampy areas near permanent water sources in the moist deciduous *Shorea robusta* forest. The population is in a degraded condition. Only about ten clustered clumps were recorded during a field visit.

Calamus tenuis is common in the lower hill valleys especially near permanent water sources, dams and seasonal swampy areas. It is mostly associated with the species of riverain tropical forest such as *Bombax ceiba*, *Syzygium cumini*, *Albizia* spp., *Acacia catechu* and *Dalbergia sissoo*.

Calamus acanthospathus prefers slightly moist areas. Associated species are those of evergreen forest, mainly *Syzygium cumini*, *Trewia nudiflora*, *Terminalia alata* and *Bombax* spp. Only single clustered clumps of this cane were recorded during a field visit. According to local people, they harvest before flowering and fruiting when the cane is ready for rope making or sticks.

Habitat destruction is the major threat to the biodiversity of Nepal. Perennial water springs, waterholes, ponds and swampy lands with well-drained places are a suitable habitat for rattan. During the last two decades, more than 10 000 ha of rattan habitats have been converted into agricultural and resettlement areas in rattan forests with high potential in Nepal. Similarly, overexploitation and premature collection of rattan is another threat. Biological characteristics and external influences are other factors: *Calamus leptospadix* and *Calamus latifolius* are





generally found on the stream side of the mid-hills. Their geographical distribution inhibits the possibility of seed dispersion elsewhere. Inside the managed forest biological diversity has improved considerably. (Contributed by: Chhote Lal Chowdhary, NTFP Research Officer, Conservation of Medicinal and Aromatic Plants for Sustainable Livelihood in Nepal [CMAPSL]/ Canadian Center for International Studies and Cooperation [CECI], Kathmandu, PO Box 2959, Nepal; e-mail: clc_9@mail.com)

PANAMA

Expanding opportunities for the Naso people

With assistance from the Critical Ecosystem Partnership Fund (CEPF) as part of its strategic approach to connect critical areas through economic incentives in southern Mesoamerica, the indigenous Naso (Teribe) people are developing, managing and marketing their Wekso Ecolodge. The lodge is located on the border of La Amistad Biosphere Reserve near Bocas del Toro, Panama, a priority focus area for CEPF in the Mesoamerica biodiversity hot spot. La Amistad has one of the highest rates of unique species in all of Central America and greater biodiversity than most other areas of equal size anywhere in the world.

The Naso live in small communities along the Teribe River next to La Amistad International Park and the Palo Seco Forest Reserve. These two protected areas, together with the soon-to-be-declared Comarca Naso (or Naso indigenous reservation), form part of the larger Biosphere Reserve.

For hundreds of years, the Naso have enjoyed the riches of the forest – hunting, fishing, cutting trees and extracting plants. With a population of approximately 3 500 and a unique form of government – the only nation in the Western Hemisphere ruled by a king – they have, until recently, been able to sustain themselves well.

However, in the mid-1990s, they began to see their world changing in ways they did not like. “We live here because we like

the forest,” relates Eliseo Vargas, a member of the Organización para el Desarrollo Ecoturístico Naso (ODESEN, or the Organization for the Sustainable Development of Naso Ecotourism), established in 1995 to develop community-based ecotourism to generate income and improve the lives of the Naso people. “We have always used the forest to satisfy our needs, but until recently we didn’t notice that we were harming it,” Vargas says. “As a result of the environmental education we have received, we now realize that to continue to live here, we need to find alternative lifestyles that do not endanger the forest.”

The Wekso Ecolodge will offer ecotourists an opportunity to experience the vast biodiversity and cultural diversity of inland rain forest while also contributing to its conservation.

The partnership aspect of the project extends beyond the ecotourists, the Naso people, ODESEN and CEPF. It includes the Autoridad Nacional del Ambiente (the Panamanian National Authority of the Environment) and another Naso non-governmental organization, the Asociación de Médicos Tradicionales Naso (the Association of Traditional Naso Healers). The association, known as ASOMETRAN, was established to conserve and revitalize the centuries-old knowledge and practice of shamanism and medicinal plants use.

During its eight-year existence, ASOMETRAN has established medicinal plant gardens in three Naso communities; participated in a series of educational exchanges with traditional healers from other communities and indigenous groups; and established a small herbarium of dried plants – activities helped with support from Conservation International and the International Cooperative Biodiversity Group.

Its members are also seeking to further their work in collaboration with the Wekso Ecolodge. They hope to improve and amplify their gardens and open them up to visitors. In addition, they plan to produce a book on medicinal plants and Naso culture and establish a 10 ha medicinal plant forest. These activities

will enhance ODESEN’s ecotourism programme, will permit the Naso to generate income from the forest and will contribute to the conservation of natural forest and Naso culture. (Source: CEPF E-News, April 2004.)

PHILIPPINES

Common tropical plants yield new natural dyes

Common plants could help cut the Philippines’ reliance on imported synthetic dyes and reduce the pollution they cause, according to researchers there.

The scientists, from the Philippine Textile Research Institute (PTRI), have identified 26 plant species – including mangrove trees, a type of onion, and guava and cashew nut trees – that could be used to produce high-quality natural dyes. PTRI, an institute of the Philippine Department of Science and Technology, has also developed techniques for efficiently extracting the dyes.

The species are widely distributed in the Philippines and in other tropical countries in Africa, Asia and Latin America and can be easily cultivated in humid regions.

The textile industry discharges toxic waste into water systems and, according to the Philippines Department of Environment and Natural Resources, is one of the main sources of environmental pollution. This is due in part to the use of synthetic dyes, which are more abundant, cheaper and easier to apply than natural dyes. The Philippines has been importing most of its dyeing, tanning and other colouring materials because of the absence of local manufacturers of either synthetic or natural dyestuffs, PTRI reported.

To address this problem, PTRI has been collaborating with other agencies to develop technologies for extracting and applying natural dyes. “The government should continue its efforts to revive the natural dyeing technology, not only in order to cut down the country’s reliance on synthetic dye imports but also to



explore benefits that can be derived from indigenous sources," PTRI said.

The Philippine Textile Research Institute is compiling a book containing information about the plants and their applications. (Source: SciDev.Net Weekly Update, 25–31 October 2004.)

RUSSIAN FEDERATION

Russian far east: NTFP small business development project

Over the past three years the IUCN-CIS Forest Conservation Programme has been involved with a community economic development project focused on the Kamchatka Peninsula and Sakhalin Island. (This project is one component of the larger project Building Partnerships for Forest Conservation and Management in Russia, funded by the Canadian International Development Agency (CIDA) and managed by IUCN–World Conservation Union.)

The activities in the Russian far east are aimed at assisting remote communities of the region to develop their non-timber forest product resources sustainably. Since the early 1990s, communities on the Kamchatka Peninsula (and elsewhere in the country) have experienced an economic decline, made worse by the withdrawal of federal support to outlying regions and traditional resource use such as reindeer herding.

In our project, NTFPs are viewed as one part of a local sustainable livelihood strategy (including tourism, cultural activities, hunting and herding). We provide business and legal issues training, consultation on small business and community-based enterprise development, and support for sustainability and monitoring programmes. It is the hope of project participants that the successful development of these opportunities will decrease the pressure to move forward with potentially damaging resource exploitation activities, such as gold mining and oil extraction within or close to the World Heritage Sites.

The project is focusing on groups of people who have not normally had the

chance to participate in small business or natural resource management – indigenous people and women. It is the intention of all involved that, over time, local community groups will take over production and marketing activities. Four family and cooperative NTFP-based businesses have already been started by native communities on Kamchatka with the assistance of the project. Started from scratch, these businesses are now marketing their products – so far these are herbal teas, dried wild berries and birch bark souvenirs within the Russian Federation and abroad.

About 400 people are involved as experts, trainees and participants of other project activities. We hope that the project will make a contribution to the development and implementation of the global approaches to sustainable community development and poverty alleviation. (Contributed by: Nikolay Shmatkov, Russian Federation and Tim Brigham, Canada.)

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Non-wood forest products in Kamchatka region

Kamchatka's forests are located mainly in the valleys and basins of spawning rivers and streams and play an important role in conservation. Forests cover 42 percent of the Kamchatka region. The main tree species are larch (Kamchatka and Cayander's), Ayan fir, birch (white and stone), aspen, sweet poplar, chosenia (a member of the willow family), Sakhalin willow, elfin cedar and alder. The forest cover has remained relatively stable throughout the region, and generally fulfils its function in the ecosystem; however, it cannot be allowed to decrease.

Forests are a multipurpose resource and are also a source of non-wood forest resources, e.g. nuts, fruits, berries and other food and medicinal plants. Twenty-one shrub species, such as blueberry, lingonberry, honeysuckle, rose, mountain ash, cloudberry, cranberry and currant, are economically important. About 70 percent of the harvested berries consist of lingonberries, honeysuckle and blueberries. (Source: *Kommersant*, 8 December 2004.)

SOUTH AFRICA

New law to protect South Africa's biodiversity

President Thabo Mbeki has signed into law South Africa's new Biodiversity Act, which is hailed by some as the most significant environmental legislation adopted in ten years of democratic government. Because of its incredibly rich biological diversity, South Africa is ranked the third most biologically important nation in the world, after Brazil and Indonesia.

The new act now gives the highest possible political protection to this biodiversity. Among other things, it requires full environmental impact assessments before the introduction of any genetically modified organisms (GMOs).

The act also makes provision for communities to share the profits of any exploitation of natural materials involving their indigenous knowledge. An example



is the case of the San/Bushmen communities who will benefit from a commercial slimming product derived from the hoodia cactus plant, which they have known for centuries, chewing its leaves as an appetite suppressant.

"The act regulates for the first time what we call 'bioprospecting'," explained Environmental Affairs and Tourism director-general Chippy Olver. "For companies to be able to bioprospect, they will now have to go through a regulatory system which gives protection to indigenous communities." (Source: *Cape Argus* [Cape Town], 3 June 2004.)

New list of protected trees

A new national list of protected tree species will contribute towards the protection of biodiversity and ecosystems. The Department of Water Affairs and Forestry says in a statement that the protection of biodiversity and ecosystems has become a high priority following South Africa's ratification of the Convention on the Protection of Biological Diversity.

In terms of the declaration, tree species listed as protected may not be cut, disturbed or damaged and their products transported or sold without a licence.

Listing certain species as protected is not primarily aimed at preventing the use of a tree species, but to ensure sustainable use through licensing control measures, explained the department.

South Africa is home to more than 1 700 indigenous species of trees and shrubs, some of which are currently threatened on account of their rarity as well as the pressure of commercial and subsistence use.

The department said that detailed guidelines had already been developed for the handling of licence applications to cut Camel thorn trees (*Acacia erioloba*) following extensive research and consultation with a variety of stakeholders.

Other protected species under threat include the rare pepperbark tree (*Warburgia salutaris*), which is widely used for medicinal purposes and the marula tree (*Sclerocarya birrea*), which is one of the most highly valued trees in the

country. A large industry is based on products derived from marula fruit, including beauty products and a famous brand of marula liqueur. It is also a vital source of income and subsistence to many rural people. The Tsonga people also celebrate the Feast of the First Fruits by pouring an offering of fresh marula juice over the graves of deceased chiefs.

Trees are mainly threatened by commercial harvesters, while some ecologically important forest trees are also under pressure from coastal development. (Source: *BuaNews* [Pretoria], 14 September 2004.)



Building markets for traditional foods

Samp, African ground nuts, mealies, sorghum potele, isithwalaphishi, ditlhakwana, mutuku and inkobe are some of the indigenous foodstuffs featured in a cookery book that has been compiled in South Africa as part of the Department of Science and Technology's Indigenous Food Poverty Alleviation project. Among the recipes are morogo (an indigenous green leafy vegetable), semphephe (wild melon pudding) and masonja (a dish featuring mopani worms and ground peanuts).

The project, which is being undertaken by the Council for Scientific and Industrial Research (CSIR), aims to find ways of marketing indigenous foods. The cookery book, an unintended output of the project, brings together about 80 recipes from rural areas of five of South Africa's nine provinces – Free State, KwaZulu-Natal, North West, Limpopo and Eastern Cape. Many recipes are generations old, and form part of the traditional knowledge of these communities.

The aim of the project is to find ways of using indigenous knowledge to help communities generate income. Since 2000,

more than R 12.3 million (US\$1.8 million) have been put into the project, which seeks to set up small businesses and develop the technologies needed to produce indigenous foods in significant quantities.

The project was initiated in the most needy parts of the country and CSIR consulted extensively in rural communities to collect indigenous recipes. (Source: *SciDev.Net Weekly Update*, 28 June–4 July 2004.)

UGANDA

Forests net Sh 66 billion from non-wood forest products

Ugandans selling non-timber forest products earn more than Sh 60 billion annually, according to the National Forestry Authority (NFA). NFA stated that the forestry industry employs about one million Ugandans: 100 000 are permanent employees while the rest are in the informal sector. According to NFA, "Sh 66 billion goes to people in the informal forestry sector such as herbalists in Katwe," but illegal harvesting and selling of timber had made it impossible to value forest resources in the country. (Source: *New Vision* [Kampala], 18 May 2004.)

Forests that covered half of the country in 1901 now cover only 24 percent. (Source: *New Vision* [Kampala], 5 July 2004.)

Moringa export orders increase

The United Kingdom and Namibia are two countries that are buying moringa herb products from Uganda. Namibia has signed a contract with the Moringa Development Association (MODA) to supply six tonnes of Moringa seeds and leaf powder for the next four years. Another firm from the United Kingdom has made a similar order. MODA has about 20 000 moringa farmers with a total of 200 million moringa trees.

Currently, Uganda exports about 8 to 10 tonnes of moringa products, mainly to



the United States, Kenya and the United Republic of Tanzania. In the local market, one kilogram of moringa costs Sh 10 000, while in the world market a kilogram sells for US\$15 to \$20. (Source: *The Monitor* [Kampala], 17 May 2004.)

German farmers to buy moringa

German cattle keepers have expressed a willingness to import moringa powder worth billions of shillings from Uganda. "This is a big relief to our moringa farmers, especially those in the Rwenzori region, where hundreds of families are engaged in moringa growing and had no market for the crop," Maate Kajumba, the Rwenzori Vanilla Growers Co-operative Society chairman, said recently.

Kajumba said the German cattle farmers were willing to buy any quantity of moringa powder depending on quality. He declined to reveal the price per kilogram at which the German farmers would buy the moringa and when they expressed interest. "They will buy plenty of it. They said they will make cakes for their cows from the moringa powder. It is up to us to ensure that the quality of our produce is of the required standard," he said. (Source: *New Vision* [Kampala], 17 July 2004.)

Fruits to help fight poverty

Northern Uganda is endowed with various herbs and nutritious fruit-trees which can help in fighting poverty and improve nutrition. But because of insecurity, ignorance and inadequate funds, the biodiversity is not being tapped.

One of the vitamin-rich fruit-trees is the *Borassus* palm (tugo), which grows in the wild. Its trunk is split and used as poles for roofing houses and its leaves are used for making mats. The fruits are rich in food values and money can be earned from it," said George Obong, coordinator of the Northern Foods Project. The community-based non-governmental organization is piloting processing tugo wine from the fruit.

The project now has more than 60 members, most of whom are rural-based women from the pilot subcounties of Adekokwok (Lira) and Aboke in Apac district. Each member must have at least one tugo tree in his or her garden. Apart

from wine, tugo can be used for making salt, honey and nutritious porridge, especially for children. Other uses include making baskets, bags, other handicrafts from its foliage, and as fuelwood.

The project has more than 200 types and uses of local plants. Some of the traditional plants are effective medicine for different diseases. It has also started "manufacturing" Vaseline, in 50 and 100 g packs sold at Sh 600 and Sh 1 000, respectively.

The project has three components: food processing to fight malnutrition, medicinal plants for community health, and art and crafts to raise household incomes. It is aimed at sustainable utilization and management of natural resources, including fruit crops and medicinal plants, as well as rational exploitation of the fruit crops to ensure proper ecological balance and soil conservation.

"What we now need is funding, security and the market. We have enough raw materials and many members are willing to join hands in the project," said Obong. (Source: *New Vision* [Kampala], 22 June 2004.)

Sustainable management of non-wood forest products

The proceedings of the May 2003 "National Stakeholders' Workshop to review the sustainable management of non-wood forest products in Uganda focusing on bamboo and rattan" have been published.

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UNITED STATES OF AMERICA

Research into non-timber forest products

Non-timber forest products (NTFPs) in the United States are harvested for commercial and non-commercial purposes and include thousands of wild or semi-wild species or parts of species used for medicines, foods, decorations, fragrances, containers, dyes, fuel, shelter, art, ceremonial purposes and so on. Despite the known and substantial economic value of a few individual NTFPs, and the unknown but likely high economic value of NTFPs in aggregate, historically managers have not included them as important factors in forest management. Not only do NTFPs comprise a significant part of the biological diversity of forest ecosystems but, given the lack of formal NTFP research, the many people who harvest NTFPs part or full time have the most knowledge about them. Consequently, efforts to conserve biodiversity are unlikely to succeed unless knowledge about NTFPs, and the effects on them of various forest management activities such as timber removal, grazing, prescribed burning and NTFP harvesting practices, becomes an integral part of forest management.

A recent research project attempted to address these issues through achieving two objectives: to advance understanding of the role and impact of NTFP management in forest ecosystem sustainability and biodiversity; and to support the ability of United States forest managers to assess NTFP sustainability.

The project developed five interrelated components to meet these objectives:

- An online species database expanded from 857 to 1 343 entries. The database serves as an initial tool for identifying NTFP species that currently or formerly existed in their region and that can potentially be incorporated into planning for biodiversity conservation, forest restoration, cultural use patterns and sustainable economic development.
- An online bibliographic database expanded from 1 468 to over 2 600



entries. The database aids in identifying NTFP references of books, journals and grey literature. A large portion of the entries are annotated. The academic publications included in the database are drawn more heavily from the international NTFP arena, which is where the majority of NTFP research has been done thus far.

- A national survey of Forest Service Ranger District employees and state forest managers for the purpose of examining NTFP management in relation to biodiversity.
- Ethnographic fieldwork throughout the lower 48 United States. The fieldwork included formal and informal interviews and participant observation with hundreds of NTFP harvesters and other stakeholders including land managers, scientists, Native Americans, commercial businesses, and environmental groups.
- A series of four all-day multistakeholder workshops and a three-day retreat of the seven member project team held to discuss the possibilities for inventory and monitoring programmes involving NTFP harvesters.

(Source: Jones, E.T., McLain, R.J. & Lynch, K. 2004. *The relationship between non-timber forest product management and biodiversity in the United States*. Portland, OR, Institute for Culture and Ecology [www.ifcae.org/projects/ncssf1/].)

Harvesting wild ginseng

Wild ginseng, which has been harvested and exported from the United States to Asia for more than 200 years because of its purported health benefits, has grown scarce in many states. It fetches as much as US\$350 a pound (US\$160/kg), and a recent study at Shenandoah National Park (Virginia) suggested that the number of ginseng plants might have dropped as much as 75 percent over the past 30 years. (Source: *Washington Post*, 1 June 2004.)

Ginseng gives surprising boost to state's agricultural economy

In recent years, between 1 700 and 4 200 pounds (770 and 1 905 kg) of dry ginseng root have been exported annually from

Pennsylvania – mostly to Asian markets – according to State Department of Conservation and Natural Resources estimates. At an average price of US\$300 per dry pound, ginseng has generated at least US\$11 million for Pennsylvanians over the past decade. (Source: *National Network of Forest Practitioners' Non-timber Forest Product News*, Digest Issue 3, 31 August 2004.)

VIET NAM

NTFP education

A Memorandum of Agreement was signed on 17 March 2004 between the Non-timber Forest Products Subsector Support Project in Viet Nam and the Forestry University of Viet Nam to formalize and promote further fruitful cooperation in the field of NTFP education and research.

Non-timber forest products are increasingly recognized in Viet Nam as a significant source of income for some farmers who live near forests and especially for poor, landless people. Conservation of NTFPs can play an important role in maintaining the biodiversity riches of Vietnamese forests. This is the project's first attempt to mainstream NTFPs in forestry education in Viet Nam.

Under this agreement, the two partners will cooperate on a voluntary and equal basis. Fields of cooperation identified in this agreement are NTFP curriculum development, graduate and post-graduate training, NTFP research, organization of technical seminars and workshops, NTFP publications, documents and materials, information exchange and a student research programme.

The focus area is NTFP curriculum development, and will involve all departments of the Forestry University of Viet Nam. This is in line with the intention of the Ministry for Agriculture and Rural Development of Viet Nam to develop NTFPs in a sustainable and economic way.

Another major field of cooperation is the Student NTFP Research Programme. The programme's grants are available to forestry students throughout the country. Together with the project's existing NTFP

Research Fund and NTFP Action Learning Fund, this aims to increase the body of NTFP knowledge in Viet Nam. The programme is also expected to stir up enthusiasm for and strengthen capacity in NTFP research for future forestry professionals – present university students. (Source: Vietnam NTFP Network E-bulletin, issue No. 2.)

VIETNAM NON-TIMBER FOREST PRODUCTS NETWORK

Established in 2003, the Vietnam NTFP Network is a non-profit, volunteer organization under the Forest Service Institute of Viet Nam. The network aims to provide comprehensive NTFP-related information to its members and to raise awareness of the role that NTFPs play in biodiversity conservation and national economic development.

The network produces a quarterly NTFP e-bulletin, as well as a biannual newsletter.

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Study on development potential and planning for ten major Vietnamese NTFP species

The Forest Inventory and Planning Institute has been conducting a long-term study to survey and assess potentials, as well as propose a development plan, for ten major Vietnamese NTFP species, including cinnamon (*Cinnamomum cassia* Bl.), pine resin, anise (*Illicium verum* Hook. f.), cardamon (*Amomum aromaticum* Roxb.), bastard cardamon (*Amomum villosum*), rattan, essential oil species, agar wood, codonopsis and cajuput.

The next phase of study will focus on updating the available data and collecting missing information on the socio-economic situation, national and international NTFP



market demands and indigenous knowledge, as well as the natural potential and the current situation, of these ten major species. (Source: Vietnam NTFP Network E-bulletin, issue No. 2.)



Cinnamomum cassia

Viet Nam endorses national action plan to control wildlife trade

As global attention focuses on boosting high-level political will to combat the wildlife trade “crisis” in Southeast Asia, the Government of Viet Nam has endorsed a comprehensive National Action Plan to address the country’s wildlife trade management priorities. The *National Action Plan to Strengthen the Control of Trade in Wild Fauna and Flora in Viet Nam to 2010* was approved by the Deputy Prime Minister Nguyen Tan Dzung last Tuesday, immediately prior to the opening of the 13th Meeting to the Conference of the Parties to CITES in Bangkok, Thailand [October 2004].

The National Action Plan is built upon field research and rigorous consultations with Vietnamese agencies and stakeholders, and analysis from international conservation experts. The plan focuses on six thematic priorities: increased government capacity, appropriate economic incentives, harmonized legislative controls, targeted public awareness, scientific research and international cooperation.

Among the key research findings were that poverty was in fact not the primary factor fuelling the illegal trade and that local consumption of wildlife will continue to grow as economic conditions improve. In fact, 73 percent of decision-makers and government field personnel surveyed said that Viet Nam’s domestic trade in wild meat required urgent attention.

Viet Nam is well known for its biodiversity and range of endemic species

but, as the country’s human population has grown, these animals and plants are literally losing ground. Alongside threats from habitat degradation and land conversion, wild species are heavily exploited to supply both domestic and international trade demands, despite laws prohibiting or severely curtailing the harvesting of “rare and precious species” and banning the export of wild forest mammals.

In Southeast Asia, Viet Nam plays a role as source, consumer and re-exporter of a vast range of wild animals and plants, and is a wildlife trade hot spot of global significance. (Source: TRAFFIC Press Release, 7 October 2004.)

ZAMBIA

Jam from indigenous fruits

CODIBA, a new firm engaged in agroprocessing, has started producing jams and drinks using indigenous fruits on the Copperbelt. The formation of the company would also create employment in the province. The company would be using traditional fruits – masuku and impundu – to produce jams and juices. The use of the traditional fruits would add variety to the market while increasing the usage of indigenous resources that have been going to waste. The company was already producing jam from water melons and intungulu, on a small-scale basis, for the local market.

The agro-processing firm was trying to raise K 60 million as an initial capital injection to start large-scale production. CODIBA would work with the Zambia Bureau of Standards to ensure the products were of high quality. Full-scale production is expected to start in the next two months. (Source: *The Times of Zambia* [Ndola], 20 September 2004.)

ZIMBABWE

Animal, plant life dwindling

Information compiled between 1990 and 2002 and posted on the World Resource Institute’s EarthTrends Web site

indicates that of the 270 known mammal species in Zimbabwe, 11 are threatened with extinction; of the 4 440 higher plant species known in the country, 141 were on the verge of extinction.

The large-scale dependence by Zimbabweans on forest resources for fuel, construction timber, etc., has become unsustainable with rampant deforestation and woodland degradation. It has been said that poverty is the greatest enemy of the environment. Evidence of this abounds in the communal areas where poor families are trying to make ends meet by exploiting the country’s natural plant resources.

The baobab tree, whose bark is used extensively in mat-making, is now on the brink of extinction. The overexploitation of the giant tree for commercial purposes has rendered the baobab incapable of effectively regenerating its bark.

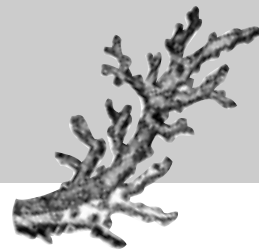
For hundreds of years southern African communities have stripped the tree bark to extract pulp which is used to treat fever, diarrhoea, malaria and as a vitamin C supplement.

But such extraction posed very little threat to the tree since damage was minimal and so infrequent that the tree had a good chance of regenerating.

Data compiled from many organizations indicate that the baobab, an unmistakable feature of the landscape in most drought-prone parts of southern Africa, has been and still is a source of livelihood for many communities.

The baobab is a multipurpose tree. Its leaves and fruit are good as relish substitutes. The fruit is used as a fermenting agent in traditional brews and makes a refreshing traditional drink when dissolved in milk. The seeds, which yield an edible substitute for vegetable oil, can also be eaten raw or roasted or ground to produce a coffee-like beverage. Pulped seeds are also known to cure gastric, kidney and joint ailments.

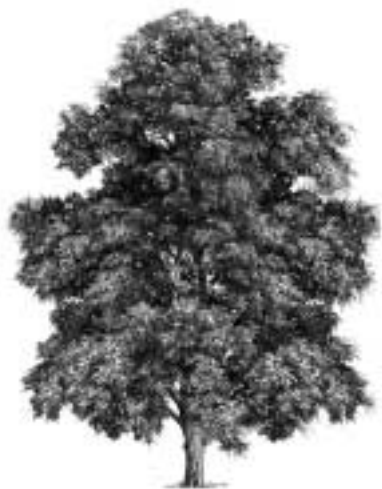
But all this treasure is at risk as economic survival continues to dictate the future of these vulnerable and sometimes unique species. (Source: *The Herald* [Harare], 21 June 2004.) ●



UGANDA, KENYA IN CROSS-BORDER PACT

Uganda and Kenya have agreed to a cross-border programme to protect nature and improve the livelihoods of the communities around Mount Elgon.

The World Conservation Union (IUCN) initiated the Mount Elgon Regional Ecosystem Conservation Programme. The project will help conserve nature and develop the livelihoods of the people. The head of the IUCN programmes in Uganda referred to Mount Elgon as a water tower as it provided water flowing into Lakes Victoria, Kyoga and Turkana in Kenya. He said the area is rich in biodiversity which should be protected. (Source: *New Vision* [Kampala], 23 March 2004.)



PROTECTING THE AMAZON

Ministers from eight South American countries have gathered in the Brazilian city of Manaus to consider a pact for preserving the Amazonian rain forest.

The foreign ministers of Brazil, Peru, Venezuela, Colombia, Bolivia, Ecuador, Guyana and Suriname are meeting as members of the Amazonian Cooperation Treaty Organization. They are reviewing a strategic plan drafted for 2004 to 2012.

The plan is designed to reduce deforestation and promote the

sustainable use of the region's natural resources. It includes a scheme for regional economic integration that would reduce harmful development of the Amazon forest. (Source: *VOA News*, 14 September 2004.)

BRAZIL AMAZON DEFORESTATION JUMPS, DATA SHOW

An area of the Amazon jungle larger than the United States state of New Jersey has been destroyed this year and work on a new highway is mainly to blame, the environmental group Friends of the Earth and the government said on Wednesday.

The preliminary figures are based on a satellite system which has been monitoring Amazon deforestation on a test basis. The government's yearly figures, released in March, are based on data from a different satellite system. The satellite images indicated that between 8 920 and 9 420 square miles was cut down this year.

If confirmed that the total figure for this year's deforestation will be above the 2002–2003 level of 9 170 square miles, said Roberto Smeraldi, head of Friends of the Earth in Brazil. The figure was especially worrying because it showed that for the first time in history Amazon deforestation rose despite a slowdown in agriculture during the year, he said.

Small farmers have been major culprits in the trend as they hack away at Amazon jungle to expand their fields. (Source: *Reuters*, 1 December 2004 [in *Amazon News*, 2 December 2004].)



Environmentalists fear the destruction of the Amazon, an area of continuous tropical forest larger than western Europe, since it is home to up to 30 percent of the planet's species and is a source of medicines. (Source: *The Guardian*, 8 April 2004 [in *Amazon News*, 8 April 2004].)

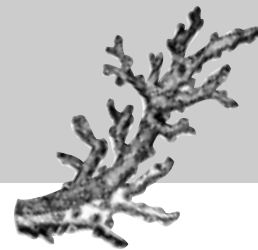


ECOTOURISM

Laos discovers lucrative ecotourism niche In the mountains of northern Lao People's Democratic Republic, home to the Akha, Hmong and 36 other officially recognized ethnic groups, trekkers are guided to carefully selected tribal villages which receive for each tourist 10 000 kip (US\$1.30) to be used for medicine, schooling and general community welfare. The guides are locally recruited and knowledgeable, and groups are limited to a maximum of eight.

With tourist income coming in, illegal logging and hunting of wildlife by poor tribespeople have diminished and health conditions are improving. The Luang Nam Tha area, with its trekking trails, village destinations and The Boat Landing Guest House, an exemplary ecolodge, will be used as a field-training site for guides and tourism officials from other provinces where similar projects will be initiated.

Tourist numbers have increased from 37 600 in 1991 to about 700 000 in 2003.



Tourism was the major foreign income earner in 2000, adding US\$113 million to the country's meagre coffers.

In a still largely subsistence economy, community-based tourism brings in cash needed by rural people for basic goods and may keep them from migrating to towns in search of jobs. Village women can make more in one hour by cooking for a tourist than collecting bamboo shoots in the forest for a week. Some of the best guides can earn US\$5 a day instead of killing a bird for US\$1.

(Source: Associated Press, 5 April 2004 [in Community Forestry E-News, 2004.03].)



Ecotourism agitates animals

Animals in areas that promote ecotourism have changed behaviour, heart rates and stress hormone levels, according to a recent report in the *New Scientist*. In response, conservationists have called for research on the impact of ecotourism on animals and for studies to be conducted before ecotourism projects are initiated.

(Source: *New Scientist*, 4 March 2004 [in IISD Earth Negotiations Bulletin Linkages Update, 16 March 2004].)

Damming Belize

Belize's western mountains are an ecotourist's dream: a largely uninhabited region of dense tropical forests, wild rivers, cave complexes, Mayan ruins and bountiful wildlife. While many of its Central American neighbours were clearing forests to make way for slash-and-burn agriculture, Belize has been making far more money keeping the trees in place. Today tourism – almost all of it nature-based – accounts for a fifth of the nation's economic activity and employs a

quarter of its workforce. The mountainous Cayo region is one of the main draws.

But the Government of Belize is determined to build a dam on the upper Macal River, smack in the heart of Cayo. The US\$30 million Chalillo dam will flood 1 350 ha of tropical forest that is home to jaguars, ocelots, tapirs and the country's only known flock of the rare and colourful scarlet macaw. "This is the prettiest river in the country," says Mick Fleming, who owns an ecotourism resort set in the jungle 30 km downstream from the dam site. "We're going to lose something incredibly valuable in return for an extremely small amount of power." Plenty of people in Cayo agree with Fleming's assessment. The city council in the district capital, San Ignacio, opposes the dam.

Belize is extremely short of electricity, but it is unclear whether Chalillo is the best way to meet the shortfall. Fortis Inc., the big Canadian company that will build, own and operate the US\$30 million dam, says it will double generating capacity on the Macal River. "We believe hydroelectricity is the most environmentally friendly type of energy out there and the most cost-effective for Belize," says spokesperson Donna Hynes.

But while the dam will substantially boost domestic electricity production, most of the power will be generated at times of the day when it is more expensive than importing it from Mexico. A 2000 study by the California-based Conservation Strategy Fund estimated the project would be a net drag on the Belizean economy. The dam is also being built near an active fault line, and Fortis admitted that it mischaracterized the geological properties of the site. (Source: *Our Planet*, E/The Environmental Magazine.)



ECOTOURS

Community development in the Amazon

Projeto Bagagem is a non-profit initiative which promotes community-based tourism in Brazilian sites.

Through one-week trips, "Project Backpack" takes small groups of people to Brazilian "off the beaten track" communities. Since 2001, the project has already taken four small groups of people to river communities in the Amazon. The idea behind the project is to enable visitors to experience community life as it is, to exchange ideas and experiences in a learning process where both the visitors and the communities benefit. (For more information, please visit: www.biosferabrasil.com/meu_produto.php?cod=27)

Forestry and wetland conservation in Africa

ECODECO is promoting an ecotourism tour package across East Africa, to some of the destinations where forestry and wetland conservation have been initiated through tourism. This is a tour package lasting from three to 14 days, across East Africa. Proceeds from these tours go towards forestry and wetland conservation, are inexpensive and clients are given special treatment. (For more information, please contact: volunteersafrica@yahoo.com) (Source: *Forest Information Update*, 18 October 2004.) ●



FAO

FORESTRY DEPARTMENT

Mangroves and the tsunami

As would be expected, mangroves and other coastal forests and trees were adversely affected by the recent tsunami. The extent of the damage is still not clear and it may take some time before the final result is known, since the deposit of silt may clog the pores of the aerial roots of mangroves, and thus suffocate them.

It is too early to say to what extent mangroves contributed to saving lives and to what extent the conversion of mangroves to other land uses aggravated the impacts, as implied in several news articles. It is clear, however, that extensive areas of mangroves reduced the loss of life and damage caused in several countries.

Preliminary information also suggests that narrow strips of mangroves and other coastal forests have had a limited positive effect, in some cases even turning into negative effects, as broken trees have wreaked damage inland and, at least in one reported case, have damaged shallow coral reefs.

“Mangroves contribute directly to rural livelihoods by providing wood and non-wood forest products – including timber, poles, fuelwood and thatch for houses – and indirectly by providing spawning grounds and nutrients for fish and shellfish. Mangroves can also help protect coastal areas from future tidal waves,” said Mette Løyche Wilkie, an FAO expert on mangroves. (Source: FAO Press Release, 19 January 2005.)

Rehabilitation of degraded mangroves and other coastal forests is needed to help speed up the recovery process and restore the roles of mangroves as

spawning and feeding ground for fish and shellfish, provider of wood and non-wood products (including fuelwood and thatch for houses) and for coastal protection.

Large-scale planting of mangroves – as suggested in several articles – should be undertaken with caution, matching species to sites and avoiding turtle nesting grounds, sea grass beds and other valuable ecosystems. Any such efforts should be undertaken within a larger framework of integrated coastal area management.

Ongoing and planned FAO activities

In addition to the information gathered by the FAO missions to affected countries, we are in touch with a number of organizations and people of the countries affected – including the national correspondents to FRA 2005 – to obtain information on the damage to forests and trees and on assistance needed in rehabilitation. We are also gathering information on lessons learned as regards the role these forests played in mitigating/exacerbating the impacts of the tsunami.

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**The Netherlands pledges 20 million euros to partnership programme**

The Netherlands has pledged 20 million euros to support the work of the FAO-Netherlands Partnership Programme (FNPP) over the next four years, FAO announced today.

FNPP focuses on three key areas: forestry, food security and agricultural biodiversity. Within this framework, it supports FAO's work to build capacity in poor countries for development planning and policy-making. This assistance is targeted specifically to the poorest countries – those classified by the World Bank as eligible for International Development Association loans.

The programme was established in May 2001 as a new type of FAO initiative, in which donor support is not tied to particular projects or specific departments within the United Nations agency, but instead goes to support a broader range of activities sharing common objectives and carried out in close cooperation by diverse FAO units.

Activities undertaken by FAO with FNPP support in recent years range from the development of a coordinated forestry policy for the countries of central Africa, to technical assistance with poverty reduction programmes in India's poverty-stricken Orissa state, to studies in Ethiopia aimed at improving the efficiency of seed delivery systems.

Among the activities targeted for action by FAO under the agreement signed today are:

- improving developing countries' abilities to assess food security and nutrition needs during emergencies, in order to better mobilize their relief efforts;
- promoting the inclusion of food security and forestry concerns in national poverty reduction strategies;
- stimulating more widespread adaptation of national plans for helping small-scale farmers and rural communities cope with the increasingly globalized food economy;
- reducing poverty through more effective use of forest resources;



- encouraging better management of agricultural biodiversity at the local level, as well as the incorporation of agrobiodiversity concerns into national policies.

FNPP was the first such “strategic partnership” programme established by FAO. Similar partnerships have since been formed, or are under preparation, with Canada, Norway and Sweden.

Today’s pledge brings the total amount of FNPP funding granted to FAO by the Netherlands to around 35 million euros. This support comes in addition to the regular contribution made by the Netherlands to FAO’s operating budget.

The new funding will support FAO’s FNPP work through 2007. (Source: FAO Press Release, 28 July 2004 [www.fao.org/newsroom/].)

Project backstopping of NWFP projects

The NWFP Programme is technically responsible for the implementation of the following three Technical Cooperation Programme Projects.

- “Marketing system development for non-wood forest products in Lao People’s Democratic Republic” (TCP/LAO/3002)
- “Eaglewood management project” (TCP/PNG/2901)
- “Sustainable use and management of non-wood forest products” (TCP/CMR/2905)

In addition, it is providing technical assistance to the German-funded regional project “Enhancing food security through non-wood forest products in Central Africa (GCP/RAF/398/GER) and the Norway-funded programme “Forests for sustainable livelihoods” (FNOP/INT/004/ NOR).

[Please see below for more detailed information.]

Trade in non-wood forest products – options for poverty alleviation

The Norway Partnership Programme (NPP) “Forests for sustainable livelihoods” (FNOP/INT/004/NOR) complements and accelerates implementation of ongoing activities of FAO’s Programme “Promotion and Development of Non-Wood Forest Products (NWFP)”. NPP aims at improving the sustainable use of NWFPs in order to contribute to the wise management of the world’s forests, to conserve their biodiversity and to improve income-generation and food security.

The overall objective of the programme is to analyse the impact of trade in NWFPs on poverty alleviation and on the sustainability of the resources. It will provide as main output a global status report on the role and contributions of NWFP trade and its related instruments to poverty alleviation of forest-dependent people and their impact on sustainable forest management. Furthermore, NPP component 3 is analysing the role of microcredits and microfinance as tools to support forest-based, small-scale enterprises and their trade in forest products, including NWFPs.

Key outputs for the period 2004–2005 are:

Suboutput 1. Trade-related instruments influencing trade in NWFPs are identified and described.

The impact of trade on the sustainable use of NWFPs and on the benefits created for stakeholders involved in the production of and trade in NWFPs is multiple and includes both positive and negative effects. Various policy instruments have been developed in order to promote the contribution of trade to the sustainable use of forest products and to people’s livelihood by enhancing positive and reducing negative effects.

The NPP component 3 “Trade in NWFPs – options for poverty alleviation” analyses i) the impact of trade in NWFPs on local livelihoods and on the sustainable use of NWFPs, and ii) the

applicability of relevant trade-related instruments as adequate policy tools to promote and develop NWFPs on a sustainable basis and including the adequate share of benefits among stakeholders concerned. These trade-related instruments include:

- national public policies (e.g. national forest programmes, harvesting restrictions/bans);
- international and intergovernmental processes (e.g. multilateral environmental agreements such as CITES);
- market-based instruments (e.g. certification, supply-chain management).

TRAFFIC International has been contracted as the main collaborating organization to carry out global analysis of this issue. The global analysis is being complemented with three national case studies, which analyse the impact of trade-related instruments for selected NWFPs in Africa, Latin America and Asia. The case studies complement FAO’s field activities in Cameroon (TCP/CMR/2905, contracted partner: CIFOR) and Papua New Guinea (TCP/PNG/2901, proposed partner: FPCD, Foundation for People and Community Development) and normative activities in Bolivia (contracted partner: Holzindustrieberatung, HIB, Latin America).

Suboutput 2. Certification and labelling schemes in the field of NWFPs are documented and analysed.

A draft report on “Standards and certification of non-wood forest products” has been compiled. It analyses the impact of certification on the sustainable use of NWFPs and identifies opportunities and challenges of NWFP certification based on three case studies on devil’s claw (*Harpagophytum procumbens*), shea (*Vitellaria paradoxa*) and Brazil nuts (*Bertholletia excelsa*) and an exhaustive literature review. Lessons learned and potential implication for FAO field activities (e.g. in Africa-Niger/gum arabic, Cameroon and Papua New Guinea/agarwood) are being identified.



Suboutput 3. *The role of microcredits and microfinance as tools to support forest-based small-scale enterprises and trade is assessed and main opportunities and challenges are identified.*

In the context of the International Year of Microcredit 2005, NPP assesses the role of microfinance institutions and service providers in the forestry sector and their impact on local livelihoods. It documents and analyses the status and developments of microcredits and microfinancing for small-scale entrepreneurs in the forestry sector.

The lack of financial inputs to local producers has been identified as a bottleneck for many forest projects, in particular when dealing with forest-based small-scale enterprises. Therefore, the NPP programme activity "Microfinance for small-scale tree and forest product enterprises" identifies, documents and analyses opportunities and challenges, which can enhance the identification of solutions for the existing financial need of local entrepreneurs depending on forest products (wood products, NWFPs and forest services) for their livelihoods.

An overview study has been compiled, in order to assess the status of microfinance services for forest-based, small-scale enterprises and trade in developing countries, including the related policy support. This global study is complemented by four case studies, which are being carried out in Peru/Bolivia/Guatemala (by CATIE, Center for Competitiveness of Ecoenterprises), Nepal (by Asia Network for Sustainable Agriculture and Bio-resources [ANSAB]) and the Sudan (by Dr Abubakr Ibrahim Hussein) in order to analyse the possibilities and constraints of microfinance for different forest-based (NWFPs, wood-based products, forest services) small-scale enterprises.

The programme activity is carried out jointly with NPP component 1, "Small-scale tree and forest enterprise development", led by FAO's Forestry Policy and Institutions Service.

Closely linked to the above suboutputs, the following FAO normative and field activities with a focus on NWFP trade and

poverty alleviation have been carried out with the support of NPP and its programme component 3:

- Publication of a study, *Wild edible fungi – A global overview of their importance to people* (NWFP Series 17, available at: www.fao.org);
- Technical backstopping of FAO field activities on NWFP trade and sustainable forest management in Cameroon (TCP/CMR/2905), Lao People's Democratic Republic (TCP/LAO/3002) and Papua New Guinea (TCP/PNG/2901);
- Analysis of the impacts and interactions between trade and sustainable forest management (as follow-up to the Global Project: Impact assessment of forest products trade in the promotion of sustainable forest management, GCP/INT/775/JPN).

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Forestry Sector Outlook Studies

During the last six years, FAO has produced forestry sector outlook studies or projection studies at the global level and for Africa and the Asia-Pacific region. In the more distant past, FAO has also produced studies for Europe and North America (with the UNECE).

A pre-publication draft of a new study for Europe – the European Forestry Sector Outlook Study (EFSOS) – is now available on the UNECE Web site (www.unece.org/trade/timber/Welcome.html) or (www.unece.org/trade/timber/efsos/welcome.htm).

The Latin American Forestry Sector Outlook Study will be ready by March 2005.

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or visit the Outlook Studies Web site at:
www.fao.org/forestry/site/5606/en
[Please see under News and Notes for more information on outlook studies.]

EDUCATIONAL FLYER

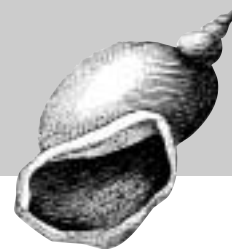


"Non-wood forest products are vital for the future of forest dwellers" is a beautifully illustrated flyer that has been produced to raise awareness of the multiplicity of NWFPs and their uses. It includes obvious uses, such as for

food (e.g. fruits, honey and mushrooms), as well as less obvious ones, such as insect galls (for inks and dyes) and bark (for cosmetics). (Please contact non-wood-news@fao.org for copies.)

HIV/AIDS-Forestry e-Forum and Listserv
 FAO's Forestry Department is developing a series of responses that address the interface between HIV/AIDS and forestry. This interface involves a variety of issues ranging from the effects of forest policies and programmes on vulnerability to HIV infection, to the impacts of HIV/AIDS on forestry institutions, to the role of forests in the coping strategies of AIDS-afflicted households. In this context, the Forestry Department seeks to ensure the viability of woodlands as economic safety nets, increase the resilience of farming systems and rural livelihoods, reduce the labour burden of afflicted households, and reinforce formal and informal institutions responsible for the management of forest resources.

The overall goal of this e-forum is to facilitate and develop the forestry sector's responses to HIV/AIDS through dialogue and the exchange of information. It is primarily intended for communication of



practical experiences and needs from community-based, non-governmental and faith-based organizations specifically targeting HIV/AIDS populations, and forestry offices working in heavily impacted regions.

Participation is open and invited from people living with HIV/AIDS, field practitioners, researchers and policy-makers. To participate, please visit: www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=3561&siteReId=23667&langId=1&geoid=0; to join the accompanying e-mail discussion group, please send an e-mail to: marc.barany@fao.org, with "subscribe HIV/AIDS-forestry listserv" in the subject header.

[Please also see page 24.]

FAO IN THE FIELD

Regional project "Enhancing food security through non-wood forest products in Central Africa" (GCP/RAF/398/GER)

The project "Enhancing food security through non-wood forest products in Central Africa" will contribute to facilitating actions by governments, non-governmental organizations and the private sector in six Central African countries, i.e. the Democratic Republic of the Congo, the Republic of the Congo, Cameroon, Gabon, the Central African Republic and Equatorial Guinea. It aims to enhance food security in the region through the sustainable use of non-wood forest products (NWFPs) from moist dense forests and other tree-based systems. The project will contribute to improved conservation of forest resources through the active involvement of forest-dependent people by improving their knowledge for a more sustainable use and socially equitable benefit sharing from a wide range of forest products.

The three-year project (2005–2008) is funded by the Government of Germany and will supplement and accelerate the Regular Programme of FAO's Forest Products Service (FOPP) to enhance the contribution of NWFPs to food security,

for improved income generation and more sustainable forest management in Central Africa. It is fully integrated into the action strategy of FAO's Forestry Department "Forests in the Congo Basin", and has three main strategic priorities to support the sustainable management of forests in the Congo Basin:

- to improve livelihoods of the poorest segments of the population;
- to strengthen subregional collaboration;
- to enhance and organize data collection and management to harmonize forest and other sectoral policies.

The project will operate under the framework set by the Conference of Ministers of Forests of Central Africa (COMIFAC) and the Conference on Central African Moist Forest Ecosystems (CEFDHAC). It will build upon the findings of earlier forestry projects, such as those from the FAO/EU Partnership Programme for Africa and will closely liaise with ongoing normative work carried out by FAO and projects in the region from agencies such as the Gesellschaft für Technische Zusammenarbeit (GTZ), the International Tropical Timber Organization (ITTO), the African Timber Organization (ATO), the International Center for Research in Agroforestry (ICRAF), the Center for International Forestry Research (CIFOR), the International Cooperation Centre on Agrarian Research for Development (CIRAD), the World Wide Fund for Nature (WWF) and local non-governmental organizations.

After the initial institutional set-up, a series of technical studies will be launched to review the potential of forest foods to enhance food security in Central Africa. Proposals, partners and sites for the field testing of the most appropriate ways for their production and commercialization are discussed and identified at a technical workshop in the region. Field testing-cum-training is scheduled during the second year of the project. In the consolidation phase of year three, all project findings are validated at a regional workshop and follow-up actions are formulated. The project contributes to institutional

strengthening in the region, to enhancing knowledge of forest resources and agroforestry production systems, and to ensuring better coordination among all actors of government, donors and other stakeholders related to food security and forest conservation.

Immediate beneficiaries are the government agencies and extension services responsible for the conservation and sustainable use of forests and for the assurance of rural food security in Central Africa. The project will assist these agencies in developing and implementing appropriate policies to enhance food security through the use of NWFPs. Indirect beneficiaries are the local populations, who currently neither have access to adequate food, nor the means or knowledge to improve the gathering of forest products.

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FAO Technical Cooperation Programme project "Marketing system development for non-wood forest products in the Lao People's Democratic Republic" (TCP/LAO/3002)

Upon the request of the Lao Government, FAO assists the Ministry of Agriculture and Forestry, National Agriculture and Forestry Research Institute in its efforts to reduce rural poverty in the country and to promote the sustainable use and management of forest resources through the development of appropriate non-wood



forest product (NWFP) marketing systems. The project is being implemented in partnership with the Netherlands Development Organization (SNV).

In the Lao People's Democratic Republic, NWFPs such as rattan and bamboo bring 50 to 55 percent of cash income to rural villages, where 80 percent of the Lao population lives. At the national level, domestic use of NWFPs accounts for 20 to 30 percent of the gross national product, while NWFPs bring 2 to 4 percent of the annual revenue to the government through exports. Despite their economic importance, marketing and marketing support systems for NWFPs are weak and considered as the main constraint for the development of the NWFP sector. The lack of reliable information on prices, demand and supply leads to inadequate economic benefits for local producers, who sell products at unreasonably low prices and at unsustainable harvesting rates in order to gain short-term profits. In addition, local producers miss opportunities to produce and sell most promising and profitable commodities.

The NWFP Marketing Project aims to strengthen capacities in the Lao People's Democratic Republic on NWFP marketing at the national and local levels using the market analysis and development (MA&D) approach, codeveloped by FAO. Based on a thorough analysis of the national NWFP sector, the project will develop models for sound NWFP marketing in order to assist the Lao Government in its efforts to reduce rural poverty in the country and to promote sustainable forest management through the environmentally friendly, socially equitable and economically viable use of NWFPs.

The project's expected outputs are:

- The national NWFP sector in the Lao People's Democratic Republic is assessed.
- Promising priority NWFPs and their markets and marketing opportunities are analysed.

- A model approach for NWFP market development is elaborated and pilot marketing activities are conducted at the village level to verify the NWFP marketing model.
- Linkages among national and international organizations and the private sector are established.
- Training for local communities and other key actors is provided to strengthen their capacity in MA&D and the sustainable use and management of the NWFP resources.

As a result, the project will contribute to the promotion of income generation for rural farmers through the sustainable management, use and marketing of NWFPs.

The first activities of the project were the organization of a Project Inception Workshop (PIW) and Project Steering Committee meeting.

The PIW, held on 4 November 2004, was well attended by some 65 participants representing national governmental and non-governmental organizations as well as international organizations and projects. Discussions emphasized the challenges of supporting (NWFP) marketing systems in the Lao People's Democratic Republic. Many existing constraints have been identified and shared by the participants (e.g. quota system, tax system, property system, land allocation programme, lack of information at all levels, access to markets and capital). However, participants also stressed the existing opportunities to promote NWFP marketing in the Lao People's Democratic Republic (e.g. traditional knowledge, resource availability, market demand). An introductory session on the MA&D approach was led by the Regional Community Forestry Training Centre (RECOFTC) and was well received by the participants. The first meeting of the Project Steering Committee, held on 5 November 2004, discussed and clarified administrative and technical issues of project implementation.

Subsequent to these introductory meetings, field activities were started

with a rapid NWFP assessment in three provinces: Savannakhet, Luang Prabang and Champasack.

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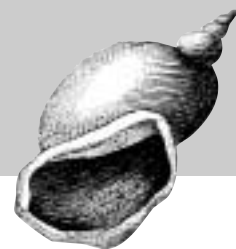


FAO Technical Cooperation Programme "Eaglewood management project" (TCP/PNG/2901(A))

Upon the request of the Government of Papua New Guinea, FAO assists the Papua New Guinea Forest Authority in the sustainable management and commercialization of eaglewood (also known as agarwood, aloeswood or gaharu).

Eaglewood is a valuable non-wood forest product that has been commercially exploited in Papua New Guinea for approximately ten years. High external demand combined with low national capacities with regard to eaglewood production and commercialization has resulted in uncontrolled exploitation and inappropriate trade structures which marginalize local producers. Rough estimates indicate that if unsustainable harvest and trade continue, eaglewood resources in certain areas will be totally depleted by 2005, not only threatening

INTERNATIONAL ACTION



the tree species but also leading to substantial economic losses.

The objectives of the two-year project, which started in October 2003, are: i) to strengthen institutional capacities of technical staff from governmental and non-governmental organizations at the national level and the management capacities of local resource owners and producers at the grassroots level; and ii) to assist the concerned governmental organizations in the elaboration of a national eaglewood conservation and management strategy. This strategy will be based on the assessment of the ecological and socio-economic impact of eaglewood production and the identification of appropriate processing and harvesting technologies, including inoculation techniques to promote oleoresin production. Collaboration among all concerned stakeholders will be enhanced.

The project's expected outputs are:

- Sustainable management strategies, guidelines and policy measures on eaglewood as part of the ecoforestry policy are formulated.
- The extension and regulatory capacity of governmental and non-governmental organizations is strengthened.
- Effective training and awareness campaigns on eaglewood management at the grassroots level are carried out.
- Workable community-based eaglewood management models on customary land in three selected areas are designed and undertaken.
- Promising extraction methods are tested.
- Cost-effective fungal inoculation techniques adapted to Papua New Guinea conditions are developed.

As a result, it is expected that the assistance will contribute to sustaining the management of eaglewood resources and the livelihood of people using eaglewood resources.

Project activities started in 2003 with participation in the first International Agarwood Conference "Wood of the Gods" (see www.agarwood.org.vn). The

conference was held from 10 to 15 November in Viet Nam (Ho Chi Minh City and An Giang Province) and coorganized by the Tropical Rainforest Project (TRP) Foundation, the National University of Ho Chi Minh City, the An Giang University and the University of Minnesota [see Non-Wood News 11 for further information].

In 2004, the project coorganized several meetings of the Project Steering Committee and Inter-Agency Committee. These meetings have been important and successful in bringing together all stakeholders involved in the eaglewood sector in order to discuss eaglewood and project-related issues.

Studies on the environmental and socio-economic impact of eaglewood utilization, the international eaglewood market and best practices on appropriate nursery and distillation techniques have been initiated in collaboration with organizations such as the Papua New Guinea Forest Research Institute, Partners with Melanesians and the WWF South Pacific Programme.

A study on international regulations on endangered species with focus on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has been carried out in order to provide recommendations to the Papua New Guinea Government on the legal implications of eaglewood utilization and trade. This issue is of particular interest since the 13th Conference of the Parties (CoP) to CITES which was held in Bangkok, Thailand in October 2004. During this conference, the two agarwood-producing genera *Aquilaria* and *Gyrinops* were included in Appendix II of the Convention. This means that a special export permit will be required, in order to ensure that the level and/or volume of trade of wild populations will not have any negative environmental impact. (For further information on CITES CoP 13, see www.iisd.ca/cites/cop13/)

Field-related project activities carried out in 2004 included the identification/establishment of four pilot areas (Amau/Central Province, Kapiri/Gulf Province, Maramuni/Elem and Pukapuki/East Sepik), training and

awareness raising of some 1 000 villagers on eaglewood-related issues and the establishment and inventory of pilot plots, which have been selected as experimental plots to test inducement techniques. Staff of the National Forest Service have been trained in resource management and grading aspects.

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FAO Technical Cooperation Programme project "Institutional support to promote the sustainable use and management of non-wood forest products in Cameroon" (TCP/CMR/2905[A])

Many households in Cameroon depend on NWFPs as a source of food, construction material, medicines and income. Fruits (e.g. from *Irvingia gabonensis*), leaves (e.g. *Gnetum* spp.) and spices (e.g. *Ricinodendron heudelotii*) are among the most relevant edible NWFPs. Other important NWFPs include medicinal plants (e.g. *Prunus africana*) and rattan (e.g. *Laccosperma secundiflorum*). Despite the actual and potential benefits of using NWFPs for both subsistence and trade, various legal and institutional constraints hinder the sustainable use of NWFPs, including the inappropriate management of resources providing NWFPs and unclear tenure systems.



The Government of Cameroon recognizes the important role of NWFPs in poverty alleviation, particularly in rural areas. In order to promote the sustainable use of NWFPs, in 1998 the Ministry of Environment and Forests (MINEF) created a Subdivision for the Promotion and Processing of NWFPs (Sous-direction de la promotion et de la transformation des produits forestiers non-ligneux [SDNL]).

In November 2001, the University of Yaoundé and FAO coorganized a seminar on "NWFPs in Cameroon: potentials, constraints and perspectives" which was followed by workshops organized by MINEF (January 2002) and the Gesellschaft für Technische Zusammenarbeit (GTZ, November 2003). These workshops analysed the NWFP sector and identified key challenges faced by NWFP producers, consumers and traders. Furthermore, the workshops acknowledged the efforts made by governmental and non-governmental organizations to promote the sustainable use of NWFPs.

This Technical Cooperation Programme project was started in October 2003 to build on these efforts and to support the Government of Cameroon in promoting the sustainable use of NWFPs.

The main project activities include: the analysis of the national NWFP sector; elaboration of recommendations for the sustainable management, consumption and commercialization of two selected NWFPs (covering both humid and arid ecosystems); and support of MINEF in its efforts to elaborate a national strategy and action plan for NWFPs.

During the first project phase, national experts analysed the NWFP sector in Cameroon by taking into account socio-economic, ecological and legal aspects. This assessment led to the identification of two priority NWFPs, for which the project will elaborate strategies for the sustainable production and commercialization: *Gnetum* spp., an edible leaf, which is intensively collected in the humid zone, and gum arabic (*Acacia senegal*, *A. seyal*), produced and traded in the arid zones located in the northern parts of Cameroon.

Furthermore, the project will elaborate recommendations for an appropriate legal and institutional framework supporting the sound development of the NWFP sector in Cameroon.

The information collected and analysed by the project will help the Government of Cameroon to develop a national strategy and action plan for the sustainable use of NWFPs.

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Alternative livelihoods developed to protect World Heritage Site

Small enterprises have been created in communities around the Bwindi Impenetrable National Park in Uganda to generate income while conserving the park, named a UNESCO World Heritage Site in 1994.

Thanks to an FAO project, funded by the United Nations Foundation and the Government of Norway, communities that used to live off the park's forest resources have developed small-scale enterprises and now earn income from a wide variety of products, such as handicrafts, honey and mushrooms, while conserving the park. "This pilot project shows that it is possible for communities living around high biodiversity or protected sites to create alternative sources of income using the natural resources in a sustainable way," said Sophie Grouwels, an FAO expert in participatory forestry.

Park conservation versus people's livelihoods

Bwindi Park is home to half of the world's mountain gorillas and 12 other animal species threatened with global extinction. To protect the mountain forest's rich biodiversity, the Ugandan Government declared it a national park in 1991.

This, however, threatened communities that depended on the park's forest resources to make a living. Forty percent of the population living around the park lack sufficient land to meet basic needs and 16 percent of the population are landless. They relied on the forest for weaving materials, medicinal plants, hunting, honey collection, fruit gathering and building poles.

When Bwindi was named a national park, the people were barred from removing forest products, some of which played a crucial role in their livelihood. The inaccessibility of the park to those living around it fuelled conflicts between the communities and the park.

Environmentally friendly community-based enterprises

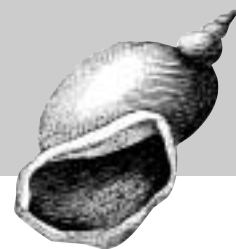
The FAO project, launched in 2001, has enabled more than 300 small-scale natural resource-based enterprises to be set up around the park, with community members running them independently and earning income. Activities range from food production to tourist tours.

The Buhoma Village Walk is a guided tour offered mainly to tourists visiting the Bwindi Impenetrable National Park for gorilla watching. This initiative provides members of the local community with an alternative source of income directly linked to conservation.

Trained community guides lead tourists to a number of interesting natural and cultural sites, ranging from rural homesteads to visiting the local traditional medicine healer. The initiative has been quite successful, with the number of visitors jumping from 94 in July 2003 to 148 in July 2004.

Apiaries have been established and beehives populated so that people can





produce and sell honey and beeswax, using traditional knowledge and appropriate technology. Those who used to keep hives made from logs found in the park now have their own improved hives made of woven grasses, which increase yields and the quality of the honey. The expected income from the improved hives is about US\$30 to \$40 per household per year.

Raw materials for traditional handicrafts are now mainly grown in home gardens, rather than in the park. The crafts are sold in the local tourist market and also exported, generating an average of US\$17 in additional monthly income per household.

The cultivation and sale of oyster mushrooms has reduced the illegal harvest from the park. The producers make an average of US\$10 in additional income a month per household from this activity.

All these activities have generated employment and created additional income. Requiring less space than other agricultural activities, they also exert less impact on the land and make best use of existing local knowledge and resources.

Community members' involvement

"The involvement of the community members themselves from the outset – that is, from the selection of products, development of business plans, to the operation of the enterprises – has been key to the success of the project," Grouwels said.

To increase the capacity of community members to plan, develop and run their enterprises independently, workshops were held in the villages, interest groups were created around promising products and capable local entrepreneurs with leadership qualities were identified.

"We will use the lessons learned and share best practices from the project at other high biodiversity sites," Grouwels said. "It shows it is possible to conserve valuable natural resources while also protecting the surrounding people's livelihoods." (Source: FAO Newsroom, 3 December 2004.)

MOUNTAIN PARTNERSHIP

Mountains store a wealth of non-wood forest products – food crops, medicinal plants and animal species – found nowhere else. Yet, despite these rich resources, mountain people are among the poorest and hungriest in the world.

What prevents mountain people reaping the benefits of these valuable non-wood forest products? The reasons are various and include: weak communication infrastructures in many mountain areas; lack of information, training and expertise in new agricultural technologies; a dearth of registration, certification and labelling to protect products; inadequate marketing skills and lack of wider market access; high transport costs; and unfair trade.

Tapping the potential of these non-wood forest products and transforming them into quality products can make a real difference to the well-being, lives and livelihoods of mountain people. Action is under way. Around the world, countries, intergovernmental organizations and major groups are now working with mountain people to protect and promote mountain products in a fair and equitable manner. They are doing this within the framework of the International Partnership for Sustainable Development in Mountain Regions, or the Mountain Partnership, a voluntary alliance of partners dedicated to improving the lives of mountain people and protecting mountain environments worldwide.

Launched at the World Summit for Sustainable Development in 2002, the Mountain Partnership taps the wealth and diversity of resources, knowledge and expertise of its members to support positive change in mountain areas. As of January 2005, 43 countries, 14 intergovernmental organizations and 55 major groups have become members of the Mountain Partnership and the numbers are growing. A Partnership Secretariat, with financial support from the governments of Italy and Switzerland, is hosted by the Food and Agriculture Organization of the United Nations (FAO)

in Rome and has the direct involvement of the United Nations Environment Programme (UNEP) too. The secretariat and the Mountain Forum – an electronic worldwide network – work together in a collaborative alliance to support the members of the Mountain Partnership.

The dynamic core of the Mountain Partnership is Partnership Initiatives – activities, programmes and projects on the ground jointly promoted by its members. In 2004, a first set of 12 initiatives was identified, based on members' needs, priorities and concerns. Six initiatives focus on mountain regions (Andes, Central America and the Caribbean, Central Asia, East Africa, Europe and Hindu Kush Himalaya), while seven initiatives focus on mountain themes such as education, gender, policy and law, research, sustainable agriculture and rural development in mountain regions (SARD-M), sustainable livelihoods and watershed management.

Peak to Peak is the monthly newsletter of the Mountain Partnership. To subscribe, please contact: info@mountainpartnership.org

Members of the Mountain Partnership, with support from the secretariat, are actively building the initiatives through consultation, communication and collaborative action. A core activity within the Sustainable Livelihoods Initiative, for example, is a project on protecting and promoting mountain products. This particular initiative will provide new opportunities to explore the vast potential of non-wood forest products to improve the lives of mountain people.

For more information, please contact:

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e-mail: douglas.mcguire@fao.org;

www.mountainpartnership.org and

www.mtnforum.org ●

RECENT EVENTS



20TH SESSION OF ASIA-PACIFIC FORESTRY COMMISSION

NADI, FIJI
19-23 APRIL 2004

The Asia-Pacific Forestry Commission (APFC) meets in general session every two years, providing member countries and other interested organizations an opportunity to assess the successes and challenges in forestry in Asia and the Pacific, and to develop programmes for regional cooperation.

For more information, please contact:
Patrick Durst, Senior Forestry Officer,
FAO Regional Office for Asia and the Pacific,
39 Phra Atit Road, Bangkok 10200, Thailand.
Fax: +66 2 6974445;
e-mail: Patrick.Durst@fao.org



INTERNATIONAL CONFERENCE ON THE INTEGRATION OF FOREST-BASED DEVELOPMENT IN THE WESTERN AMAZON

RIO BRANCO, ACRE, BRAZIL
26-29 APRIL 2004

This conference was the final activity of ITTO Project PD 94/90 Rev. 3 (I) – The integration of forest-based development in the western Amazon – Phase II – technology for sustainable utilization of raw forest materials.

Major project outputs included: an integrated management plan for the Antimari Forest Reserve; a system for the participation of and benefit-sharing within local communities; the construction of an

access road to the reserve; marketing strategies for timber and non-timber products; the establishment of cooperatives for the production and marketing of forest and non-forest products; integrated logging and primary and secondary timber-processing operations; establishment of local processing units for latex and Brazil nuts; a series of permanent plots to monitor the effects of forest utilization; and improvements in the social services for the local populations.

The objective of this workshop was to share project results and to discuss how these might be translated into policy strategies for the development of forest-based sustainable forest industry in the Amazon region.

For more information, please contact:
Ms Nesia Maria da Costa Moreno,
Project Manager, Avenida das Acácias
Zona "A", Distrito Industrial, Caixa
Postal 395, CEP 69.917-100, Rio
Branco, Acra, Brazil.
E-mail: Nesiamcm33@bol.com.br

WILDLIFE AS A NATURAL RESOURCE – 6TH INTERNATIONAL WILDLIFE RANCHING SYMPOSIUM

PARIS, FRANCE
6-9 JULY 2004

The International Wildlife Ranching Symposium (IWRS) has striven for 15 years to bring together the people who care about upgrading the value of wildlife and its products throughout the world. The symposium provided a forum to interact and exchange information and ideas on all aspects of wildlife conservation as a tool for sustainable development, including: wildlife as food including the bushmeat issues; wildlife products including marketing, processing and controlling; and wildlife/human conflicts including disease transmission, crop damage and predation on livestock.

For more information, please contact:
Philippe Chardonnet, Director,

Fondation Internationale pour la
Sauvegarde de la Faune, International
Foundation for the Conservation
of Wildlife, 15 rue de Téhéran,
75008 Paris, France.
E-mail: igf@fondation-igf.fr;
www.wildlife-conservation.org

WORKSHOP ON NON- TIMBER FOREST PRODUCT (NTFP) NETWORKING IN LAO PEOPLE'S DEMOCRATIC REPUBLIC

VIENTIANE, LAO PEOPLE'S
DEMOCRATIC REPUBLIC
9 JULY 2004

NTFPs play an important role in poverty alleviation, sustainable management of natural resources and private sector development in the Lao People's Democratic Republic, where more than 50 organizations are working in the NTFP sector.

The objective of the workshop was to identify opportunities for information exchange and cooperation through networking among organizations working in the country's NTFP subsector.

For more information, please contact:
Mr Kamphone Sengdala.
E-mail: khamphone01@yahoo.com;
or
Mr Joost Foppes, SNV-FRC NTFP
Adviser.
E-mail: jfoppes@csloxinfo.com





SECOND WORLDWIDE SYMPOSIUM ON GENDER AND FORESTRY

ARUSHA, UNITED REPUBLIC OF TANZANIA
1-10 AUGUST 2004

This event focused on women and forestry, gender, poverty and sustainable development, forest resource use and income-generating activities for local people, ideology, religion and environmental responsibility.

For more information, please contact:

Merete Furuberg, Hedmark University College, Evenstad, 2480 Koppang, Norway.

Fax: +47 62 945753;

e-mail: merete.furuberg@hedmark-f.kommune.no;

www.cifor.cgiar.org/docs/_ref/publications/newsonline/35/event.htm

FOURTH EUROPEAN CONFERENCE ON THE CONSERVATION OF WILD PLANTS

VALENCIA, SPAIN
17-20 AUGUST 2004

Organized by Planta Europa, the network of organizations for the preservation and sustainable use of wild flora in Europe, this conference aimed at contributing to the implementation of the Global Strategy for Plant Conservation in Europe.

For more information, please contact:

Planta Europa, c/o Poeta Monmeneu, 16 1 E-46009, Valencia, Spain.

E-mail: floraval@gva.es;

www.nerium.net/plantaeuropa/index.htm



1ST INTERNATIONAL WORKSHOP ON FOREST AND ENVIRONMENTAL INFORMATION AND DECISION SUPPORT SYSTEMS

ZARAGOZA, SPAIN
30 AUGUST-3 SEPTEMBER 2004

This workshop focused on modern technology for the design and construction of Information and Decision Support Systems for Forestry and the Environmental Sciences.

Among the most important requirements of forestry and environmental management, are: i) the need for monitoring information on damage and disturbances, including fire; ii) reliable information on diversity to aid in efforts to conserve biological, landscape and social diversity which is associated with forests and the environment; and iii) accurate forest inventory data, often remotely sensed, which may be used to guide sustainable management of natural resources for the effective production of timber and NTFPs.

For more information, please visit:

http://cms1.gre.ac.uk/conferences/iufro/DEXA04_FEIDSS/

NON-WOOD PRODUCT MANAGEMENT AND USE IN THE MEDITERRANEAN REGION

SOLSONA (LLEIDA), SPAIN
20 SEPTEMBER-1 OCTOBER 2004

The main objectives of the seminar were to discuss the different production and management strategies for non-wood forest products that exist in the Mediterranean region, as well as identifying opportunities for joint collaboration.

For more information, please contact:

Rosa Ricart, Centre Tecnològic Forestal De Catalunya, Pujada del Seminari s/n,

25280 Solsona, Spain.

Fax: +34 973 481392;

e-mail: formacio@ctfc.es;

www.ctfc.es

CONFERENCE ON BUSHMEAT AND LIVELIHOODS

LONDON, UNITED KINGDOM
23-24 SEPTEMBER 2004

This conference was organized by the Overseas Development Institute and the Zoological Society of London. It considered the state of existing knowledge on wild meat from a livelihoods perspective, in order to recommend ways forward for both policy-makers and practitioners concerned with its sustainable management.

For more information, please contact:

David Brown.

Fax: +44 20 79220399;

e-mail: d.brown@odi.org.uk;

**www.odi-bushmeat.org/
conference_overview.html**

THE SECOND ALASKA NON-TIMBER FOREST PRODUCTS CONFERENCE – HIDDEN FOREST VALUES II

SITKA, ALASKA, USA
1-2 OCTOBER 2004

The purpose of this conference was to exchange information, cooperate and raise awareness of issues on sustainable and equitable, environmentally and economically viable opportunities for non-timber forest products in Alaska. The conference addressed traditional values, income opportunities and sustainability issues related to NTFPs in Alaska.

For more information, please contact:

Al White, Coordinator, Mat-Su RC&D,

1700 E. Bogard Road, Suite 203,

Wasilla, Alaska 99654, USA.

Fax: +1 907 3731064.



SECOND GLOBAL SUMMIT ON MEDICINAL AND AROMATIC PLANTS – PROSPECTS AND CONSTRAINTS IN CULTIVATION, PRODUCTION AND MARKETING OF MEDICINAL PLANTS

NEW DELHI, INDIA
25–29 OCTOBER 2004

Plants have been a major source of medicine for humans. According to available information, a total of at least 35 000 plant species are widely used for medicinal purposes. The demand for traditional herbal medicine is increasing very rapidly, mainly because of the harmful effects of synthetic chemical drugs. The World Health Organization (WHO) estimated that 80 percent of the population of developing countries depend on traditional systems of medicine, mostly plant-based products, for their primary health care. The global clamour for more herbal ingredients creates possibilities for the local cultivation of medicinal and aromatic crops as well as for the regulated and sustainable harvest of wild plants. Such endeavours could help raise more rural employment in the developing countries, boost commerce around the world and perhaps contribute to the health of millions.

The current global market for herbal products, including medicines, beauty and toiletry products is estimated at around US\$62 billion. The global market for herbal medicine alone is estimated to be around US\$5 billion, growing at a rate of 30 to 40 percent annually, and is expected to reach US\$16 billion by 2005. There is a need for validation and standardization of phytomedicines and traditional medical practices so that this sector can be accorded its rightful place in the health care system.

The summit objectives, therefore, were to: a) provide a global forum for growers, traders, manufacturers of herbal

medicine and professionals in the field of traditional and other alternative therapies to share knowledge, experiences and ideas; and b) plan future strategies in medicinal and aromatic plant research, education and training, and development.

For more information, please contact:
**Dr Anita M., Organizing Secretary,
Second Global Summit on Medicinal and Aromatic Plants, c/o Century Foundation, No. 35, 3rd Cross Road, Vignannagar, Malleshpalya, Bangalore 560075, India.**
Fax: +91 80 23219295;
e-mail: cenfound@sparri.com

1ST INTERNATIONAL FAIR AND FORUM: NON-TIMBER FOREST PRODUCTS – CULTURE OF USE

MOSCOW, RUSSIAN FEDERATION
30 OCTOBER–3 NOVEMBER 2004

The IUCN Office for Russia and the Commonwealth of Independent States, in collaboration with an array of local and international partners, organized the first ever fair of non-timber forest products.

NTFPs – such as berries, mushrooms and herbal medicines – are among the most important forest resources for local communities around the world, even though the actual “products” may vary from place to place. Interest in these products has grown enormously in recent years, and NTFPs are increasingly viewed as a key part of local sustainable livelihood strategies. However, better information on marketing opportunities, equipment and technologies and sustainable harvesting practices is needed to ensure the sector’s sustainability.

IUCN has been working with local communities in far-eastern Russia on developing sustainable NTFP-related businesses since 1998, and the NTFP fair boosted similar initiatives across the country and beyond.

For more information, please contact:
Mr Nikolay Shmatkov, IUCN–World

Conservation Union Office for Russia and CIS, 17 Marshal Vasilevski St, 123182 Moscow, Russian Federation.
Fax: +7 095 4905818;
e-mail: shmatkov@iucn.ru;
www.iucn.ru

5TH INTERNATIONAL WALNUT SYMPOSIUM

SORRENTO, ITALY
9–13 NOVEMBER 2004

Scientific and technical contributions on walnut for fruit, wood and other products were presented and discussed.

For more information, please contact:
**Dr Maria Emilia Malvolti,
CNR-Istituto di Biologia Agro-Ambientale e Forestale, Via Marconi 2, I-05010 Porano-TR, Italy.**
Fax: +39 0763 374980;
e-mail: mimi@ibaf.cnr.it



THE FOURTH NATIONAL BAMBOO CONGRESS

VIGAN CITY, ILOCOS SUR, PHILIPPINES
10–12 NOVEMBER 2004

For more information, please contact:
The IV National Bamboo Congress Secretariat, University of Northern Philippines, Vigan City, Ilocos Sur 2700, Philippines.
Fax: +63 77 7222810;
e-mail: alfredorabena@yahoo.com;
www.unp.edu.ph/bamboo/index.htm



3RD IUCN WORLD CONSERVATION CONGRESS

BANGKOK, THAILAND
17-25 NOVEMBER 2004

The theme of this congress was "People and Nature – only one world". Various topics related to the problems and the safeguarding of ecosystems were assessed and debated from the perspective of governments, NGOs, civil society and the private sector. The event was the largest environmental gathering ever held in Asia.

For more information, please contact:
Dr Steve Edwards, Senior Adviser,
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IUCN-World Conservation Union
Headquarters, Rue Mauverney 28,
Gland 1196, Switzerland.
Fax: +41 22 9990020;
e-mail: steve.edwards@iucn.org;
[www.iucn.org/congress/about/welcome](http://www.iucn.org/congress/about/welcome.htm)
.htm

BEYOND WOOD: THE VALUE OF NON-TIMBER FOREST PRODUCTS

CORNWALL, UNITED KINGDOM
2-5 DECEMBER 2004

This workshop was designed to increase awareness among young foresters (both students and young professionals) of the importance of NTFPs and the complex nature of their conservation, development and utilization. It was envisaged that lessons learned will enable these forest managers of the future to give a high priority to responsible and sustainable forest management, to give due concern to the people who depend on the forest for their livelihood and to open up new resources to communities and First Nations.

Thirty participants and trainers from eight countries (United Kingdom, Malawi, Uganda, Switzerland, Germany, Denmark, France and Australia) gathered at the Eden Project in Cornwall to listen to

presentations, exchange information and debate key issues related to NTFP conservation, research, development and utilization. Speakers from both developed and developing countries were able to provide a global perspective on the challenges and opportunities surrounding NTFPs. All presentations are available online (www.cfa-international.org).

For more information, please contact:
Alan Pottinger, Technical Director,
Commonwealth Forestry Association,
2 Webbs Barn Cottage, Witney Road,
Kingston Bagpuize, Abingdon,
Oxfordshire OX13 5AN, UK.
Fax: +44 870 0116645;
e-mail: alan.pottinger@cfa-international.org

WORLD HERBO-BAMBOO EXPO – 2005

BHOPAL, MADHYA PRADESH, INDIA
12-15 JANUARY 2005

Topics discussed included: tribal development through commercialization of medicinal plant biodiversity; innovative bamboo products, bioenergy, biofoods, biomedicines, prospective for the people and the environment; and the role of Ayurveda in AIDS.

For more information, please contact:
Secretary General, World Herbo Expo
2004, Jeev-Jantu Kalyan Sangathan
(PFA), "Vasundara Bhawan", E-4, Patel
Nagar, Raisen Road, Bhopal 462012,
M.P., India.
E-mail: sugandh_09@satyam.net.in or
info@thegreenearth.org;
www.thegreenearth.org



GLOBAL FORUM ON THE REVIEW OF WOMEN'S PROGRESS ON FORESTRY MANAGEMENT SINCE BEIJING 1995: TOWARDS A COMMON AGENDA

KAMPALA, UGANDA
25-29 JANUARY 2005



The main objective of this review exercise was to examine objectively the gains made and challenges met by women in implementing sustainable forest management actions to which governments committed themselves during the Beijing Platform of Action.

The forum focused on the involvement of women in:

- forestry in improving family livelihoods including contributions of timber and non-timber forest products and in agroforestry;
- energy conservation with specific reference to biomass energy; and
- biodiversity protection and environmental sustainability.

For further information, please contact:
UNFF Secretariat, Afsa Kemitare.
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Planting Movement.
E-mail: ruthmubiru@yahoo.com; or
Lorna Juliet Amutojo, Uganda Land
Alliance.
E-mail: ula@africaonline.co.ug; or
Mr Onyango, Ministry of Water, Land
and Environment.
E-mail: info@nfa.org.ug; or
Nsita Steve, National Forest
Management.
E-mail: steven@nfa.org.ug



**INTERNATIONAL
CONFERENCE ON
SUSTAINABLE
DEVELOPMENT
OF MEDICINAL
PLANTS/HERBS
IN THE 21ST CENTURY**

BHOPAL, MADHYA PRADESH, INDIA
5-8 FEBRUARY 2005

For more information, please contact:
Mr D.P. Mathur, Organizing Secretary,
1982 Subhash Nagar, Chandkheda,
Ahmedabad 382 424, India.
Fax: +91 79 23292458;
e-mail: isdms@rediffmail.com or
dpmathur@eth.net



**WORKING FORESTS IN
THE TROPICS: POLICY
AND MARKET IMPACTS
ON CONSERVATION
AND MANAGEMENT**

GAINESVILLE, FLORIDA, USA
14-15 FEBRUARY 2005

This conference was developed as a forum to examine impacts of public policies and markets on tropical forests and the people who live in them, and to identify policy initiatives and market-based incentives that may be useful for promoting forest conservation and management.

For more information, please contact:
Dr Daniel J. Zarin, Conference Chair,
University of Florida/IFAS,
School of Forest Resources and

Conservation, PO Box 110760,
Gainesville, FL 32611-0760, USA.
Fax: +1 352 8461332;
e-mail: zarin@ufl.edu;
www.conference.ifas.ufl.edu/topics

**INTERNATIONAL
CONFERENCE ON
ECOTOURISM PLANNING
AND MANAGEMENT IN
PROTECTED AREAS**

SRINAGAR GARHWAL, INDIA
28 FEBRUARY-3 MARCH 2005

Topics included the planning, development, management and monitoring of ecotourism as well as issues of marketing, impacts and advancement. Community ecotourism development was a particular priority.

For more information, please contact:
Prof. S.C. Bagri, Director,
Centre for Mountain Tourism and
Hospitality Studies, HNB Garhwal
University, Srinagar Garhwal 246174,
Uttanchal, India.
Fax: 01346 252174/252424;
e-mail: bagri_sc@hotmail.com

**17TH COMMONWEALTH
FORESTRY CONFERENCE**

COLOMBO, SRI LANKA
28 FEBRUARY-5 MARCH 2005

The theme of the conference was "Forestry's contribution to poverty reduction". The conference was structured around the following subthemes:

- Ensuring the supply security of forest goods and services
- Building good governance in the forestry sector
- The role of forestry in improving people's lives
- Ensuring stakeholder participation at all levels

For more information, please contact:
**Libby Jones, Secretary, Standing
Committee on Commonwealth
Forestry, Forestry Commission, UK.**
Fax: +44 131 3164344;
e-mail: libby.jones@forestry.gsi.gov.uk;
www.commonwealthforestry.org/index.htm



FORTHCOMING EVENTS



SEVENTEENTH SESSION OF THE FAO COMMITTEE ON FORESTRY (COFO)

ROME, ITALY
15-19 MARCH 2005

This 17th biennial session of COFO will convene at FAO headquarters, bringing together heads of forest services and other senior government officials to identify emerging policy and technical issues and advise FAO and others on appropriate action.

For more information, please contact:
Douglas Kneeland, FAO Forestry Department.
Fax: +39 0657055137;
e-mail: douglas.kneeland@fao.org;
www.fao.org/forestry/site/2962/en

GLOBAL CONFERENCE ON INDIGENOUS KNOWLEDGE AND TRADITIONAL MEDICINE

JOHANNESBURG, SOUTH AFRICA
16-18 MARCH 2005

The main objective of this conference is to review current indigenous knowledge laws and to recommend changes and amendments wherever necessary. It will also give participants a chance to educate indigenous healers on how to develop and protect their medical products, process and procedures; and also to promote collaboration between indigenous healers, conventional medical practitioners and corporate institutions for joint development and sharing of intellectual property rights of medicinal products, processes and procedures.

For more information, please contact:
J. William Danquah, President & Chief Executive Officer, Africa First LLC, 517 Asbury Street, Suite 11, Saint Paul, MN 55104, USA.
Fax: +1 651 6443235;
e-mail: info@africa-first.com;
www.africa-first.com



TRAINING WORKSHOP-CUM-SEMINAR ON POVERTY ALLEVIATION THROUGH BAMBOO-BASED DEVELOPMENT: POLICIES, STRATEGIES AND STAKEHOLDERS

ZHEJIANG, CHINA
18-28 APRIL 2005

Bamboo is a fast-growing and regenerating species. Shortly after planting, annual profits occur without negative environmental effects. It is an ideal non-timber forest product for sustainable development. Beyond traditional handicrafts and practical daily products, China's bamboo sector has become a fast emerging rural industry. It plays an important role in reducing timber consumption, protecting natural forests, poverty alleviation, employment/income generation, environmental improvement and rural socio-economic development. Many developing countries in Africa, Asia and Latin America have rich bamboo resources, but poor utilization, especially in terms of industrial processing.

This training workshop provides an opportunity for policy-makers, rural development practitioners, and entrepreneurs in bamboo-producing countries to learn about the potential of bamboo in sustainable development, and to study the Chinese experiences elaborating development strategies and the sustainable management of enterprises.

The course will be carried out jointly by INBAR and the Bamboo Industry Associations of Lin'an and Anji counties

in Zhejiang province, China. It will focus on policies and case studies from the two counties, where impressive developments have taken place over recent years. Course modules will include: bamboo development policies and strategies; bamboo in rural development and poverty alleviation/income generation; private sector and community partnership models; household/micro-enterprise development; farmer-market linkages; multistakeholder participation; efficiency of raw material utilization; product development, etc.

Workshop structure

Lectures by bamboo development experts (2 days)
Field studies in villages, households, factories, markets (5 days)
Group discussion with local government officials, entrepreneurs, technicians (1 day)

For more information, please contact:
Ms Jin Wei, Publications and Training Officer, International Network for Bamboo and Rattan (INBAR), Beijing 100101-80, China.
Fax: +86 10 64702166;
e-mail: wjin@inbar.int

NINTH NORTH AMERICAN AGROFORESTRY CONFERENCE – 2005

ROCHESTER, MINNESOTA, USA
12-15 JUNE 2005

The theme for this conference, "Moving agroforestry into the mainstream", is intended to attract those people interested in the production and environmental benefits of agroforestry.

Printed and CD-ROM versions of the proceedings will be published.

For more information, please contact:
Dean Current, CINRAM, 115 Green Hall, 1530 Cleveland Ave. North, St Paul, MN 55108-6112, USA.
E-mail: curre002@umn.edu;
www.cinram.umn.edu/afta2005



**THE 2005 CHILDREN'S
WORLD SUMMIT FOR
THE ENVIRONMENT**

AICHI, JAPAN
26-29 JULY 2005

The summit will bring together 1 000 children between the ages of 10 and 14 from more than 150 countries. Now in its sixth year, the summit is held based on the recognition that the children of today will be responsible for the global environment of the future, and can contribute their valuable experiences and opinions as part of an ongoing dialogue. The summit aims to inspire children to think globally, and empowers them to initiate action in their own communities. It is being hosted by Japan Organizing Committee for the 2005 Children's World Summit for the Environment (JOC) and the United Nations Environment Programme (UNEP).

For more information, please visit:
www.children-summit.jp/eng_t/index.html



**FORESTS IN THE BALANCE:
LINKING TRADITION AND
TECHNOLOGY – XXII
IUFRO WORLD CONGRESS**

BRISBANE, AUSTRALIA
8-13 AUGUST 2005

For more information, please contact:
Chair Gary Bacon, Congress
Organizing Committee, Queensland
Department of Primary Industries, GPO
Box 46, Brisbane, QLD 4001, Australia.
Fax: +61 7 32340878;
e-mail: gary.bacon@dpi.qld.gov.au;
<http://iufro.boku.ac.at/>

**SYMPOSIUM
ON NON-TIMBER
FOREST PRODUCTS,
COMMUNITY ECONOMIC
DEVELOPMENT AND
FOREST CONSERVATION:
A FUTURE BENEATH
THE TREES**

VICTORIA, BRITISH COLOMBIA,
CANADA
25-27 AUGUST 2005

The Centre for Non-Timber Resources at Royal Roads University in Victoria, Canada will host an international gathering of NTFP researchers, resource managers and resource users to discuss and assess the impact of the commercial development of NTFPs on rural livelihoods and forest conservation.

The purpose of the symposium is to assemble the world's experts on the commercial development of NTFPs and the implications of such development for rural livelihoods and forest conservation, in order to:

- share the principal lessons learned in tropical and subtropical regions over the past two decades;
- assess the relevance of experience in the "South" for the "North";
- share the experience to date of the commercial development of NTFPs in industrialized societies;
- develop an action-oriented agenda for NTFP development in temperate and boreal regions of the world, including policy recommendations; and
- support the development of a global network of NTFP interests in the public, private, indigenous, academic and non-profit sectors.

For more information, please contact:
Dr Darcy A. Mitchell, Director,
Centre for Non-Timber Resources,
Royal Roads University,
Victoria, British Columbia, Canada.
E-mail: ntfp@royalroads.ca;
www.ntfpconference.ca;
www.royalroads.ca/cntr

**THE THIRD
INTERNATIONAL
MEDICINAL MUSHROOM
CONFERENCE**

PORT TOWNSEND, WASHINGTON, USA
12-17 OCTOBER 2005

During the past few years, the body of evidence confirming the medicinal properties of mushrooms has expanded significantly. Researchers are discovering the mushroom genome is surprisingly complex in its molecular constituents and the manner in which they interact with human and environmental health. As sources for new antibiotics (both antibacterial and antiviral), immunomodulators, enzymes, enzyme-inhibitors and other medicines, mushrooms play a unique role in complementary therapies.

For more information, please contact:
Fungi Perfecti, LLC, PO Box 7634,
Olympia, WA 98507, USA.
Fax: +1 360 426 9377;
e-mail: mycomedia@aol.com;
www.fungi.com/immc/ ●





- Alaska Boreal Forest Council.** 2003. *Proceedings: Hidden Forest Values. The First Alaska-wide Non-timber Forest Products Conference and Tour. General Technical Report PNW-GTR-579.* Washington, DC, US Department of Agriculture.
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- Anegbeh, P.O., Ukafor, V., Usoro, C., Tchoundjeu, Z., Leakey, R.R.B. & Schreckenberg, K.** 2005. Domestication of *Dacryodes edulis*. 1. Phenotypic variation of fruit traits from 100 trees in southeast Nigeria. *New Forests* (In press).
- Barany, M., Hammett, A.L., Leakey, R.R.B. & Moore, K.M.** 2003. Income-generating opportunities for smallholders affected by HIV/AIDS. Linking agro-ecological change and non-timber forest product markets. *J. Management Studies*, 39: 26–39.
- Barooah, C. & Borthakur, S.K.** 2003. *Diversity and distribution of bamboos in Assam.* Dehra Dun, India, Bishen Singh Mahendra Pal Singh (BSMPS).
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NEW PUBLICATIONS IN THE FAO NON-WOOD FOREST PRODUCTS SERIES

NO. 17. WILD EDIBLE FUNGI. A GLOBAL OVERVIEW OF THEIR USE AND IMPORTANCE TO PEOPLE.



Wild edible fungi are an important group of non-wood forest products: they are used as both food and medicine and provide income to many forest users and traders. This publication reviews the characteristics of fungi biology and ecology, as well as fungi management and their importance to people. Information is provided that will help forestry technicians, nutritionists, natural resource planners, policy-makers and other stakeholders concerned appraise the opportunities and constraints in promoting the sustainable use of wild edible fungi.

The Spanish version (*Los hongos silvestres comestibles. Perspectiva global de su uso e importancia para la población*) will be published in 2005.

This publication is available online (www.fao.org/documents/show_cdr.asp?url_file=/docrep/007/Y5489E/Y5489E00.HTM).

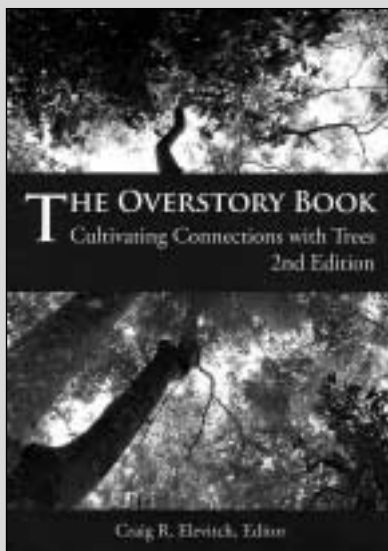
Printed copies can be purchased from: Sales and Marketing Group, Information Division, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy (e-mail: publications-sales@fao.org).

PUBLICATIONS OF INTEREST



OTHER RECENT PUBLICATIONS

**THE OVERSTORY BOOK:
CULTIVATING CONNECTIONS
WITH TREES, 2ND EDITION**



This well-illustrated book is divided into 14 main sections, including: Learning from traditional knowledge; Small and unseen allies; Animal assistants; Growing trees for forestry; More than trees: Understory and non-timber forest products; Useful species; and Improving income. (Reference: C.R. Elevitch, ed. 2004. *The Overstory Book: cultivating connections with trees*. Holualoa, Hawaii, USA, Permanent Agriculture Resources. ISBN 0-9702544-3-1.

For more information, please contact:
The Overstory, PO Box 428, Holualoa,
Hawaii 96725, USA.
E-mail: overstory@agroforestry.net;
www.overstory.org



CD-ROM: Reference Guide on Sustainable Forestry and Biodiversity Management

This CD-ROM is the result of a new collaboration between the Netherlands Development Organization (SNV) and Tropenbos International (TBI). Over the years, TBI has generated a considerable amount of (scientific) information (more than 700 books, articles and reports have been published). This CD makes information accessible to those working with tropical forests who are without access to libraries and Internet connection.

For more information, please contact:
Tropenbos International, PO Box 232,
6700 AE Wageningen, the Netherlands.
E-mail: tropenbos@tropenbos.org;
www.tropenbos.org

The complete proceedings of the XII World Forestry Congress are now available on CD-ROM. To request a copy, contact: Publications and Communications Officer, Forestry Department, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy (e-mail: forestry-information@fao.org). The main proceedings, including the Final Statement, and the full texts of all papers are also available online (www.fao.org/forestry/site/5388/en).

CD-ROM: The Herbage, 3rd edition

The Herbage CD-ROM contains a database of more than 28 000 concise monographs of medicinal plant species characteristics and an inventory of claimed attributes and historical uses by cultures worldwide – the result of more than a decade of independent research. www.gaiawire.com/herbage/

New CIFOR NTFP publications
Increased emphasis on poverty alleviation in national and international development agendas has revitalized interest in how non-timber forest products (NTFPs) can be commercialized to

increase human welfare in an environmentally sound way. Yet, despite more than a decade of research and targeted development projects, systematic understanding of the role and potential of NTFPs in conservation and development remains weak. To help fill this gap, a large group of researchers combined efforts and used a common methodological approach to examine and compare more than 60 case studies of commercial NTFP production, processing and trade from Asia, Africa and Latin America. To share the wealth of information generated by this project, CIFOR has produced a set of publications aimed at different target audiences.

For more information, please contact:
Titin Suhartini, Center for International Forestry Research (CIFOR), PO Box 6596 JKPWB, Jakarta 10065, Indonesia.
E-mail: t.suhartini@cgiar.org ●

There is nothing in which the birds differ more from man than the way in which they can build and yet leave a landscape as it was before.

Robert Lynd

WEB SITES



A better future

www.abetterfuture.org

Accessible Information on Development Activities (AiDA)

Information on project funding and implementing agencies by country, donor and topic.

<http://aida.developmentgateway.org/AidaHome.do>

A global overview of forest protected areas inscribed on the World Heritage List

www.unep-wcmc.org/wh/reviews/forests/intro.htm

Armeniantea

Ancient Armenian recipes using non-wood forest products (herbs) to make herbal teas.

www.armeniantea.com

BAMBUTEC

www.bambutec.org/

Borneo Biodiversity and Ecosystems Conservation Programme (BBEC)

www.bb.ec.sabah.gov.my/index.asp

Business & Biodiversity Resource Center

This resource centre can help you find out about the important role which biodiversity plays for businesses. You can see how your sector impacts on wildlife and nature, and what companies are doing to help conserve and manage biodiversity.

www.businessandbiodiversity.org/

Cambodia Food Security and Nutrition Web site

www.foodsecurity.gov.kh/

CBD forest web portal

Facilitating the implementation of the Expanded Programme of Work on Forest Biological Diversity, the Convention on Biological Diversity Secretariat has developed a forest Web portal to allow Parties, other governments, non-governmental organizations, research practitioners, project managers and other actors in civil society to reflect on and analyse their common experiences in implementing the objectives of the expanded programme of work.

Each month throughout 2004–2006, the portal will feature focused information and discussions on a topic drawn from the 27 objectives of the expanded programme of work. This will permit all stakeholders to report monthly on those activities related to each objective. The portal will feature tools such as: online discussions with other practitioners, a continually updated database of best practices and background information on the monthly topics. You are invited to register and become a full participant in the process.

www.biodiv.org/programmes/areas/forest/portal/home.shtml

On a monthly basis, an electronic discussion forum will be structured around each of the 27 objectives of the expanded work programme on forest biodiversity.

www.biodiv.org/decisions/default.aspx?dec=VI/22

The monthly discussion topic corresponding will be moderated and archived for further analysis and synthesis.

A database of best practices related to each topic is available on the site. Users are able to submit their case studies to the database for presentation on the portal.

www.biodiv.org/programmes/areas/forest/portal/home.shtml

Collaborative Partnership on Forests (CPF)

Web site for funding sources.

www.fao.org/forestry/foris/webview/cpf/index.jsp?siteId=2225&siteTreeId=6117&langId=1&geoid=0

Critical Ecosystem Partnership Fund (CEPF)

A newly updated and expanded Resource Center is now available on the CEPF Web site.

The centre offers four special sections:

- Partner Gateway: a gateway to the CEPF donor partners and more than 100 of the civil society groups that the initiative supports.
- Publications: a library bringing together all CEPF publications available online, including annual reports, ecosystem profiles and final project completion reports.
- Related Programmes: summaries of CEPF small grants programmes managed by local organizations, CEPF-supported conservation funds and other related resources.
- E-News Subscribe: an easy-to-complete, online subscription form for their newsletter.

The site also now includes CEPF News, a new section consolidating all the news on the site and offering pages with news and features sorted by hot spot.

www.cepf.net/xp/cepf/resources/

Databases

Biodiversity Information Sharing Service (BISS)

The most comprehensive online database for species and protected areas in Southeast Asia. It provides descriptions, pictures, distributional data with maps, information on uses and conservation status of many thousands of flora and fauna species across the ASEAN region, including the protected areas and country profiles of the ten ASEAN countries.

www.arcbc.org/arcbcweb/biss.asp

US Non-timber Forest Product Species Database updated

With funding from the National Commission on Science for Sustainable Forestry, 490 new entries have been added to the Institute for Culture and Ecology's free Web database on non-timber forest product species. This brings the total number of entries to 1 343 commercially harvested species in the United States. The new entries include edible, medicinal, and

WEB SITES



decorative fungal species, lichens, additional vascular plants, mosses, liverworts, and ferns known to be currently or formerly commercially harvested in the United States.

www.ifcae.org/ntfp/

EEA multilingual environmental glossary
<http://glossary.eea.eu.int/EEAGlossary>

Environmental Defense

Environmental Defense is a leading national non-profit organization representing more than 400 000 members. Since 1967, it has linked science, economics and law to create innovative, equitable and cost-effective solutions to society's most urgent environmental problems.

www.environmentaldefense.org/home2.cfm

FAO Terminology Web Site

The FAO Terminology Web Site has been updated and enhanced. Designed to provide a multilingual support to any user working on FAO communications, information and documentation, the major tools on the site are:

*FAOTERM TERMINOLOGY DATABASE (further enhanced to help standardize and harmonize the vast quantity of titles and technical terms in FAO documents and publications); and
*NAMES OF COUNTRIES DATABASE (to facilitate the consultation and harmonization of country names).

The site also offers other language resources to users which include links to international terminology databases, references and language-specific sites.

For any queries or suggestions, kindly send an email to:

GI-FAOTERM@fao.org

www.fao.org/faoterm/

Federation of Community Forestry Users in Nepal (FECOFUN)
www.fecofun.org

Forest Health

www.for.nau.edu/forhlth/fh_doc.html#Introduction

Forestry Research Programme (FRP) of the UK Department for International Development (DFID)

FRP has just launched its completely redeveloped Web site. The Web site has information on research projects funded by FRP and provides access to a comprehensive collection of documents and outputs generated by United Kingdom Government-funded tropical forestry research projects since 1963.

www.frp.uk.com

Goods from the woods

www.specialforestproducts.com/

Google Scholar

Google Scholar is a search engine restricted to academic text. It enables searches specifically for scholarly literature, including

peer-reviewed papers, theses, books, preprints, abstracts and technical reports from all broad areas of research.

A test version of the search engine is available at:

<http://scholar.google.com>

International Foundation for Science
www.ifs.se/

International Parthenium Research News Group (IPRNG)

This site includes research articles categorized on the basis of plant names, e.g. aromatic crops, forest herbs, medicinal crops, medicinal trees and weeds, medicinal insects and ornamentals.

www.iprng.org/IPRNG_Informative_Links.html

ITTO

ITTO's newly designed Web site contains detailed information on the ITTO programme of work, as well as downloadable TFU articles, a large library of reports and news releases.

www.itto.or.jp

Katoomba Group's Ecosystem Marketplace

www.ecosystemmarketplace.com/

Knowledge Reference on National Forest Assessment

An online Knowledge Reference on National Forest Assessment has been developed by FAO's Forestry Department and IUFRO Division IV. It is currently published in English, but will in the near future be translated into Spanish and French. The reference is coordinated by the Swedish University of Agricultural Sciences.

www.fao.org/forestry/fra-knowledgeref

National Forestry Programme Facility

The NFP Facility has prepared a substantial amount of information on poverty reduction.

www.fao.org/forestry/site/17389/en

Natura Coir Ply

www.naturaindia.com

Newsletters and E-bulletins

Commission on Intellectual Property Rights, Innovation and Public Health

Newsletter on intellectual property.

www.who.int/intellectualproperty/contact/form/en/

Hotspots E-News

Conservation International has launched a newsletter focused on the earth's biodiversity hot spots with the aim to raise awareness about the importance of the hot spots.

To subscribe to Hotspots E-News, visit

www.biodiversityhotspots.org/xp/Hotspots/home/enewsletter.xml

WEB SITES



INBAR Newsmagazine

www.inbar.int/newsmagazine/news.htm#n110104

National Network of Forest Practitioners' Non-Timber Forest Product News

www.nnfp.org

NWFP-Digest-L

The Digest is a free monthly e-bulletin produced by FAO's NWFP Programme.

To subscribe: either by sending an e-mail to: mailserv@mailserv.fao.org, with the message: subscribe NWFP-Digest-L; or through the NWFP Programme's home page at www.fao.org/forestry/site/12980/en

Poverty and Environment Times

The newspaper provides information on the links between environment and poverty and highlights recent research, ongoing projects and events, and suggestions for policy action.

To download the newspaper:

www.grida.no/environmenttimes/pov2/

Vietnam NTFP e-Bulletin

A quarterly e-mail update on NTFP produced by the Vietnam NTFP Network.

To subscribe: info@ntfp.org.vn

www.ntfp.org.vn

Non-Timber Forest Products in Scotland

This new Web site has been launched to provide information about the diversity of NTFPs available from Scotland's woodlands. The site provides information about the gathering, management and trading of NTFPs, including a database of buyers and case studies of operating businesses. Recognizing the increasing number of initiatives and research projects related to NTFPs, the site also has a database of publications, as well as a directory of Web links.

www.forestharvest.org.uk

OneWorld South Asia

OneWorld South Asia is an electronic network that brings together organizations and groups working for human rights and sustainable development from around the world.

<http://southasia.oneworld.net>

Organización ALAS (Alianza para las Áreas Silvestres – Wild Areas Association)

Una nueva página web dirigida a todos quienes estén interesados en los animales, los pájaros, las plantas y las áreas silvestres de Nicaragua. La ONG ALAS (Alianza para las Áreas Silvestres) tiene el gusto de anunciar el nacimiento oficial de su página web, destinada a enlazar a los interesados en fauna, flora y áreas silvestres de Nicaragua.

www.avesnicaragua.org/

Portal de Productos Forestales No Madereros en Chile
www.gestionforestal.cl

Poverty Net

PovertyNet provides an introduction to key issues as well as in-depth information on poverty measurement, monitoring, analysis, and on poverty reduction strategies for researchers and practitioners.

www.worldbank.org/poverty/mission/up2.htm

RedLightGreen.com: a library search tool

RedLightGreen.com was created to help everyone who ever has to find books in libraries, either close by or anywhere in the world. It searches 120 million books to find the best matches to what you are looking for.

www.redlightgreen.com

Resource Africa – Maps and Imaging

www.resourceafrica.org/directory/152/159/

Treasures of the Caribbean

www.caribbeanherbs.net

US Geological Survey's National Atlas of the United States

Full-colour maps of cities and ecoregions.

<http://nationalatlas.gov/whatsnew.html>

World Bank: Interactive Environment Map

The Interactive Environment Map combines maps with data on environmental issues to show where hot spots appear and where remedial action has been taken.

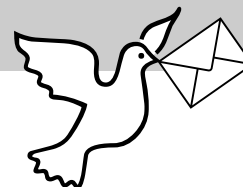
www.worldbank.org/nipr/Atrium/mapping.html

WWF-Perú lanzó su renovada página web

Conmemorando el Día mundial del medio ambiente, el 5 de junio, WWF-Perú lanzó su página web renovada, contribuyendo así a difundir información precisa sobre los esfuerzos y objetivos logrados en la conservación de la biodiversidad en el Perú, a través de los proyectos que se implementan en el campo.

www.wwfperu.org.pe ●





NTFP curriculum development

The Institute for Culture and Ecology has recently received funding from the National Commission on Science for Sustainable Forestry to develop undergraduate curriculum materials regarding non-timber forest products (NTFPs) and their relationship to overall forest health, sustainability and biodiversity conservation.

Our objective is to create materials that provide students with knowledge regarding: a) the ecological, cultural and economic importance of NTFPs; and b) the role of NTFPs in ecosystem management. Therefore, we will be developing a set of modules with different foci (e.g. ecology, history, management, certification, agroforestry, economics, etc.) that can be either incorporated into already existing courses or used as the foundation for new courses or workshops.

It is our goal to create materials that faculty will find useful and easy to use. If you know of any faculty that might be interested, please feel free to share their names with me. I want to be as inclusive as possible. (For more information, please contact: Kathryn A. Lynch, Ph.D., Institute for Culture and Ecology, PO Box 6688, Portland, OR 97228, USA; e-mail: ktlynch@ifcae.org <<mailto:ktlynch@ifcae.org>>; www.ifcae.org <<http://www.ifcae.org>>)

Request for assistance: establishment of a botanical garden

I am working on a proposal to develop a botanical garden in the remote district of Chitral, northern Pakistan, where unique and precious flora is under threat owing to continued biotic pressure over the years. The objective of this botanical garden is to conserve the unique indigenous flora of this mountain region with particular focus on the endemic species and economically important medicinal and aromatic plants of the region.

Can anybody help me out in searching relevant literature, sample proposals or relevant links where I may get information on the subject?" (If you can help, please contact: Aziz Ali at: azizalicharun@yahoo.com)



REQUESTS FOR FUNDING

We receive many requests from our readers for funding to cover their studies, attendance at conferences or research projects. Unfortunately, we do not have funds for these activities. However, we do suggest that you check the Collaborative Partnership on Forests (CPF) Web site (www.fao.org/forestry/site/7148/en) for funding sources. You can also participate in the funding forum on the CPF Web site and enquire about grants.

Request for assistance: authors required for medicinal plant handbook

We will be publishing a multi-author book "Handbook of Medicinal Plants" with an international publisher.

We are looking for experts to write the following chapters: Anticancerous plant drugs, Hypotensive plant drugs, Anti-inflammatory and antirheumatic plants, Cardiotoxic plants, Tranquilizers and sedative plant drugs, Hypocholesterolic and hypolipidemic plants, Rejuvenative plant drugs, Anti-obesity plants, Antidiabetic plants, laxatives, Immunomodulatory plants, Antiprotozoan plants, Brain tonics, Anti-asthmatic plants, Antidermatic plants, Antidysenteric plants, Diuretic plants, Antifertility plants, Anti-HIV plants, Abortifacients, Antispasmodic plants, Muscle relaxants, Plants used in eye diseases, Emmanogogues, Emetics, Insect repellent plants, Antimicrobial plants, Analgesics/prostaglandin inhibitor plants, Diaphoretics, Carminatives, Plants against poisons, Hepatoprotective plants, Aphrodisiacs, etc.

We are also looking for experts to write on the following more general subjects: Active principles in medicinal plants, World production and trade, Bioprospecting of medicinal plants, Nutraceuticals based on plants, etc. (If you are interested, please contact: Prof. K.V. Peter, Vice Chancellor, Kerala Agricultural University, Vellanikkara, Trichur, Kerala, India; e-mail: kvptr@hotmail.com or vckau@sancharnet.in) ●



Wild edible fungi – a source of food and money



Truffles, milk-caps, porcini, chanterelles or termite mushrooms are examples of fungi used in more than 80 countries. A small group of species are of economic importance in terms of export, but the wider significance of wild edible fungi lies with their extensive subsistence uses.