

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

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

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

(FAO's working definition)

BIOMONITORING: BEES HELP MONITOR AIR QUALITY AT GERMAN AIRPORTS

Airports in Germany have come up with an unusual approach to monitoring air quality. Düsseldorf International Airport and six other airports are using bees as “biodetectives”, their honey regularly tested for toxins.

“Air quality at and around the airport is excellent,” said Peter Nengelken, the airport's community liaison. The first batch of this year's harvested honey from some 200 000 bees was tested in early June, he said, and indicated that toxins were far below official limits, consistent with results since 2006 when the airport began working with bees.

Beekeepers from the local neighbourhood club keep the bees. The honey, “Düsseldorf Natural”, is bottled and given away as gifts.

Biomonitoring, or the use of living organisms to test environmental health, does not replace traditional monitoring, said Martin Bunkowski, an environmental engineer for the Association of German Airports. But “it's a very clear message for the public because it is easy to understand,” he added.

Volker Liebig, a chemist for Orga Lab, who analyses honey samples twice a year for Düsseldorf and six other German airports, said results showed the absence of substances that the laboratory tested for, such as certain hydrocarbons and heavy metals, and the honey “was comparable to honey produced in areas without any industrial activity”. A much larger data sampling over more time is needed for a

definitive conclusion, he said, but preliminary results are promising.

Could bees be modern-day sentinels like the canaries once used as warning signals of toxic gases in coal mines?

Assessing environmental health using bees as “terrestrial bioindicators” is a fairly new undertaking, said Jamie Ellis, Assistant Professor of Entomology at the Honey Bee Research and Extension Laboratory, University of Florida in Gainesville. “We all believe it can be done, but translating the results into real-world solutions or answers may be a little premature.” Still, similar work with insects to gauge water quality has long been successful. [Source: *New York Times*, 28 June 2010.]



BIOPROSPECTING/ BENEFIT-SHARING OR BIOPIRACY?

Africa considers equitable access to genetic resources

Namibia is hosting a continental conference in preparation for the finalization of an international regime on access and benefit-sharing of the world's biodiversity and genetic resources later in the year in Nagoya, Japan. This week, environmental ministers from 38 African states and three European countries – Denmark, Germany and Norway – are in Windhoek to finalize Africa's position before the negotiations continue in Japan later in the year.

African leaders have said that without effective and wide-ranging benefit-sharing to drive sustainable use, the cost of conservation may simply be too high for many poor rural communities, which in Africa are the real custodians of biodiversity.

The consequences for biodiversity, said Namibia's Ministry of Environment and Tourism, will be dire because there will be no incentive and justification for poor people to conserve it. In fact, added Dr Bakary Kante of the United Nations

Environment Programme (UNEP), this issue is more important than the Kyoto Protocol because it is at the heart of sustainability of the Earth.

President Hifikepunye Pohamba said efforts are being made in Namibia to ensure that indigenous communities can share in the benefits of the exploitation of indigenous plants such as devil's claw (*Harpagophytum procumbens*) and hoodia from the plant family *Apocynaceae*.

The Convention on Biological Diversity (CBD) Secretariat has stated that species are disappearing 50 to 100 more than they would have done naturally. An estimated 34 000 plants face extinction. About 45 percent of the forests, home to most of the world's known terrestrial biodiversity, have disappeared and, while there are some regrowths, the world's total forests are shrinking at an alarming rate, particularly in the tropical regions.

The World Health Organization said that 80 percent of the world's population depends on health care provided by medicinal plants and the associated traditional knowledge of indigenous communities forms up to 70 percent of the basis of modern pharmaceuticals.

The Namibian Minister of Environment and Tourism Netumbo Nandi-Ndaitwah said that 90 percent of medicinal plants are found in developing countries on the lands of the indigenous communities. A further aspect to the loss of biodiversity, said Nandi-Ndaitwah, is the loss of cultural diversity because culture is tied to resource-dependent ways of life, adding that “lack of secure rights to sustainable livelihoods is rendering many African communities extinct”.

Lucy Mulenkei of the Indigenous Information Network said there is a strong need to accord indigenous communities full and effective participation within the convention of the biodiversity process to ensure that their rights and concerns are fully taken into account in the ongoing negotiations – and beyond. [Source: www.newera.com.na, 9 March 2010.]

Denmark to help Africa fight biopiracy

Environment Minister Karen Ellemann was the opening speaker on Monday for an international ministerial conference on biopiracy in Windhoek, Namibia, aimed at stopping companies from obtaining genetic resources from countries without providing reciprocal economic benefits. Together with the country's president, Ellemann hopes the

Danish cosponsored conference will assist Africa in obtaining some of the significant profits from its many genetic resources often used by Western companies.

Much of the material companies obtain is used to develop products such as cosmetics, medicines and genetically modified organisms (GMOs). Biopiracy is common in Africa, however, where large international companies typically exploit the countries' resources.

According to the Environment Ministry, some companies have even gone so far as to take out patents on the development of substances that have already been used for several hundred years in traditional medicines in developing countries. One notable example was chemical company W.R. Grace's attempted patent on products from the Indian neem tree (*Azadirachta indica*).

"It's high time that we stop the worldwide exploitation of natural genes," said Ellemann. "Developing countries' populations must also be a part of Western companies' profits on creams, medicines or agricultural crops, where the products were developed from those countries' genetic resources."

"Fairtrade would benefit both sides because it would be an incentive for developing countries to protect their rich natural resources, while the companies would be allowed to retain access to those resources," she said. [Source: The Copenhagen Post Online, 9 March 2010.]

Tensions remain over biological access protocol

After nine years of meetings about international rules on providing equitable resources, a major step was reached at the end of March with agreement on a draft text that is intended to form the basis of a protocol on access and benefit-sharing.

At the Ad Hoc Open-ended Working Group on Access and Benefit-sharing of the Convention on Biological Diversity (CBD), which met in Cali, Colombia from 22 to 28 March, representatives from 193 countries agreed to use the draft as the basis of a protocol to be submitted to the Tenth Conference of the Parties to the CBD, which will be held in October in Nagoya, Japan.

The UN hailed the meeting as a great step forward in the quest to use the world's biodiversity fairly. "Cali has entered history as the birthplace of the draft Nagoya Protocol on access and benefit-sharing,"

said Ahmed Djoghlaif, the UN's Executive Secretary to the CBD.

But the draft remains highly controversial, and participants have been forced to arrange a further week-long meeting to take place in Canada in July to prepare the draft for October's meeting in Nagoya.

Agreeing a protocol is one of the three objectives of the CBD. The goal is to ensure that benefits arising from the use of genetic resources from plants, animals or micro-organisms are shared in a fair and equitable way with local communities or countries that provide them.

Krystyna Swiderska, a senior researcher at the International Institute for Environment and Development in the United Kingdom, told SciDev.Net that "the real negotiations on a draft protocol only started on Thursday and I was not entirely surprised to hear that the negotiations broke down on Friday evening, given the very divergent positions between parties".

"The industrialized countries want easy access to genetic resources in other countries," she said. "If they have their way, the protocol will at most require compliance with existing legislation in the developing countries. On the other hand the biodiversity-rich developing countries want to assert national sovereignty over biological resources, and to ensure that the protocol binds industrialized countries to sharing any benefits."

Industrialized countries also want the protocol to focus only on genetic resources, while developing countries want to ensure that derivatives and traditional knowledge are included, added Swiderska. "And industrialized nations want compliance with the protocol to be enforced through individual contracts for example between drug companies and governments while developing nations want to include [legal] measures for compliance with the protocol itself," she said. [Source: SciDev.Net, 2 April 2010.]



Iniciativa andino-amazónica de prevención de la biopiratería

La Iniciativa andino-amazónica de prevención de la piratería, tiene como objetivo principal prevenir el uso ilegal de recursos genéticos y conocimientos tradicionales y fortalecer las capacidades nacionales y regionales para enfrentar, a través de la colaboración e interacción entre instituciones, la biopiratería. Esto incluye la implementación efectiva de políticas y normas en materia de acceso a recursos genéticos y protección de conocimientos tradicionales.

Recursos como el ayahuasca, la maca o la quinua, y los conocimientos tradicionales asociados a ellos han pasado a formar parte de invenciones protegidas legalmente por patentes u otros derechos de propiedad intelectual, sin un reconocimiento de su origen. El término de biopiratería se refiere a la apropiación indebida o ilegal de recursos genéticos, semillas y conocimientos tradicionales de los pueblos indígenas.

Desde el año 2004, la «Iniciativa» viene trabajando en la creación de redes y en la búsqueda de sinergias entre las acciones emprendidas por los países andino-amazónicos destinadas a garantizar que el acceso a sus recursos genéticos y conocimientos tradicionales sean utilizados con su consentimiento y participación. En el año 2007 se inició una segunda fase con la finalidad de profundizar en el fortalecimiento de las actuaciones de las instituciones públicas y privadas nacionales frente a potenciales casos de biopiratería.

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PARA MÁS INFORMACIÓN, DIRIGIRSE A:
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 **COMPANIES FUND
PROJECTS TO
PRESERVE AMAZON
RAIN FOREST**

Deep in the Amazon, in a village accessible only by boat, river dwellers for generations have survived on fish, sparse crops and nuts from the forest. Now they have a new resource: debit cards.

Families in Boa Frente receive USD29 a month to spend in a town upriver. The village also has a new brick walkway, rainwater cisterns and a new school with solar panels and Internet access. In exchange, residents agree to protect the forest surrounding their plots instead of clearing more trees for farming or fuel. The windfall comes courtesy of Marriott International Inc., the USD12-billion hotel chain. It is part of a complex – and controversial – plan to save the world's rain forests with the help of big business.

Rules for Reducing Emissions from Deforestation and Forest Degradation – or REDD – are being designed under the auspices of the United Nations as part of a global effort to cut greenhouse gas emissions. Around the world, dozens of REDD projects are under way. So far, these REDD projects are voluntary, often funded by firms that want to burnish their green credentials. But eventually these “avoided deforestation” efforts could be included in mandatory carbon cap-and-trade systems, such as one already in place in Europe.

But nowhere has the idea been embraced more keenly than in Brazil, home to 27 percent of the world's tropical rain forests and 18 REDD projects, including the one in Boa Frente. Although 98 percent of the surrounding state of Amazonas remains forested, ranchers, farmers, loggers and miners are rapidly moving in. The state calculates that it could lose a third of its trees by 2050.

The first project is in the Juma Reserve, located 125 miles (201.17 km) south of the state capital, Manaus. It is home to 380 families in 43 villages, including Boa Frente. In exchange for their *bolsa floresta* – or forest allowance – villagers also attend two-day workshops on global warming. Their promise not to expand their plots is enforced: the land is mapped and the forest monitored by satellite. If a family reneges, its debit card is cancelled.

Forest dwellers are also trained in sustainable livelihoods, including harvesting seeds, berries, rubber and other products needed by researchers and industry.

So far, 14 villagers have been trained. In the coming months, 70 more will learn to gather seeds from dozens of species, including varieties used in medicines and cosmetics.

Downriver, in the village of Fleixal, eight families occupy thatched-roof shacks shaded by 200-foot (61-m) Brazil nut trees. Villagers attended workshops on how to build wire-mesh, plastic-covered nut dryers. A

distributor now pays USD7 for a 5-gallon can – up from USD3 – because quality has improved.

“The forest has riches,” village leader Aderbal de Oliveira said, thwacking dry leaves with his machete to uncover fallen nuts. “We must be its guardians.” (*Source: latimes.com*, 21 February 2010.)



CONGO BASIN FORESTS AT A “CRITICAL TURNING POINT”

Deforestation has remained relatively low in the Congo Basin, the world's second largest tropical forest expanse, but is likely to increase as the region looks towards economic development, a new report warns.

The forests of the Congo Basin: state of the forest 2008, released in late 2009, states that the Congo Basin forest is at a “critical turning point”.

“Because there's been very little development in the Congo Basin, forests have been protected by default,” says Robert Nasi, Center for International Forestry Research (CIFOR) scientist and co-editor of the report. “It is the one area with a low rate of deforestation. But it's also an area with weak government, lots of land development, lots of resource development and lots of people looking for land and resources.”

A key objective of the report is to provide regional decision-makers with up-to-date information to assist with strategic planning.

The new trend of making payments to stakeholders for the environmental services that forests provide may be essential to balance development and conservation, the report notes, but challenges remain immense in the face of weak governance and infrastructure.

The vast forest ecosystems of the Congo Basin cover some 160 million ha across six nations: Cameroon, the Republic of the

Congo, the Democratic Republic of the Congo, the Central African Republic, Gabon and Equatorial Guinea. Only the forested terrain in the Amazon Basin is larger.

Unlike the Amazon rain forest, the ecosystems are still intact and functioning, as indicated by the presence of elephants, great apes and other large animals; the Amazon has long since lost its terrestrial megafauna. Studies cited in the report note that the Congo Basin hosts exceptional species diversity and is among the world's richest areas in vertebrate and plant species.

The area is also home to more than 90 million people, most of whom subsist by harvesting forest products or through small-scale slash-and-burn shifting agriculture – a practice that uses the forest for expansion.

Deforestation of the dense tropical forest is estimated in the report at a relatively low average rate of 0.17 percent. However, forests represent a major source of economic revenue, in both formal and informal sectors, and the easing of the civil war in the Democratic Republic of the Congo has brought economic opportunities.

Accompanying these opportunities are great environmental risks, as forest management takes place against a background of widespread impoverishment – and the population is expected to double in the next 20 years.

“With 73 percent of people living below the poverty line, the development needs are huge,” says the lead editor of the report, Carlos de Wasseige of the International Cooperation Centre of Agricultural Research for Development (CIRAD), Head of the Central African Forest Observatory (FORAF) coordination unit in the Democratic Republic of the Congo.

Balancing economic development with sustainable forest practices and conservation is a major challenge facing the region. Accepting the “sustainable yet multiple use of forest resources” is an important step to winning support for intervention strategies, de Wasseige says.

While the complex problems are local, the issues remain global because of the effects that increased deforestation and forest degradation could have on climate change. “The whole world should be involved in searching for solutions that improve the livelihoods of Central African people while preserving forests,” de Wasseige says. (*Source: Thinking beyond the canopy* (CIFOR), 20 April 2010.)

FOREST FOOTPRINT DISCLOSURE ANNUAL REVIEW

Forest Footprint Disclosure (FFD) is a special project of the Global Canopy Foundation. Initiated in 2008, the project is designed to improve corporate understanding of a “forest footprint” generated by the use of forest risk commodities: soy, palm oil, timber, cattle products and biofuels.

FFD designed a disclosure request asking about company policy on sustainable supply chains for these products and sent it out to 217 international companies in July 2009. This Annual Review describes the findings of that disclosure request and provides some context on the subject. (*Source:* www.amazonia.org.br, 10 February 2010.)



FORESTS MAY DEPEND ON SURVIVAL OF LOCAL COMMUNITIES

After the failures in Copenhagen to agree on a new climate protection treaty and, more recently, at the Doha meetings on trade in endangered species, indigenous forest communities may offer examples of sensible governance for shared resources on a small planet.

Hundreds of poor Mexican Zapotec indigenous farmers have become owners of a multimillion-dollar diversified forest industry, offering an important model of a community-based enterprise that supports local people and conserves the natural environment, says David Barton Bray, a professor and associate chair in the Department of Earth & Environment at Florida International University in Miami.

The farmers of Ixtlán de Juárez, a forest community in the Sierra Norte mountains of central Mexico, utilize their strong

traditional community values and communal ownership of more than 21 000 ha of pine and oak forest to run a successful business that benefits the entire community.

There is no private property, and rather than establishing a business to maximize profits, the people of Ixtlán – and in other Zapotec communities of Mexico with similar forest-based enterprises – focus on job creation, reducing emigration to cities and enhancing the overall well-being of the community, Bray told participants at the Smallholder and Community Forestry Conference in Montpellier.

“Communities will be more important in the years to come because they can address vital issues that the state and the market cannot,” Bray, an expert on community forests in Mexico and Central America, told IPS.

The survival of many of the world’s forests may well depend on the survival of local communities. A quarter of the world’s remaining forests are controlled by about one billion local people, says Estebancio Castro Diaz of the Kuna Nation in Panama, who is Executive Director for the International Alliance of Indigenous and Tribal Peoples of Tropical Forests. “Local control is good for the people and good for the forest,” Castro Diaz told participants attending the conference.

“The forest is a supermarket for us, it is not just about timber,” he said.

For those reasons, more than 90 percent of the forests controlled by the Kuna people are still standing. “We need to communicate that there are broad benefits to the larger society for local control of forests,” Diaz said.

In sharp contrast to the usual nation-state or private enterprise overexploitation of commonly held lands, oceans or other resources – characterized as the “tragedy of the commons” – local communities can set and enforce rules to maintain their landscapes, conserve biodiversity and improve livelihoods for the long term, Bray suggests.

The World Bank, FAO, International Union for Conservation of Nature (IUCN) and others have formed a “Growing Forests Partnership” to find ways to support community-managed forests, said Chris Buss of IUCN. Not only is this partnership trying to ensure that indigenous and local people are involved in their national government’s forestry policy, but also to find ways to channel financial investment into local forest management be it for timber, Brazil nuts or other uses. (*Source:* Inter Press Service [IPS], 29 March 2010.)

JEWELLER CREATES RINGS EMBEDDED WITH LIVE PLANTS

The ring collection from jeweller Hafsteinn Juliusson would not quite qualify as ecofriendly, but it does come across as a great way to spread the green message.

Rings in the jeweller/designer’s collection come with a stainless steel base, but have the biggest jewel of them all: nature embedded at the top.

These rings have Icelandic moss plants as their crowning glory, leading the way for them to be called “clash of jewellery and gardening”. The moss, like any other plant, needs some care. The wearer would have to water them; pruning though, will not be necessary as the moss will not grow very noticeably during the time. If cared for, the moss could last for nearly six months. However, the innovative green rings do not come cheap; each will cost £485 and we hope that there is a way to get that moss growing and thriving again after the six months are over. (*Source:* GreenPacks, 6 January 2009.)

NETWORKS EMERGE AS KEY ACTORS IN COMMUNITY FORESTRY

Community networks have emerged as an important force in enhancing forest tenure security and livelihood benefits for forest-dependent communities. In many countries, such networks have become part of the forest tenure reform process. They develop at the grassroots level, and are proving to be effective agents for collective action.

The Federation of Community Forest User Groups, Nepal (FECOFUN), is one of the largest of these organizations. It emerged along with the growth of community forestry in Nepal in the 1990s, and today represents more than 14 000 community forest user groups (CFUGs) across the country.

FECOFUN has supported CFUGs by, for example, developing and implementing management plans, staging rallies, running media campaigns and offering legal support and education. Its nationwide network and the broad populace it represents have helped it to challenge power imbalances between the forest bureaucracy and local communities. It has also increased user groups’ sense of security over their forest rights.

"FECOFUN educated us about national forest policies and other legal issues that affect our relationship with the forest," says Hemraj Kafle, a community member in Nepal's Jhapa district. "Its guidance has helped us to reclaim access to diverse forest products."

FECOFUN is one of three community networks featured in a new book that offers an in-depth case study analysis of community forestry across the globe. *Forests for people: community rights and forest tenure reform* is the culmination of a three-year study in ten countries in three regions of the world – Africa, Asia and Latin America. The research project, led and coordinated by CIFOR (Center for International Forestry Research), examined 30 sites of differing size and characteristics.

Anne Larson, CIFOR associate and co-editor of *Forests for people*, notes that networks such as FECOFUN and the Association of Forest Communities of Petén (ACOFOP) in Guatemala have become key actors in the forest policy process. "These organizations have been important not only for the defence of community rights but also for opening communication between communities and the state forestry administration on a new level," she says.

In recent years, governments in developing countries have transferred at least 200 million ha of forests to communities living in and around them. Now, more than a quarter of forests in developing countries are owned by or assigned to communities. (Source: *Thinking beyond the canopy*, 26 March 2010.)



NON-PROFIT ORGANIZATIONS AND NGOS

Amazon Watch

Amazon Watch is a non-profit organization working to protect the rain forest and the rights of indigenous peoples in the Amazon basin. Founded in 1996, the organization collaborates with indigenous and environmental organizations, campaigning for human rights, corporate accountability and the preservation of the Amazon's ecological habitat. Its work is rooted in the belief that indigenous knowledge, cultures and traditional practices contribute in a vital way to the sustainable and equitable stewardship of the Earth.

Amazon Watch hopes to broaden public awareness and support of indigenous peoples and their stewardship of the Amazon rain forest, particularly in light of new challenges such as climate change.

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American Botanical Council, United States of America

Founded in 1988, the American Botanical Council (ABC) is a leading international non-profit organization addressing research and educational issues regarding herbs and medicinal plants. ABC's members include academic researchers and educators; libraries; health professionals and medical institutions; government agencies; members of the herb, dietary supplement, cosmetic and pharmaceutical industries; journalists; consumers; and others in nearly 70 countries.

The organization publishes the quarterly journal *HerbalGram*, the monthly e-publication *HerbalEGram*, *HerbClips* (summaries of scientific and clinical publications), reference books and other educational materials. ABC also hosts *HerbMedPro*, a powerful herbal database, covering scientific and clinical publications on more than 220 herbs and coproduces the "Herbal insights" segment for *Healing quest*, a television series on PBS.

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NGOs WORKING TO PROTECT FORESTS: MAPPING THE LANDSCAPE

A new report published by the United Kingdom Environmental Funders Network maps out the civil society organizations working to address deforestation.

The report, *Saving the rainforests: civil society mapping*, profiles 65 environmental and social justice organizations, enabling readers to identify gaps and overlaps in the landscape of groups working to reduce global forest loss. The report specifically aims to inform grant-makers providing funds to civil society organizations.

"The mapping was inspired by the observation that good philanthropy is similar to acupuncture – philanthropic grants may be small in size compared with the body politic, but when inserted in the right place they can have enormous impact," said Harriet Williams, lead author of the report. "The methodology that we're developing is applicable to any complex environmental issue."

The report – together with a map, published separately – classifies NGOs into nine "storylines" to categorize organizational culture: "Knowledge builders"; "Peoples' heroes"; "Institution watchers"; "Finance pioneers"; "Standard setters"; "Parks, rangers"; "Brand attackers"; "Critical friends"; and "Consumer guides". For example, the report distinguishes between groups that often work with business ("Critical friends") to those that expose environmental transgressors among corporations ("Brand attackers").

The map evaluates the stance of various organizations on issues including carbon offsets, REDD (Reducing Emissions from Deforestation and Forest Degradation), and certification schemes for forest products. (Source: *Amazon News*, 1 April 2010.)

Keystone, India

Keystone is based in Kotagiri, a small town in the Nilgiris, which is part of the Western Ghats of India. It works with indigenous communities in the Nilgiris Biosphere Reserve, declared a hotspot under the Man and the Biosphere Programme of UNESCO. It is an extremely biodiversity-rich area, both in terms of the flora and fauna, as well as the different communities that coexist here. Keystone has already completed 15 years of work in the Nilgiris.

Keystone's mission is "to enhance the quality of life and the environment with indigenous communities using ecodevelopment approaches". Some of the thematic areas that it is involved in are: conservation, livelihoods, environmental governance, culture and people, and organic market development. This has meant working with traditional agriculture, NTFPs, drinking-water and micro-irrigation, and processing and value addition of agricultural and forest produce, etc. It also means coming up with innovative approaches for mountain systems that are simple but relevant. Dialogue with the forest department and other government agencies is integral in this effort.

Keystone also works through various networks and holds the current presidency of the NTFP Exchange Programme.

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PROTECTING RAIN FORESTS SHOWN TO REDUCE POVERTY

Introduction of measures to protect rain forests and ecosystems in Costa Rica and Thailand over the past 40 years has improved the livelihoods of the local population.

Researchers from Georgia State University (United States of America) looked at the long-term impacts for poor people living near parks and reserves set up before 1985 and found the net impact of the protection was to alleviate poverty. Study author Professor Paul Ferraro said the findings went against the conventional

wisdom that says biodiversity conservation was not compatible with development goals.

"The results are surprising. Most people might expect that if you restrict resources, people on average will be worse off. In contrast, the results indicate that the net impact of ecosystem protection was to alleviate poverty," he said.

The findings come as seven countries; Norway, Germany, the United States of America, the United Kingdom, Australia, Japan and France commit to funding projects that will protect rain forests. At a meeting in Oslo this week, they reached an interim agreement to help get REDD projects (Reducing Emissions from Deforestation and Forest Degradation) up and running while they wait for an international agreement on tackling climate change. A new body to manage the funds will be set up by the end of the year.

Professor Ferraro admitted that the countries analysed in his study, Costa Rica and Thailand, may not be representative of all developing nations, having experienced both rapid economic growth within relatively stable political systems. He also said the study did not look at the reasons behind the fall in poverty. However, he believes the expanding ecotourism sectors in both countries may have played a significant part.

"The question we need to answer now is whether poverty is being reduced through ecosystem protection *per se* or because tourists come to see the biological diversity or because the protection maintains the supply of other valuable ecosystem services," he said. "Or is poverty reduced through donor investments in development activities and enhanced roads and public services (e.g. electricity and water infrastructure) that often accompany the establishment of a protected area?"

The Rainforest Foundation said that the findings indicated that protected areas could have a positive, rather than the usually negative impact on poverty alleviation in poor countries in and around areas for biodiversity. "However, they have to be treated with caution, as we do not know from the study whether specific 'pro-community' measures were in place in the cases studied, as these tend to be the exception rather than the rule, and could distort the findings of this study," said United Kingdom Executive Director Simon Counsell. (Source: *The Ecologist*, 28 May 2010.)



THE RELATIONSHIP BETWEEN INDIGENOUS PEOPLE AND FORESTS

More than 1.6 billion people around the world depend to varying degrees on forests for their livelihoods – not just for food but also for fuel, for livestock grazing areas and for medicine. At least 350 million people live inside or close to dense forests, largely dependent on these areas for subsistence and income, while about 60 million indigenous people are almost wholly dependent on forests.

Indigenous forest people use their land in many different ways – for fishing, hunting, shifting agriculture, the gathering of wild forest products and other activities. For them, the forest is the very basis of survival and its resources have to be harvested in a sustainable manner. But when traditional lifestyles change and, for example, industrial logging or mining takes place, overuse of resources can lead to conflict.

Although indigenous people around the world often have very different sets of beliefs and traditions, a special bond with the land is a common factor. For example, the semi-nomadic Matses people of the Peruvian Amazon call the rain forest *titá*, meaning mother. *Titá* provides the Matses with everything they need – as long as they follow her rules, including never taking more from the forest than is needed and treating all things belonging to it with respect.

As with the Matses, indigenous peoples' ideas of territory are not only concerned with controlling a geographic area or using forest resources: territory also embodies fundamental aspects of culture and geography.

Indigenous forest people see themselves as inseparably linked to the forest and everything in it – trees, plants, rivers, animals and mountains. It is impossible, according to community beliefs, to separate any single object or living thing in the forest – such as a particular plant,



animal or mineral – from its symbolic position in the cosmology of the people. These ideas are expressed through mythology, religious practices and systems of social regulation, including management of the environment and systems of production and exchange.

Because of their special relationship with the land, many indigenous people cannot comprehend the idea that forests and land can be bought and sold. However, this does not mean that they do not have a clear notion of their rights. The use of certain areas or resources may be granted based on a number of criteria, such as belonging to a particular group, tribe or clan. Land use can also be based on reciprocal agreements with neighbouring groups or individuals.

In many countries, the state is the official owner of most forest areas, even though some of the land may have been inhabited for generations by large numbers of people. In some cases, the rights of such people are recognized. In the Philippines, for example, land issues in such areas are governed by the Indigenous Peoples' Rights Act. Unfortunately such regulations are often contravened by powerful local interests.

Moreover, traditional tenure systems are not always recognized by governments, leaving indigenous forest people without formal rights to their territories. This violates the United Nations Declaration on Indigenous Peoples' Rights (UNDIPR) as well as ILO Convention 169 – both of which place a clear obligation on states legally to recognize, demarcate and effectively protect indigenous peoples' territories and natural resources.

One strategy that is increasingly being used by forest people in order to defend their rights is to provide proof of their

residence in, and use of, forest areas. In the Democratic Republic of the Congo, indigenous groups and other forest-dependent communities are participating in the mapping of their traditional territories. Such maps are likely to be a vital tool in the future as indigenous people around the world struggle to gain formal recognition of their rights. [Source: *Vital Forest Graphics*, 2009.]



THE STICKY TRUTH: WEIGHING THE SUGAR ALTERNATIVES

Americans love sweets. The sweetness we crave can come from refined sugar, chemically derived artificial sweeteners (such as aspartame), or a host of "natural" products that are less processed, so they contain nutrients that are otherwise removed in the refining process. Natural sweeteners cause less environmental damage than sugar-cane plantations, and many offer more complex flavours than plain old sugar.

Organic honey that has not been pasteurized, clarified or filtered is the most ecofriendly sweetener. It is raw, unprocessed, minimally packaged and, if you are lucky, local.

Maple and sorghum syrups are also minimally processed; the sap or juice is boiled to remove the water, concentrating the sugars and minerals.

Palm sugar is a traditional sweetener in Southeast Asia and India. The collected flower nectars are kettle-boiled into thick syrup, then dried and ground to produce a grainy, crumbly sugar that is organic, unbleached, contains amino acids, B vitamins and minerals, and has a low glycemic index. Palms grow in diverse agro-ecosystems that support wildlife habitats, restore damaged soils and require little water. Per acre (0.40 ha), coconut palms produce 50–75 percent more sugar than sugar-cane plantations, and use less than one-fifth of the nutrients for that production.

The *yacón* (*Smallanthus sonchifolius*) is related to the sunflower and native to the Andes. Its crisp, sweet tuberous roots have long been eaten by the Incas of Peru and Bolivia (now the Plurinational State of). The syrup is made by juicing the tubers, then concentrating the liquid by boiling. Because the *yacón's* sweetness comes chiefly from fructo-oligosaccharides,

compounds the human body does not absorb, the syrup is a low-calorie, low-glycemic sweetener. According to a study in *Clinical Nutrition*, "daily intake of *yacón* syrup produced a significant decrease in body weight, waist circumference and body mass index".

Luo han guo (*Siraitia grosvenorii*) has been cultivated for centuries in southwest China. In 1995, Procter & Gamble patented a process to isolate the fruit's sweet mogrosides compounds, creating a powder that is 250–300 times sweeter than sugar. Today, several companies sell commercially prepared *luo han guo* products, some combined with herbs or sugar alcohols.

Stevia (*Asteraceae* family) is an extremely sweet herb native to Paraguay, where it has been used for over 1 500 years. In Japan, it is more common than sugar. The herb is 200–300 times sweeter than sugar, but has no calories or carbohydrates and a low glycemic index. The leaves also contain fibre, vitamins A and C and minerals. But there are many concerns about its safety. Studies suggest stevia may interfere with metabolism and absorption of carbohydrates, lead to male reproductive problems and cause genetic mutations. The herb is not approved for use in the European Union or Canada and was banned as a sweetener in the United States of America until December 2008, when the Food and Drug Administration approved certain sweet compounds extracted from its leaves.

Agave syrup, a sweetener developed in the last decade, comes from the sap of the *Agave tequilana* plant. The syrup (also called "nectar") is marketed as a healthy alternative to sugar: raw, 100 percent



Asteraceae family

natural, with a low glycemic index. But, according to Dr Ingrid Kohlstadt, a fellow of the American College of Nutrition, it is just high-fructose syrup “with great marketing”. That is because converting the plant’s juicy sap into syrupy nectar is a complicated process involving heat and enzymes. To keep the syrup from fermenting, the natural enzymes are removed. When chemically processed, the sap becomes hydrolysed high-fructose inulin syrup devoid of nutrients. [Source: Yvona Fast, *The Environmental Magazine*, XXI: 2. March/April 2010.]

TREE PRODUCTS: A RESOURCE BASE FOR SUSTAINABLE AGRICULTURE

Ancient India was blessed with a rich knowledge of herbal remedies for humans called Ayurveda, as well as for plants, called Vrikshayurveda.

According to the World Health Organization, many people die every year because of pesticide poisoning and agrochemicals. The immediate effect has also appeared in the environment and ecosystems. These pesticides, besides creating atmospheric pollution and consequent health hazards, are also toxic to non-target organisms such as animals, predators and pollinators. Hence, the use of herbal insecticides in agriculture has assumed a greater importance as a result of the growing awareness of the harmful environmental effects of chemical pesticides.

Trees and plants, particularly wild species, have been an essential part of human life. Plant products are naturally evolved ingredients of the biosphere; they not only have an edge over synthetic alien molecules, but also preference and acceptance from an environmental safety viewpoint and an ecofriendly approach. The use of legumes as green manure, because of its high nutrient content and faster decomposition rate, is very well known.

Leaf extracts from neem, *pungam* and *bael* trees have been found to have insecticidal properties on pests such as *Earias vitella*, *Helicoverpa armigera* and *Spodoptera litura*, either by directly killing them or interfering with their metamorphosis.

The application of *annona* tree leaf extract has checked pest incidence in

crops. This might result from the group of toxic biomolecules possessing insecticidal properties present in *annona* leaves. Similarly, some tree species (*Alangium salvifolium*, *Annona squamosa* and *Aegle marmelos*) have been found to have effects on the growth and development of crops because of the growth-promoting substances present in their leaf extract. The *annona* leaf extract, containing annonacin and annonidines, could enhance the physiological activity and growth of cultivated crops or plants.

The *Albizzia amara* leaf extract has desirable attributes on plant growth and yield. Being an ecofriendly and cost-effective alternative, a 2-percent spray of young leaf extract of *Albizzia amara* could be used in the absence of GA₃ for rice production.

Hence, many herbs and trees, particularly wild species, possess varied alkaloids and compounds that can be extracted and used for sustainable agriculture.

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UNDERUTILIZED FOODS AND NUTRITIONAL INDICATORS FOR BIODIVERSITY

The development of nutritional indicators for biodiversity is a collaborative international process, led by FAO, together with Bioversity International and other partners. The task is part of the cross-cutting initiative on biodiversity for food and nutrition. It is expected that these indicators will become an advocacy tool to promote awareness of the importance of food biodiversity – including wild, indigenous and traditional foods – while contributing to nutrition security and the conservation and sustainable use of food biodiversity.

When reporting on these indicators, difficulties were encountered in defining underutilized foods. Therefore, FAO and Crops for the Future have developed specific criteria in order to establish the reference list for underutilized foods accounting for the nutritional indicators for biodiversity. Of the following criteria, the

first one is compulsory, and several of the others should be met for a species to be included in this list:

- the food was/is/could be used for human consumption;
- may have great potential for contributing to food security and nutrition;
- mainly local and traditional crops/animals (including insects, amphibians and reptiles) whose distribution, biology, cultivation and uses are poorly documented;
- receive little attention from research, farmers, policy- and decision-makers, technology providers and consumers;
- have weak or no formal seed/animal germplasm supply systems;
- farmed, reared, gathered or caught on a small scale;
- the species must be grown/raised in the country/region where it is underutilized. Species that are imported do not count as underutilized in that region;
- information on country/region of origin should be given.

These criteria, only intended to be used to report on the two nutrition indicators for biodiversity, should not replace the broad criteria that have been defined for categorizing underutilized species as such (www.underutilized-species.org/spotlight/what_are_underutilized_species.asp). The integration of these specific criteria and the reference list of underutilized foods accounting for food biodiversity will be uploaded on the Web sites of the Global Facilitation Unit for Underutilized Species at www.underutilized-species.org/species/about_species.asp and of INFOODS at www.fao.org/infoods/biodiversity/index_en.stm/ [Source: various, including *Crops for the Future*, Special Issue, March 2010. ♣]

With courage you will dare to take risks, have the strength to be compassionate and the wisdom to be humble. Courage is the foundation of integrity.

Keshavan Nair