



NWFP USE AND MARKETS IN THE AMAZONIAN SUBREGION OF BOLIVIA, BRAZIL, COLOMBIA, ECUADOR, PERU AND THE BOLIVARIAN REPUBLIC OF VENEZUELA

Consumo y comercio de los Productos Forestales no Madereros (PFNM) en la Subregión Amazónica

De acuerdo al Informe de la Subregión Amazónica preparado por la FAO, los productos forestales no madereros (PFNM) son de gran importancia a escala social y económica para las poblaciones de estos países (Bolivia, Brasil, Colombia, Ecuador, Perú y Venezuela). En el citado estudio se evalúa que en los próximos años aumentará el interés sobre los mismos incluso a escala industrial.

Los PFNM que verificarán un mayor incremento en la producción serán el caucho (*Hevea Brasiliensis*) y la yerba mate (*Ilex paraguarensis*). La producción de caucho en la subregión viene creciendo en la última década, principalmente a causa del incremento en la producción del Brasil (también se elabora en Bolivia, Colombia y Perú). Sin embargo se percibe una competencia por parte de la oferta proveniente de las plantaciones en Malasia por los sustitutos sintéticos. La yerba mate es una de las bebidas más populares consumidas en el sur y sudeste del Brasil; proviene principalmente de los bosques naturales de los estados del sur (Paraná, Santa Catarina y Rio Grande do Sul) y en el oeste del Estado de Mato Grosso do Sul.

Los productos comestibles más importantes para esta subregión en términos de cantidades son las castañas y el palmito. Estos continuarán a mediano plazo, participando a baja escala en el comercio internacional; la producción del palmito se concentra principalmente en el Brasil, Bolivia y el Ecuador. Los hongos silvestres en el Ecuador, el achiote (*Bixa orellana*) en Venezuela y la canangucha (*Mauritia flexuosa*) en Colombia. También el aceite de copaiba (*Copaifera* spp.), la uña de gato (*Uncaria tomentosa*), el bambú (*Guadua* spp., *Chusquea* spp.) mantendrán su importancia. Estímulos gubernamentales a las exportaciones podrían impactar el comercio de estos productos creándose nichos de mercado y canales que estimulen su mercadeo.

La producción de castaña de Pará (*Bertholletia excelsa*), viene sufriendo

variaciones a lo largo de los últimos años. En la última década se ha verificado una disminución en la producción en esta región, a excepción del Brasil y Bolivia. La mayor parte de la producción del Brasil se consume internamente (aproximadamente el 70%) y el 30% restante se comercializa internacionalmente. Se calcula que en 2002 las exportaciones han sido de aproximadamente 10 000 toneladas mientras que el consumo interno alcanzó las 20 000 toneladas. En Bolivia su comercialización se efectúa de dos modos con cáscara o deshidratada, y se exporta en su mayoría. Su consumo interno es bajo mientras que la exportación se ha incrementado significativamente en los últimos años. Algunas publicaciones presentan el Brasil como el principal exportador mundial. Otras fuentes mencionan que Bolivia es el principal exportador de este producto y el Perú se encuentra en el tercer lugar.

En el Ecuador, los hongos silvestres (*Boletus* spp.) asociados a las plantaciones de pino, constituyen un importante PFNM a nivel nacional. Su aprovechamiento comenzó en la década de los ochenta; su procesamiento industrial (secado, fraccionado, empaquetado) inició en 1991.

El achiote (*Bixa orellana*) constituye otro importante PFNM para Venezuela: se usa como colorante en comidas, se cultiva en huertos caseros y en plantaciones, y también se industrializa. Sin embargo, no existen datos de la producción.

Las algarrobos, frutos del *Prosopis pallida*, es un alimento bastante importante en el Perú, aún si se trata de pequeñas cantidades, es importante como alimento para el ganado y la producción de algarrobita (café de algarrobo). El bosque seco de la costa norte de este país es el hábitat natural de esta especie (más de 1,3 millones de ha). La tala de este árbol está actualmente en veda, pero existe una gran presión social sobre el mismo, lo que genera con mucha frecuencia su tala ilegal para producir leña y carbón. De acuerdo al INRENA (Instituto Nacional de Recursos Naturales), la producción total se estima en 2 millones de toneladas anuales. El 60% lo consume el ganado, el 20% se comercializa en agroindustria para producir algarrobita y el 20% restante se pierde.

Son muy numerosas las plantas medicinales obtenidas en los bosques de la subregión amazónica. Entre las más importantes se encuentran: la uña de gato (*Uncaria tomentosa*) y el aceite de copaiba (*Copaifera multijuga* o *Copaifera langsdorffii*). Del tronco de cinchona

(*Cinchona pubescens*), especie que crece en Bolivia y en Colombia, se extrae como materia prima una droga contra la malaria (quinino). También en Colombia, la palma canangucha (*Mauritia flexuosa*), de cuya planta se extrae el aceite de alma canangucha o moriche, se exporta. Los datos disponibles para este país señalan exportaciones de alrededor de 110 000 toneladas de aceite de palma en 1999, 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.

En Colombia y Venezuela, la palma chiqui-chiqui (*Leopoldina piassaba*) es usada para utensilios, artesanía y como material de construcción. Otro PFNM es el bambú (*Guadua* spp.), ampliamente utilizado en la construcción civil, en la fabricación de muebles y para artesanías en el Ecuador, Colombia y Venezuela. En el Ecuador, el uso de este producto se ha incrementado, según datos de la Guía nacional de artesanía. Se han individuado 19 talleres artesanales que elaboran juguetes y otros productos en las provincias de Azuay y Esmeraldas. En la región de la costa ecuatoriana, el principal consumidor de estos productos es la construcción civil.

Otros importantes PFNM son las resinas obtenidas de las plantaciones de pino (*Pinus* spp.). Los principales países productores de estos productos son Venezuela y el Brasil. En la década de los noventa Venezuela producía 7 000 toneladas de resina cruda de *Pinus caribaea*. A mediados de esa década, el Brasil producía aproximadamente de 60 a 65 000 toneladas.

El estudio menciona la dificultad de analizar el comercio de los PFNM y sus tendencias a causa de la escasa disponibilidad de la información estadística presentada de manera sistemática. Si se considera aisladamente el Brasil, las tendencias de los mismos definen las siguientes perspectivas para el año 2020:

- en lo que concierne al caucho, se espera un crecimiento importante de las importaciones, puesto que el consumo interno crecerá debido al aumento de la demanda del mismo por parte de la industria automotriz y el país aún no será autosuficiente; se calcula que para el año 2020 las importaciones de caucho podrían alcanzar las 250 000 toneladas. La

producción provendrá principalmente de áreas naturales de la región norte. Las demás regiones contemplan básicamente valores de producción de caucho natural a partir de áreas plantadas.

- las exportaciones de yerba mate también aumentarán debido al incremento de la demanda de los mercados de los países vecinos, se prevé que en 2020 cerca de 55 000 toneladas serán orientadas al mercado internacional. Se presume un aumento en la demanda de este producto, a causa principalmente, de su precio competitivo con relación a otras infusiones de uso similar.

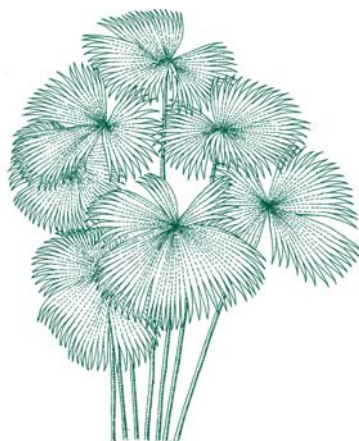
En síntesis, en esta subregión el mercado de los PFNM se viene desarrollando desde hace muchos años a escala informal. Sin embargo se ha manifestado interés por parte de los actores relacionado con los mismos países como Brasil, Colombia, Ecuador y Perú donde se están implementando Iniciativas de Biocomercio (UNCTAD), mediante programas nacionales y además existen herramientas que se proyectan a nivel regional. Se han conformado grupos de trabajo y estructuras específicas para establecer estrategias de implementación, tales como las Directrices Mundiales de Conservación de Plantas Medicinales (OMS/UICN/WWF/TRAFFIC) y el Estándar de Recolección Silvestre Sostenible de Plantas Medicinales y Aromáticas de BfN/UICN/ WWF/TRAFFIC (ISSC-MAP, siglas en inglés), ampliamente consultados y en fase de implementación inicial. También se puede mencionar el Ecuador, como país que ha manifestado gran interés en esta área a escala internacional, hospedando la sede para América Latina de la UICN (Unión Mundial para la Naturaleza), y la oficina Regional para Latinoamérica y el Caribe del INBAR (Red Internacional del Bambú y Ratán), ambas entidades se encuentran ampliamente relacionadas con los PFNM, promoviendo programas de desarrollo sostenible de las especies que suministran estos productos, facilitando el intercambio y la difusión de información y tecnologías sobre las mismas.

Fuente: Informe de la subregión amazónica ESFAL/SR/1; disponible electrónicamente: <http://www.fao.org/docrep/009/j7353s/j7353s00.htm>. Aportado por Sandra Inés Rivero, Consultora, Departamento Forestal, FAO, Sandra.Rivero@fao.org

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PARA MAYOR INFORMACIÓN SOBRE LOS ESTUDIOS Y POR COPIAS DE LOS MISMOS DIRIGIRSE A:

**Olman Serrano, Oficial forestal superior
Servicio de Productos Forestales,
Departamento Forestal, FAO, Viale delle Terme
di Caracalla, Roma 00153, Italia
Correo electrónico: Olman.Serrano@fao.org**



Carludovica palmata

Bolivia takes its hat off to Jipi japa (*Carludovica palmata*)

Jipi japa (*Carludovica palmata*), a palm-like species that grows wild in tropical and subtropical forests in Central and South America, has woven itself deep into the everyday lives of Bolivian villages. A wide array of goods is produced from its fine, white fibres – including the famous Panama hat.

The Panama hat originated in Ecuador. Jesuit missionaries introduced the weaving techniques used to make hats and baskets into Bolivia in 1908. Over time, the artisans expanded their skills in processing and handling jipi japa fibres to include the manufacturing of wallets, decorative figures, purses and various utensils for kitchens and tables.

Today jipi japa handicrafts are manufactured by indigenous people in the lowland communities of northeast Bolivia. These remote communities are developing stronger relationships with the outside world as their manufacturing of jipi japa handicrafts expands. As a result, some artisans are forming collectives to assist the commercialization process.

Jipi japa plants grow in humid tropical and subtropical forests, but they can also be found growing wild in agricultural fields, on communal lands, along the banks of rivers and in ravines. Jipi japa is generally

harvested from wild stocks. The species is rarely cultivated in Bolivia as villagers have had limited success because of the low survival rates of the plants; however, Ecuadorians have managed to establish productive plantations.

In some cases, jipi japa harvesters, mainly men, carry out the weaving. In other cases they sell the fibres to artisans who produce the various handicrafts. Most of these are sold within Bolivia, although the artisan association in Chapare, in Cochabamba, has been exploring the export market. It is difficult to estimate the total value of jipi japa production since the raw material is incorporated in many different products, which are commercialized in various ways. At the household level, jipi japa may represent anywhere between 15 and 80 percent of the total family income. The influencing factors include the distance to market, the number of people in the family involved in the jipi japa trade and whether or not they belong to one of the associations.

There are two main negative factors affecting the production of jipi japa handicrafts: i) in some areas, jipi japa shoots are being harvested more quickly than the plants can regenerate, reducing Bolivia's wild populations of the plant. Almost half of the original Bolivian jipi japa population has already disappeared, largely as a result of changing land use patterns; ii) new associations are being set up with government or foreign support. Building up the capacity to promote the production of jipi japa handicrafts without ensuring there is an adequate consumer demand results in a saturated market and lower prices for harvesters and processors.

These factors need to be taken into account to ensure that jipi japa populations can survive in Bolivia and continue to provide benefits for the harvesters and weavers who work with this palm-like plant. (*Source:* Case study on Jipi japa fibre, handicrafts, by Erik Arancibia and Fausto López [in *Riches of the forest: fruits, remedies and handicrafts in Latin America*, eds C. López, P. Shanley and A.C. Fantini].)



"Riches of the forest: fruits, remedies and handicrafts in Latin America"

Brazil: Baú indigenous land makes its first sale of certified Brazil nut oil

The Baú Indigenous Land enterprise has just made its first sale of Forest Stewardship Council (FSC) labelled Brazil nut oil. Members of the Kayapó tribe closed a deal with the vegetable oil processing company, Beraca, immediately after receiving FSC label and IBD (organic) certification

Beraca provides processed raw materials to the cosmetics industry, and purchased the entire certified production of the Kayapó, some 750 litres. Beraca director, João Matos, said that for forest products to become increasingly incorporated into the cosmetics and hygiene industry in general, in addition to the high quality of raw material, there has to be a guarantee of constant supply. On this point, the management plan required for FSC certification includes planning to enable continuous production.

The Kayapó invited business people to contact them so that, together, they might conduct prospecting as to the economic feasibility of other potential raw materials for the industry. [Source: Amazonia.org.br, 15 December 2006.]

Brazil: bamboo project in the Vale do Alto Rio das Velhas region

The Centro de ecología humana (Centre of Human Ecology) seeks to establish a sustainable development project for the Vale do Alto Rio das Velhas region in Brazil by using bamboo to decontaminate the river. This project will be executed in the municipalities of Jaboticatubas and Lagoa Santa in Belo Horizonte, Brazil, and will propose developing sustainable use methodologies in adjacent areas. The project will serve as a model for other regions.

Project objectives include introducing bamboo as a decontaminator in order to protect rivers of the state of Minas Gerais, and promoting bamboo as a sustainable product of high value for architecture, engineering and furniture construction. [Source: Eco-Index Monthly Update, February 2007.]

FOR MORE INFORMATION, PLEASE CONTACT:

Sonia Araujo Penna and Antonio Ernesto Gomes Carneiro, Project Directors,
Centro de Ecología Humana,
Rua Prof. Antonio Aleixo, 330/1102,30180150 –
Belo Horizonte, MG, Brazil.
E-mail: info@ecologiahumana.org.br;
www.fazendadasminhocas.com.br

Colombia: los PFM y los bosques plantados para su producción

De acuerdo al Informe Nacional de Colombia se presentan dos casos donde plantaciones forestales con manejo especial producen tanto madera como resina (y mediante un proceso industrial se elabora colofonia).

En el primer caso se puede mencionar una plantación de 8 000 ha de pino caribe (*Pinus Caribaea*) con fines de resinación y producción de 500 toneladas/año de colofonia, oferta que está siendo consumida totalmente por el mercado nacional.

El segundo caso trata de plantaciones de *Hevea Brasiliensis* para la producción de caucho, 5 000 ha en producción y 5 000 ha en crecimiento.

A pesar de que muchos otros PFM llegan al mercado, es difícil encontrar información sobre valores de producción a escala nacional, localización y prácticas de manejo del bosque para lograr un aprovechamiento sostenible de los mismos. Se sabe, sin embargo, que a escala social y en el comercio local, especialmente para las regiones con poblaciones autóctonas que viven cerca al bosque, estos productos son de gran valor. Las perspectivas, basadas en la inclusión de estos productos dentro del Plan Nacional de Desarrollo Forestal para ser trabajados dentro del Subprograma de Manejo y Aprovechamiento del Bosque Natural, indican que para el año 2020, este sector estará más estructurado y definido. Fuente: Informe Nacional de Colombia ESFAL/N/8, disponible electrónicamente: www.fao.org/docrep/007/j4192s/j4192s00.htm



"Riches of the forest: food, spices, crafts and resins of Asia"

Ecuador: making a difference for small-scale bamboo producers

Like most small-scale farmers in Ecuador, Jhony Moreno relies on diversity – should one crop fail there is always something to fall back on. Traditionally that has meant cattle, some annual crops, coffee, cacao and bananas. But, with the help of the International Network for Bamboo and Rattan (INBAR), he has started growing *Guadua angustifolia* bamboo to produce split canes and bamboo, which now provide a secure income for his family (and local workers who depend upon him), as the figures below show.

| | US\$ per year | Total costs | Net profit |
|---------|---------------|-------------|------------|
| Bamboo | 2 241 | 1 542 | 699 |
| Milk | 1 971 | 1 971 | 0 |
| Maize | 263 | 309 | -46 |
| Cassava | 341 | 603 | 392 |
| Bananas | 383 | 392 | -9 |

After his initial training through INBAR, Mr Moreno went on to develop his own improved production techniques, sharing his knowledge with other farmers. He now markets his own bamboo products and has earned enough in the last 18 months to build a house. His farm has become a centre for demonstrations, training workshops and exchange opportunities between farmers and bamboo experts. He has also begun to advise other communities on managing their own bamboo stands to produce split canes. [Source: *In partnership for a better world – strategy to the year 2015*. 2006. Beijing, China, INBAR.]

Ecuador: palm fibre (*Aphandra natalia*) – its management and benefits

In the 1970s, the weak agriculture-based family economy that affected the region of Sevilla de Oro motivated the migration of many families to the Ecuadorian Amazon, to a small village called Chinimbimi, where they bought land with the idea of establishing cattle farms. As most of the farms still had a high percentage of primary forest, one of the first activities to generate a cash income was the extraction of the valuable timber as part of the process of clearing the forest to establish pastures.

Farmers then started to extract and manage the non-timber forest resource, palm fibre, produced from the leaves of *Aphandra natalia*, a native palm of the

forests originally exploited for its timber. It was known that in a nearby village, palm fibre was flown out to Guayaquil to make brooms. When the palm fibre was valued as a resource that could be produced in the long term (production starts after ten years), the owners of the farms started to manage the palm, sowing seeds to increase its density on the farms to ensure continuous production of the fibre in the future. Farmers also left palms that had grown from natural regeneration when clearing the understorey of the forest.

Over the years the farmers established a production system including pastureland combined with a few dispersed trees of non-commercial value and palms that are left standing and managed by cutting two to four leaves to harvest their fibre while leaving at least five leaves to guarantee the survival and next production cycle of fibre after six months.

Currently, within 0.5 km from the centre of Chinimbimi, where the palm is mainly concentrated, 16 colonist family farmers own an average of 40 ha. For them, the extraction of palm fibre is a continuous source of cash income (on average each family receives a monthly net income of US\$482 from the sale of approximately 14 quintals of fibre). This level of production is obtained by harvesting about 700 palms per month from an area of around 1.5 ha, employing local labour from the village.

The low cost of the initial investment in terms of input and labour required to maintain the palm and the continuous production of the fibre are determining factors in converting the palm into a pillar of the family economy for the majority of the inhabitants of Chinimbimi over the past 20 years, relegating cattle to second place. (Source: *ForLive Highlights*, 3, February 2007.)

Peru: Camu camu fruit exports increased by 134.5 percent

Peruvian exports of the camu camu fruit (*Myrciaria dubia*), which is marketed as a health food, increased by 134.5 percent in 2006. Exports totalled US\$2.126 million, compared with US\$906.585 in 2005.

The product is for sale mostly in processed forms, creating added value. The most important market for the fruit from the Amazon jungle was Japan, with 80 percent of the total, followed by the United States of America (12 percent), the Netherlands (4 percent), Canada (1 percent) and Hong Kong (1 percent).

Demand for the product is largely a result of its high vitamin C content, which is 50 times more than that of oranges.

In 2007 exports of US\$3 million are expected. (Source: *FreshPlaza*, the Netherlands, 2 March 2007.)



Myrciaria dubia

Peruvian Brazil nut collectors take control of their future

In Peru, recent laws have required that anyone harvesting and selling Brazil nuts must obtain a Non-Timber Forest Product Concession Contract. To obtain a concession, Brazil nut collectors must develop and comply with a forest management plan, which regulates the harvest, collection and transport of the nuts.

In Madre de Dios, 335 families saw an opportunity in these new laws to take control of their future. They requested titles to their land so that they could obtain concessions. The families then grouped themselves into associations, according to the size of the concession plot sought. Now they sell Brazil nuts directly to exporters and are no longer dependent on the prices that local brokers offer. (Source: *Field guide to the future. Four ways for communities to think ahead*. 2006. K. Evans et al. (www.asb.cgiar.org/ma/scenarios/))

La República Bolivariana de Venezuela y sus PFM

En los últimos años en varias zonas de este país, según el Informe Nacional de Venezuela, se ha observado un mercado desarrollo en la elaboración de productos provenientes del bosque, tal es el caso de la utilización de madera de pequeñas dimensiones y de los PFM como hojas, frutos, semillas, lianas, bejucos, fibras y hierbas, entre otros, para la producción de artesanías. Esto constituye una fuente de ingresos de importancia local, así como también una fuente generadora de empleos.

El origen de los productos es diverso, pero la tendencia que domina es la recolección en bosques naturales, matorrales, árboles y arbustos aislados, vegetación aledaña a cauces de ríos y lagunas, y en menor grado, bosques plantados y otras áreas dedicadas a la producción forestal. Los productos elaborados también son muy diversos, destacándose la cestería, tejidos, figuras religiosas e históricas, bateas, tazas, platos, arreglos florales, tallas en madera, útiles de trabajo, juguetes e instrumentos musicales. La información sobre especies usadas en la elaboración de las artesanías es bastante escasa, pero los trabajos realizados indican que se utiliza una amplia gama de vegetales que comprende árboles, arbustos, gramíneas, palmas bejucos y lianas.

En Venezuela el uso del bambú y el de especies similares, es poco difundido, pero en los últimos años el encarecimiento de los costos de fabricación de muebles con maderas tradicionales, ha popularizado el uso de estas especies. La *Guadua* (*Guadua* spp.) y *Guafa* (especie de la familia de Bambuseae) está en el orden de 564 940 unidades y 124 550 unidades por año, respectivamente.

También se menciona la producción de sustancias aromáticas, provenientes de plantaciones de sarrapia (*Dipteryx odorata*) establecidas con el objeto de aprovechar el fruto para la extracción de cumarina, la cual es una materia prima fundamental para la industria de la perfumería. Las comunidades campesinas de la Reserva Forestal El Caura desarrollaron plantaciones de esta especie con una superficie y antigüedad no registradas. Se estima que son varios miles de hectáreas plantadas hace unos 70 años. El mercado de la cumarina está dominado por transacciones internacionales donde es fundamental garantizar una calidad y flujo constantes. Al no cumplir estas condiciones, los productores de El Caura dejaron de ser competitivos, además, la cumarina actualmente tiene competidores de origen industrial. Además este recurso puede ser aprovechable de manera sostenida, existe experiencia, tradición y la madera se puede usar en la construcción naval, durmientes de ferrocarril y ebanistería de alta calidad.

Fuente: Informe Nacional de Venezuela ESFAL/N/12, disponible electrónicamente: http://www.fao.org/docrep/008/j5484s/j5484s07.htm#P1490_62004

"Riches of the forest: fruits, remedies and handicrafts in Latin America"

CAN NWFPs HELP IN ACHIEVING THE MILLENNIUM DEVELOPMENT GOALS?

The United Nations Millennium Development Goals (MDGs) are common objectives that provide a framework to meet the basic needs and rights of millions of people in the developing world. There are eight goals with 18 targets and over 40 indicators that help to monitor and achieve the goals.

The Millennium Development Goals

- Goal 1. Eradicate extreme poverty and hunger
- Goal 2. Achieve universal primary education
- Goal 3. Promote gender equality and empower women
- Goal 4. Reduce child mortality
- Goal 5. Improve maternal health
- Goal 6. Combat HIV/AIDS, malaria and other diseases
- Goal 7. Ensure environmental sustainability
- Goal 8. Develop a global partnership for development

(Source: www.undp.org/mdga)

In 2000, the Millennium Declaration was agreed upon by world leaders to aim to achieve the MDGs by 2015. The objective of this policy brief is to explore whether it is possible for forest resources, particularly non-wood forest products (NWFPs), to help to achieve the MDGs.

There are over 3.4 billion ha of forests on which 1.6 billion people in the developing world depend directly or indirectly on forest

resources. Ironically, NWFPs have been considered to be minor products compared with other forest resources. However, it will be shown that NWFPs can play a significant role in contributing to achieving the goals, although there are challenges. This policy brief will ultimately advocate a synergistic approach to achieving the goals where several goals are combined into one effort. Investing in NWFPs through careful planning may help to achieve several goals simultaneously.

Eradicate extreme poverty and hunger (Goal 1)

The target of this goal is to halve the proportion of people who earn less than a dollar a day. Selling forest products is known to reduce extreme levels of poverty. It has been estimated that 12.9 million people are employed in the industrial forestry sector and twice as many in the informal forestry sector, suggesting that forest products could help to achieve this goal. Although NWFPs are not usually the main source of income for harvesters, they play a crucial role in preventing worsening poverty by creating safety nets. This role should not be underestimated. Especially in times of need, harvesting NWFPs still remains a popular option for many poor forest-dependent people because it requires low levels of skill and there are few barriers to entry into the subsector. It is also a relatively easy source of income for those without access to capital or credit to invest in other more lucrative income-earning opportunities. Moreover, NWFPs can be safety nets during seasonal shortfalls and emergency periods. Nevertheless, before investing in NWFPs it is important to be aware of the challenges that they bring, which may create poverty traps.

There are three reasons why NWFPs may be poverty traps rather than safety nets and may be considered to have anti-poor elements. The first regards the economics of NWFPs, which generally elicit low returns since the density of available NWFPs is low, thus meaning that one has to travel far to collect a handful of certain NWFPs, making harvesting costs high and returns low. Second, access to markets is minimal, either because of poor infrastructure or because markets are too far away, preventing the sale of what has been collected. Third, harvesters may receive a very small portion of returns because of exploitive market chains and

lack of access to market information since they tend to live in remote areas. The poor are more likely to suffer from such negative scenarios, but NWFPs can mean the difference between life and death when eradicating hunger is concerned, which is the second part of this goal.

Currently 852 million people suffer from hunger because of poverty and lack of access to food. It is clear that NWFPs alone cannot prevent millions from being hungry. However, in times of emergencies and seasonal shortfalls of agricultural products, NWFPs can be a source of food security and offer an alternative means of preventing hunger, in addition to being a supplementary source of food. NWFPs such as bushmeat, leaves, wild flowers, fruits, wild roots and tubers can provide rich sources of energy, which are especially important in preventing hunger and reducing vulnerability.



ONLINE ATLAS OF THE MILLENNIUM DEVELOPMENT GOALS (MDGS)

The World Bank has launched a Web site (<http://devdata.worldbank.org/atlas-mdg/>) that translates data on some of the world's development challenges into maps designed for a lay audience. The maps are derived from the Bank's World Development Indicators database, and depict progress towards meeting the MDGs. (Source: *Earth Negotiations Bulletin*, 19 April 2007.)

Food security and nutrition can be sustained by many wild plants and animals, which often play a critical role for the poorest groups, particularly during times of drought or food insecurity. The South African Millennium Ecosystem Assessment estimates, for example, that the value of day-to-day wild resource consumption is around US\$800 million per annum.

(Source: *IIED Briefing Paper*, Dilys Roe, Ivan Bond, 2007. www.iied.org/pubs/display.php?o=11070IIED)

Promote gender equality and empower women (Goal 3)

This goal aims to target elimination of gender disparity in primary and secondary education. Monitoring the goal includes measuring the ratio of girls to boys in different levels of education and the share of women in wage employment in non-agricultural sectors. The target could be expanded to include promoting empowerment of women by measuring their access to harvesting NWFPs and the level of financial empowerment they can achieve.

Many women are involved in harvesting NWFPs for commercial purposes, especially because of the low entry thresholds. NWFPs can be collected near women's homes so that they can combine making a small but significant income while managing their household responsibilities. Women are also involved in organized small enterprises where income that they earn is often reinvested for family needs such as food, clothing and schooling. It is the commercial aspects of NWFPs that could help women become more financially empowered and diversify the sources of household income, leading to indirect impacts on education.

(See pages 16-18 for information on female entrepreneurs.)

Reduce child mortality (Goal 4)

Currently 11 million children under the age of five die every year. NWFPs in terms of forest food are sources of rich nutrients that can act as a means of reducing illness and mortality among children. They can provide essential nutrients, especially for those who are poor and live in remote areas, away from alternative sources of food.

Although the contribution of forest foods to the household diet varies depending on the context, NWFPs such as stems, roots and tubers can provide starch to the diet. For instance, forest foods such as the oil-rich seeds of *Geoffroea decorticans* and the protein-rich leaves of baobab can help reduce protein-energy malnutrition that can lead to reduced growth and susceptibility to infection. Vitamin A deficiency, which can cause death, can be prevented through the leaves of *Pterocarpus* sp. and bee larvae. Iron deficiency, which particularly affects women and children, can be prevented through eating wild animals or insects, such as tree ants, as well as mushrooms. Niacin deficiency, which can cause diarrhoea that can lead to death among children, can be prevented through forest fruits and leaves of

niacin-rich *Adansonia digitata* and seeds of *Parkia* sp. NWFPs act as safety nets in vulnerable times and could help to prevent child mortality by not only being a source of food, but also by preventing malnutrition and strengthening the body's defence system to some extent.

MORINGA TO ASSIST MALNOURISHED CHILDREN IN GHANA

The Adventist Development and Relief Agency (ADRA) Ghana, is embarking on a programme to assist 5 000 malnourished children in 58 communities in the central region to improve their health conditions. ADRA is assisting the communities to grow the *Moringa oleifera* plant, which has been found to contain high nutritious and medicinal properties and it has appealed to the communities to use it in the preparation of their food. According to ADRA's Winneba area Field Project Officer, the 12-month programme would cover malnourished children between the ages of six and 59 months. (Source: Joy Online, Ghana, 12 March 2007.)



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Combat HIV/AIDS, malaria and other diseases (Goal 6)

Medicinal plants have been used for centuries to treat illnesses. Many people still rely on them for health care, especially in rural areas where access to clinics is difficult. The World Health Organization states that globally 80 percent of people still depend on medicinal plants for health care. Although the efficacy of some medicinal plants is yet to be proved, some have demonstrated high concentrations of chemicals that are needed for modern drugs, as well as high concentrations of

vitamins and minerals needed to improve human immunity to diseases.

One of the targets of this goal is to halt and reverse the incidence of malaria, which will be monitored by death rates resulting from malaria and the proportion of the population in malaria-prone areas using malaria treatment. More than 50 percent of the world's population is exposed to malaria, which kills 1.1 to 2.7 million people per year, mostly women and children. Yet medicinal plants can help to cure these debilitating diseases. Today, antimalarial research is focused on the medicinal plant *Artemisia annua* L., which could be three times more effective than quinine. (See page 31 for more information on *Artemisia annua*.)

Finding the cure for HIV/AIDS, however, is an ongoing process. The target in relation to this goal is to halt and reverse the spread of HIV/AIDS by monitoring the HIV prevalence among pregnant women and the ratio of AIDS orphans who attend school. In sub-Saharan Africa, where 25 million people are affected with HIV, it has been predicted that more and more will become further dependent on forest resources, such as NWFPs for food and income, as agricultural productivity decreases and poverty increases as a result of poor health. Dependency on medicinal plants to cure the side effects of HIV/AIDS will also increase the potential to cure HIV/AIDS through medicinal plants that are still being researched.

In addition to HIV/AIDS and malaria, there are other diseases that can potentially be cured by medicinal plants. For example, 1.6 million deaths result from unclean water and 3 900 children die every day from preventable waterborne diseases. These diseases could be treated by the seeds of *Moringa* sp., which can clarify turbid water, resulting in a 98-99 percent elimination of indicator bacteria. *Moringa* is a low-cost water treatment technology that helps to decrease exposure to waterborne diseases and is a form of safe drinking-water.

The fruits of *Balanites aegyptiaca* and *Swartzia madagascariensis* contain saponins that kill snails that carry waterborne fleas. NWFPs such as *Moringa*, *Balanites aegyptiaca* and *S. madagascariensis* can help target Goal 7, which calls for access to safe and improved drinking-water.

Finally, tuberculosis, which kills 2 million people every year, of which 12 percent are related to HIV-positive cases, could be treated with the medicinal plant *Hyposis* sp.

THE ROLE OF *MORINGA OLEIFERA* IN REACHING THE MDGS IN NIGERIA

A water filter, which uses the local plant *Moringa oleifera*, has been developed by the non-governmental organization (NGO) Rural Africa Water Development Project (RAWDP) to help purify water for domestic use in several communities (both rural and urban) in the Niger delta area of Nigeria. *Moringa oleifera*, which grows widely in several parts of the country, is known in the Yoruba language as *ewe ile*; *gawara* in Fulani; *bagar-rumar maka* in Hausa; while the Ibos call it *odudu oyibo*.

The project involves the production of sand water filters and the use of natural coagulative properties in the powdered seeds of the *Moringa oleifera* tree to purify water for use by poor households. The Project Coordinator of RAWDP believes that the filter technology developed by the organization is key to achieving the water MDGs in Nigeria. He says, "We have about 63 million Nigerians without access to clean water". He believes that the Nigerian Government should encourage the massive cultivation of *Moringa* trees by all households and the empowerment of people to produce the Mor Sands Water Filters. "Everybody should plant a *Moringa* tree in their compound, so that when it grows, its fruits can be used to filter unclean water."

The *Moringa* tree can be planted anywhere, it grows wild and has the benefit of stopping erosion. It has fibrous roots and leaves an antibiotic effect on the soil. Its bark and roots also have medicinal properties. (Source: *This Day*, Nigeria, 10 April 2007.)

Ensure environmental sustainability (Goal 7)

This goal relates to the protection of the resource base, without which it may not be possible to reach the other goals through the use of NWFPs. The goal suggests the need to integrate principles of sustainable development into country policies and reverse the loss of natural resources. There are several indicators for the goal and target but the most pertinent one in

relation to NWFPs is the proportion of land covered by forests and the ratio of area protected to maintain biological diversity.

Many NWFPs are found in forested areas and therefore forest resources should be harvested in a sustainable manner. The environmental impact of extracting NWFPs is dependent on the species, the parts harvested and the relationship between plants and animals in an ecosystem. Forest and biodiversity sustainability can be ensured through conducting resource inventories. Growth and yield models can also help to determine sustainable harvesting levels. Such biometrics are necessary to help maintain species, avoid overharvesting and plan and prioritize harvesting of NWFPs.

Environmental sustainability is also linked with economic and social sustainability. A sudden demand for a product and the promise of short-term gains and poor environmental information could lead to the extinction of certain species. Therefore, before supplying species to meet market demand and ensure their sustainability, subsector market analysis could be used. For instance, a market analysis and development plan could be used to assess what potential customers want to buy and then decide how to proceed to producing, processing, promoting and distributing the product. It is a good tool to assess potential beneficiaries, partners, human resources, physical infrastructure and communication networks in order that producers and consumers can benefit from NWFPs through an efficient and ecologically less harmful way of marketing such resources. Various economic analyses can also be conducted before deciding to harvest NWFPs such as profit, cost and revenue analysis.

Environmental sustainability is also dependent upon the relationship between different actors with different interests. Various social impact assessments can help determine not only what resources are used by whom, but also how people relate to one another that suggest how economic benefits are distributed among households, for instance. Understanding land tenure, for example, can help determine who are able to benefit from what types of resources and, thereby, assessment of the type and extent to which a resource can be extracted. The relationship between people and resources serves as a window to understanding environmental sustainability. Social impact assessments could be carried out in the form of baseline

studies to obtain information on the condition of the setting with more detailed studies analysing issues of well-being, equity and risks involved in using NWFPs.

Develop a global partnership for development (Goal 8)

One of the targets of this goal is to develop an open, rule-based, predictable and non-discriminatory trading system that includes aspects of good governance, development and poverty reduction. The second target, which relates to addressing special needs to least developed countries that takes into account tariff and quota-free access for least developed countries' exports, is also applicable, especially since NWFPs face both tariff and non-tariff barriers in international markets. Tariffs, safety regulations, quotas and technical standards are the most common barriers placed on the south by the north. However, developing countries of the south also impose barriers, such as tariffs that are four times higher than those in developed countries, which restrict export trade in order to raise revenue for the government.

There are also various international trade agreements that could impose restrictions and also promote opportunities such as the World Trade Organization. With regard to non-tariff measures, species protection and health and safety regulations can be imposed. For instance, the Convention on International Trade in Endangered Species (CITES) of Wild Fauna and Flora regulates the trade of threatened plants and animals. The Convention on Biological Diversity (CBD) focuses on biodiversity conservation while promoting sharing of benefits from the use of genetic resources. In order to ensure health and safety regulations, phytosanitary regulations are placed on exporting countries. And finally, bans and boycotts can also play a restrictive role.



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Links between non-wood forest products and Millennium Development Goals

| MDG no. | Goal | Positive NWFP/MDG links |
|---------|--|---|
| 1 | Eradicate extreme poverty and hunger | Safety nets to prevent extreme poverty and hunger |
| 3 | Promote gender equality and empower women | Financial empowerment of women |
| 4 | Reduce child mortality | Nutritional intake from edible NWFPs |
| 6 | Combat HIV/AIDS, malaria and other diseases | Medicinal plants could be cures; NWFPs could be easy and fast sources of nutrition and income |
| 7 | Ensure environmental sustainability | Possible to assess sustainability |
| 8 | Develop a global partnership for development | Development of international NWFP market |

Conclusions and future steps

The MDGs that have been addressed are inextricably linked. There is more to gain from synergistic efforts to achieve the goals so that they are not treated individually and competitively. Therefore, the most important policy recommendation is to develop cross-sectoral policies. For instance, developing the harvesting and processing of a major NWFP not only has the potential to help harvesters move away from a poverty trap situation (Goal 1), but also to increase incomes from a product with a strong local and international market. If efforts are made to improve an NWFP through building global partnerships (Goal 7), incomes could potentially rise while ensuring environmental sustainability (Goal 8) through certification programmes. Secure resource access could allow children to have nutritious edible NWFPs to prevent hunger and disease (Goals 1 and 4). If women could gain access to income-earning opportunities (Goal 3), they would be able not only to escape from extreme poverty (Goal 1) but also to reinvest their incomes and, for example, send their children to school (Goal 2) and improve the family diet to lower child mortality (Goal 4). Finally, in order to combat diseases such as malaria and HIV/AIDS, a sustainable resource base is needed because NWFPs, such as medicinal plants, could be a source of direct or indirect treatment, especially if their efficacy is proven. In addition to protecting the resource base (Goal 7), it is crucial to invest in women's income-earning opportunities to prevent increasing poverty and hunger (Goals 1 and 3), especially if the women's husbands are ill or have died from HIV/AIDS, thus eliminating the possibility of earning an income.

A cross-sectoral policy approach will help target several goals at the same time. With this approach, certain goals may have greater impact than others through the use of NWFPs. Using NWFPs to help achieve the MDGs should be prioritized as follows.

- Eradicating poverty will have a positive impact on the other goals. By conducting market research and connecting local and international markets, marginal groups, particularly women, could have access to income-earning opportunities. Finding resources to sell would be extremely beneficial as incomes could be reinvested into other goals such as education and better access to nutrition and health.
- Another objective to be prioritized for multiple goals to be achieved is the financial empowerment of women. If financial resources and marketing skills were to be transferred to women as a form of empowerment, poverty and hunger would decrease since studies have shown that women tend to reinvest their income to improve their families' living standards through better nutrition and education, especially targeting children. Investing in women would also decrease the impact on families who lose their male breadwinner to illnesses such as HIV/AIDS.
- The third objective, of equal importance to the above, is environmental sustainability. If natural resources are destroyed, none of the other goals can be achieved through NWFPs. Ensuring environmental sustainability involves obtaining biometric information to determine to what extent an NWFP can be harvested

and in what manner. However, environmental sustainability must also be linked with economic and social sustainability.

There is a great deal of potential in using NWFPs to target almost all the MDGs. By using a cross-sectoral policy approach, it is more likely that many goals will be achieved simultaneously, if carefully planned.

Achieving the MDGs through NWFPs will be a challenge, but not an impossible one. (*Source: Policy brief researched and written by M. Chaudhury while working as a volunteer with FAO's NWFP Programme.*)

FOR MORE INFORMATION, PLEASE CONTACT:

Dr Moushumi Chaudhury, PO Box 6012, Gulshan Post Office, Dhaka 1212, Bangladesh.
E-mail: Moushumi.Chaudhury@gmail.com;
www.millenniumindicators.un.org ♣



"Riches of the forest: for health, life and spirit in Africa"