

Can Non-Wood Forest Products Help Contribute to Achieving The Millennium Development Goals?

Executive Summary

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 8 goals with 18 targets and over 40 indicators that will help to monitor and achieve the goals. 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 (NWFP) to help contribute to achieving the MDGs.

forests of which 1.6 billion people in the developing world depend directly or indirectly on forests resources. Ironically, NWFP have been considered as 'minor' products compared to 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 for a synergistic approach to achieving the goals where several goals are combined into one effort. Investing in NWFP through careful planning may help to achieve several goals simultaneously.

Box 1: 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: <http://www.undp.org/mdg>

NWFP and Eradication of 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 can help to achieve this goal (FAO 2005 (a)). Although NWFP are usually not the main source of income for most harvesters they play a crucial role in preventing worsening poverty by creating safety nets. This is a role that should not be underestimated. Especially in times of need, harvesting NWFP 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 this sub-sector (Angelson & Wunder 2003). It is also a relatively easy source of income for those without access to

NWFPs are 'goods of biological origin other than wood, derived from forests, other wooded land and trees outside forests' (FAO (b)). There are over 3.4 billion hectares of

capital or credit to invest in other more lucrative income-earning opportunities. NWFP can also be safety nets during seasonal shortfalls as well as during periods of emergencies. However, before investing in NWFPs it is important to be aware of the challenges NWFPs can bring, which can create poverty traps.

There are three reasons why NWFPs can be poverty traps instead of safety nets (Angelson & Wunder 2003) and be considered to have 'anti-poor' elements (Belcher and Ruiz-Perez 2005). First of all, due to the economics of NWFPs, which generally elicits low returns since the density of available NWFPs is low, and one would have to travel far to collect a handful of a certain NWFPs make harvesting costs high and returns low. Secondly, access to markets is also minimal either because of poor infrastructure to connect to markets or because they are too far, preventing one to sell what has been collected. Finally, harvesters may receive a very small portion of the return due to exploitative market chains and the 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 (UNMP 2005 (c)). It is obvious that NWFP 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 can offer an alternative means of preventing hunger, in addition to being a supplementary source of food. NWFPs such as bushmeat, leaves, wildflowers, fruits, wild roots and tubers can provide rich sources of energy especially

important in preventing hunger and reducing vulnerability.

NWFPs and Promotion of Gender Equality and Empowerment of Women (Goal 3)

This MDG goal aims to target elimination of gender disparity in primary and secondary education. The goal would be monitored by measuring the ratio of girls to boys in different levels of education, the ratio of literate women to men among 15 to 24 year olds, the share of women in wage employment in non-agricultural sectors, and proportion of seats held by women in national parliament. Although the target for this goal is relevant, it could be expanded to include promoting empowerment of women by measuring their access to harvesting NWFP and the level of financial empowerment they can achieve. Many women are involved in harvesting NWFP for commercial purposes, especially because of the low entry thresholds. NWFP can be collected near their homes so that they can combine making small but significant income, while managing their household responsibilities. Women are also involved in organized small enterprises where income that is earned by women is often re-invested into providing for family needs such as food, clothing, and schooling (Arnold 1995). It is the commercial aspects of NWFP that can help women become more financially empowered and diversify the source of household income, leading to indirect impacts on education.

NWFPs and Reduction of Child Mortality (Goal 4)

Currently, 11 million children under the age of five die every year (UNMP 2005 (h)). NWFPs in terms of forest food are sources of rich nutrients that can act as one means of reducing illness and mortality among children. NWFPs can provide essential

nutrients, especially for those who are poor and who 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 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 especially affects women and children, can be prevented through eating wild animals such tree ants and mushrooms. Niacin deficiency, which can cause diarrhoea that can lead to death among children, can be prevented through forest fruit 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 preventing malnutrition and strengthening the body's defence system, at least to some extent.

NWFP and Combating HIV/AIDS, Malaria and Other Diseases (Goal 6)

Medicinal plants, a type of NWFP, have been used for centuries to treat illnesses. Many people still rely on medicinal plants for health care, especially in rural areas where access to clinics are difficult because of the distance or the financial costs of modern medicines. The World Health Organization states that globally 80% of people still depend on medicinal plants for cures. Although efficacy of some medicinal plants is yet to be proven, some have demonstrated high concentration of chemicals that are needed for modern drugs and contain high concentrations of vitamins and minerals needed to improve

human immunity to diseases (Sheldon et. al 1997).

One of the targets for this goal is to halt and reverse the incidence of malaria, which will be monitored by death rates due to malaria and proportion of population in malaria-prone areas who are using malaria treatment. More than 50% of the world's population is exposed to malaria, which kills 1.1 to 2.7 million people per year, mostly women and children (UNMP 2005 (b)). Medicinal plants can help to cure debilitating diseases such as malaria. Today, anti-malarial research is focused on the medicinal plant *Artemisia annua* L., which could be three times more effective than quinine.

Finding the cure for HIV/AIDS, unlike for malaria, however, is an ongoing process. Diseases such as HIV/AIDS have affected 39 million people worldwide. 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, condom use rate, and ratio of AIDS orphans who attend school (UNMP 2005 (a); www.millenniumindicators.un.org). In Sub-Saharan Africa, for instance, 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 NWFP for food and income as agricultural productivity decreases and poverty increases due to 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 is still being researched.

In addition to HIV/AIDS and malaria, there are other diseases that can potentially be cured by medicinal plants. There are 1.6 million deaths due to unclean water and 3,900 children die everyday from preventable waterborne diseases (UNMP 2005 d)). For instance, waterborne diseases can be

treated with seeds of *Moringa* sp. used in Egypt and Sudan. This can clarify turbid water resulting in a 98-99% elimination of indicator bacteria. *Moringa* is a 'low cost water treatment technology', which can help decrease exposure to waterborne diseases and be a form of safe drinking water. Additionally, fruits of *Balanites aegyptiaca* and *Swartzia madagascarensis* contain saponins that kill snails that carry waterborne fleas. NWFP such as *Moringa*, *Balanites aegyptiaca*, and *Swartzia madagascarensis* can help target Goal 7, which calls for access to safe and improved drinking water (FAO 1989). Last but not least, tuberculosis, which kills 2 million every year, of which 12% are related to HIV positive cases, could be treated with the medicinal plant, *Hyposis* sp. as mentioned earlier (UNMP 2005 (e)).

2.1.5 Developing a Global Partnership for Development (Goal 8)

One of the targets in this goal is to develop open, rule-based, predictable, and non-discriminatory trading system that includes aspect 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, that 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 regards 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) 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, phyto-sanitary regulations are placed on exporting countries. And finally, bans and boycotts can also play a restrictive role (Iqbal 1995).

NWFPs and Ensuring Environmental Sustainability (Goal 7)

This goal is purposely discussed last because it relates to the protection of the resource base, which without it, the other previous goals mentioned may not be possible to reach through the use of NWFP. This 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 this goal and target but the most pertinent one in relation to NWFP is the proportion of land covered by forests and ratio of area protected to maintain biological diversity (www.millenniumindicators.un.org). Many NWFP are found in forested areas, and therefore, forest resources, such as NWFP should be harvested in a sustainable manner. The environmental impact of extracting NWFP 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. For instance, measuring species density and size of class are good indicators of population structure in the space of one hectare. This would help assess the regeneration status of the species and harvesting impact. 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 (FAO 2001).

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 specie. Therefore, before supplying species to meet market demand and to ensure its sustainability, sub-sector market analysis could be used. For instance, a market analysis and development plan could be used to assess what potential customers would 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 network in order that producers and consumers can benefit from NWFP through efficient and ecologically less harmful way of marketing such resources (Lecup et al. 1998). Various economic analyses can also be conducted before deciding to harvest NWFP such as profit, cost, and revenue analysis (Ames 1998). 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 done in the form of baseline studies to obtain information on the condition of the setting and more detailed studies analyzing issues of well-being, equity, and risk involved in using NWFP (Fisher and Dechaineux 1998).

Conclusion 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 goals are not treated individually and competitively. Therefore, the most important policy recommendation is to develop cross-sectoral policies. For instance, helping to develop 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 increase incomes from a product that has a strong local and international markets. 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 programs. Secure resource access could allow children to access nutritious edible NWFP that could prevent hunger and preventable diseases (Goal 1 and 4). However, if women could gain access to income earning opportunities (Goal 3), they would be able to not only escape from extreme poverty (Goal 1) but also re-invest their incomes in other goals such as sending their children to school (goal 2) and improving diets 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 NWFP such as medicinal plants, could be a source of direct or indirect treatment, especially if 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 falling into deeper levels of poverty (Goal 1 and 3), especially if

their husbands' are too ill or have died from AIDS, eliminating the possibility to earn an income, while increasing the likelihood of hunger.

Box 2: NWFP-MDG Linkages

MDG	Goal	Positive NWFP-MDG Linkages
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 NWFP
6	Combat HIV/AIDS, malaria, and other diseases	Medicinal plants could be cures; NWFP 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

Using a cross sectoral approach will help to not only target one goal but several at the same time. Based on a cross sectoral policy approach, certain goals may have greater impact than and others, through the use of NWFP. Using NWFP to help achieve the MDGs should be prioritized in the following manner:

1. Eradicating poverty can positively impact the other goals. By conducting market research and connecting local to international markets, marginal groups, such as

women, could have access to income earning opportunities. Finding such resources to sell could be extremely beneficial as incomes could be reinvested into the other goals such as education, and better access to nutrition and health that prevent diseases and vulnerability.

2. Another objective that must be prioritized for multiple goals to be achieved at the same time is women's financial empowerment. If financial resources and marketing skills are transferred to women as a form of empowerment, there is a potential that poverty and hunger will decrease since studies have shown women tend to re-invest their income into improving their families living standards through better nutrition and education, especially targeting to children (Ezemnan et. al 2002). Investing in women will also most likely decrease the impact on families who lose the main 'breadwinner' to diseases such as HIV/AIDS.
3. The third objective of equal importance to the other two identified which should be prioritized is environmental sustainability. Over the last decade, there has been an annual loss of 9.4 million hectare of forest land. If natural resources are destroyed, none of the other goals will be possible to be achieved through NWFPs. Ensuring environmental sustainability involves obtaining biometric information that can help to determine to what extent an NWFP should be harvested and how. However, environmental sustainability should also be linked with economic and social sustainability.

There are numerous recommendations that have been made to achieve the MDGs over the next 10 years, which are available in publications, such as the Task Force reports. The recommendations that have been made in this paper are reflective of the empirical examples presented in a more detailed paper linking the MDGs to NWFPs. They selectively highlight the benefits and challenges of using NWFP as a tool to achieve the MDGs. Achieving the MDGs through NWFP will be a challenge, but not an impossible one. There are many potentials to using NWFP to target almost all the goals. By using a cross sectoral approach to making policies, it will be more likely that many goals will be achieved simultaneously, if carefully planned. However, out of the five applicable goals in relation to NWFPs, investing in markets, women's financial empowerment, and environmental sustainability have been identified and prioritized in this policy brief to have greater impact on helping to contribute to achieving the MDGs through NWFPs.

References

Ames, M. (1998) 'Assessing the Profitability of Forest-based Enterprises' in E. Wollenberg and A. Ingles (eds) *Incomes from the Forest Methods for the Development and Conservation of Forest Products for Local Communities*. Bogor: SMT Grafika Des Putera.

Angelson, A. and S. Wunder (2003) 'Exploring the Forest-Poverty Link: Key Concepts, Issues, and Research Implications'. *Centre for International Forestry Research Occasional Paper 40*.

Belcher, B. and M. Ruiz-Perez (2005) 'Global Patterns and Trends in the Use and Management of Commercial NTFPs: Implications for Livelihoods and Conservation' in *World Development* 33 (9): 1435-1452.

Food and Agriculture Organization of the United Nations (2005) (a) 'The Role of Forests in Contributing to the Millennium Development Goals'. Available from: <http://www.fao.org/docrep/meeting/009/J3884e.htm>

Food and Agriculture Organization of the United Nations 2005 (b) Available from: <http://www.fao.org/forestry/foris/webview/forestry2/index.jsp?siteId=2301&siteTreeId=6367&langId=1&geoid=0>

Food and Agriculture Organization of the United Nations (2001) (c) Resource Assessment of Non-Wood Forest Products. *Non Wood Forest Products* 13. Rome: Food and Agriculture Organization of the United Nations.

Fisher, R. J. and R. Dechaineux (1998) 'A Methodology for Assessing and Evaluating the Social Impacts of Non-Timber Forest Products Projects' in E. Wollenberg and A. Ingles (eds) *Incomes from the Forest Methods for the Development and Conservation of Forest Products for Local Communities*. Bogor: SMT Grafika Des Putera.

IBRD (2004) *World Development Report: Making Services Work for the Poor*. Washington: Oxford University Press.

Harch, E. (2001) 'Making Trade Work for Poor Women' in *Africa Recovery* 15 (4): 6.

Iqbal, M. (1995) 'Trade Restrictions Affecting International Trade of Non-Wood Forest Products' in *Non-Wood Forest Products* 8.

Lecup, I, K. Nicholson, H. Purwandono, and S. Karki (1998) 'Methods for Assessing the Feasibility of Sustainable Non-Timber Forest Product-based Enterprise' in E. Wollenberg

and A. Ingles (eds) *Incomes from the Forest Methods for the Development and Conservation of Forest Products for Local Communities*. Bogor: SMT Grafika Des Putera.

Sheldon, J.W., M. J. Balick, and S. A. Laird (1997) *Medicinal Plants: Can Utilization and Conservation Coexist?* New York: The New York Botanical Garden.

Sitoe, A. (2004) Miombo Woodlands and HIV/AIDS Interaction: Mozambique Country Report. *United Nations Food and Agriculture Organization Working Paper*.

United Nations Millennium Project (2005) (a) *Combating AIDS in the Developing World: HIV/AIDS, Malaria, TB, and Access to Essential Medicines*. Working Group on HIV/AIDS. Available from: http://www.unmillenniumproject.org/reports/tf_hiv aids.htm

United Nations Millennium Project (2005) (b) *Coming to Grips with Malaria in the New Millennium*. Working Group on Malaria. Available from: http://www.unmillenniumproject.org/reports/tf_malaria.htm

United Nations Millennium Project (2005) (c) *Halving Hunger: It Can Be Done. Summary Version of the Report on the Task Force on*

Hunger. Available from: http://www.unmillenniumproject.org/reports/tf_hunger.htm

United Nations Millennium Project (2005) (d) *Health, Dignity, and Development: What Will It Take?*. Task Force on Water and Sanitation. Available from: http://www.unmillenniumproject.org/reports/tf_watersanitation.htm

United Nations Millennium Project (2005) (e) *Investing in Strategies to Reverse Global Incidence of TB*. Task Force on Malaria? Available from: http://www.unmillenniumproject.org/reports/tf_tb.htm

United Nations Millennium Project (2005) (g) *Trade for Development*. Task Force on Trade. Available from: http://www.unmillenniumproject.org/reports/tf_trade.htm

United Nations Millennium Project (2005) (h) *Who's Got the Power? Transforming Health Systems for Women and Children*. Working Group on Child Health and Maternal Health. Available from: http://www.unmillenniumproject.org/reports/tf_health.htm

This Policy Brief has been researched and written by Moushumi Chaudhury, Volunteer, FAO.