

# Processing and Marketing of Non-wood Forest Products: Potential Impacts and Challenges in Africa

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## Abstract

This paper provides an overview and synthesis of the processing and marketing of NWFP in Africa. Indeed, NWFPs provide a livelihood support system for forest communities and poor urban households in terms of food, medicines, income and employment. However, forest communities remain poor, always struggling to make a living rather than improving their status quo. This trend raises concern whether NWFPs constitute a poverty trap, a safety net or a resource for rural development and poverty alleviation. This paper tries to address some of these concerns with the main objective of drawing lessons from experiences across the African continent on the opportunities and challenges of the NWFPs sector. Such lessons are considered very important in informing the development of policies in future that can better contribute and sustain the provision of income and livelihood to stakeholders. Lessons drawn from this analysis shows that organised production, processing and marketing of NWFPs can increase the revenue of dependent communities, thereby contributing to poverty reduction in Africa. The paper concludes that the salient requirements for the development of the NWFP include adding value locally, choosing the right marketing strategy, informing local producers and organisations on legal procedures, supporting and building capacities of vibrant/accountable local organisations, conducting cost effective research and development, and disseminating appropriate information on the resource base and on market conditions.

*Key words:* livelihood, poverty reduction, processing of NWFP, marketing; subsistence value

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## Introduction

Non-wood forest products (NWFP)<sup>5</sup> play important roles in the daily life and well being of both local and urban populations in Africa. Rural and poor households depend on NWFPs as major sources for food, medicines, fodder, gums, fibre, and construction materials. NWFPs may also form valuable traded commodities at local, national, regional and international levels, providing employment and income opportunities at each level (Tieguhong and Ndoye, 2004).

The major issue at stake is that the commercialisation of most highly valued NWFPs has been identified to cause major impacts on the sustainability of raw material production. One reason suggests that the benefits of processing and marketing

NWFPs are small at the level of local producers. This hinders the ability of local producers to financially support sustainable production. Moreover, such poor local revenue capture can neither lead to an improvement in their income and livelihoods nor to the accumulation of capital for investment in the development of such products. Therefore, much of the revenue is earned at the processing end, usually located outside the raw material production areas (GAIA/GRAIN, 2000; Wynberg, 2004; CARPE, 2001). On this note, although not fully documented, the hypothesis guiding this paper is that the development of local processing techniques and better marketing arrangements can lead to higher incomes and improved livelihoods for the producers of highly valued NWFPs in Africa.

It is against the above background that this paper illuminates a better picture of the situation of NWFP processing and marketing in Africa, specifically focusing on their impact on employment and income

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<sup>5</sup>NWFP consist of goods of biological origin other than wood, derived from forests, other wooded lands and trees outside forests (FAO, 2001).

generation, and highlighting major constraints as well as ways forward.

## Methodology

Information in this paper is based on the review and synthesis of literature involving:

- The compilation and synthesis of literature related to the processing and marketing of NWFP with broader perspective on their significance to rural employment and income generation;
- An assessment of policy, legal and institutional issues related to the processing and marketing of NWFPs with focus on strengths and weaknesses of institutional arrangements;
- The use of five detailed case studies on NWFPs such as Devil's Claw, Rattan, Gum Arabic, *Prunus africana*, and marula oil to clarify possible social, economic and institutional lessons in selected African countries and conclusions for guidance in future projects/initiatives. The selection criteria were based on the importance of the species in local, national and international markets, the potentials to develop the products and its market in producing country, some level of processing technology already in place, the potentials for increase in supply through better management interventions and/or cultivation, and the potentials for poverty alleviation at the local level following better processing and marketing arrangements.

## Economic importance of NWFPs in Africa

The economic impacts of NWFPs operations are enormous and range from local, national, regional to international levels. At the local level, many examples can be cited. The harvesters of *Prunus africana* bark around the Mount Cameroon Area get about 70% of their annual cash income from the activity (Ndam, 2004). In Southern Cameroon, Fondoum and Tiki Manga (2000) found an average annual household income of US\$ 2630 from the sale of *Gnetum africanum*, a leafy vegetable. The local markets of NWFPs in the humid forest zone of Cameroon were estimated at US\$ 1.6 million during the first six months of 1996 (Eyebe *et al.*, 1999). The commercial value of njansang kernels (*Ricinodendron heudelotii*) in a single market, New-Bell, Douala in Cameroon was estimated at US\$ 248700 in 1998 and US\$ 464235 in 1999 (Ngono and Ndoye, 2004). In Ghana, major harvesters of rattan earn up to US\$ 350 per year while the major urban processors may earn an annual income of US\$ 800 (Adu-Anning, 2004). In the rattan production villages of the Yaounde region, the proportion of households involved in rattan production system is 35% and about 42% of the global household income comes from this activity (Defo, 2004). Involved households

make up to US\$ 276 from rattan as against US\$ 174 from cocoa production and US\$ 202 from food crops production. Overall, households involved in rattan production system make an average income of US\$ 822 against US\$ 655 for those not involved and US\$ 704 for all categories of households (Defo, 2004).

To African national economies, many examples exist to show the economic importance of NWFPs: In Sudan, over 13% of the foreign exchange earned is generated from the Gum Arabic trade alone. The forest sectors of the Republic of Benin, Mauritius and Senegal, respectively, make 56.7, 65.4 and 15.7% of their forest revenues from NWFPs (Tieguhong, 2003). Medicinal plants contribute over 57% to the forest revenue of Madagascar (Walter, 2001). In South Africa, the annual informal trade of medicinal plants is worth US\$ 35 million to the primary producers while secondary users like traditional healers generate some US\$ 280 million from the resale of these materials. The income in foreign earnings for Namibia from the sales of Devil's Claw in 2002 was estimated at US\$ 2.7 million (Cole, 2003) for exports totaling 1000 tons. Secondary trade in Devil claws generates some US\$ 7–10 million in Namibia (Le Breton, 2001).

On a regional scale, bush mango (*Irvingia spp.*) trade to Gabon, Equatorial Guinea, Nigeria and Central African Republic was valued at US\$ 260000 in 1997 (Ngono and Ndoye, 2004). In the Southern African Development Community (SADC) regional trade in medicinal plants is worth over US\$ 700 million. More recent estimates put this value at US\$ 1 billion, which is far and above the regional income from say tobacco (Le Breton, 2001). In Central Africa, the value of African rattan trade in three urban markets (Douala and Yaounde, Cameroon; and Kinshasa, Democratic Republic of Congo) was estimated at US\$ 287505 in the year 2001 (Sunderland, 2001).

The markets for NWFPs also have an important global economic dimension. For example, the global market for medicinal plants is said to be increasing with 1996 estimate valued at over US\$ 14 billion. The global retail value of *Prunus africana* products is estimated at about US\$ 220 million per annum (Ndam, 2004). Devil's claw is found and produced mainly in Namibia, but also occurs in Botswana and some of the Northern regions of South Africa with some 600 to 700 tons of dried material traded each year, worth an estimated US\$ 100 million in international trade (Cole, 2003). The world market for gum only as food additive was over US\$ 10 billion in 1993 (Coppin, 1995). According to FAO (1993) 26200 and 25 000 metric tons of gum Arabic valued at US\$ 36.7 million and US\$ 53 million were exported from Sudan in 1980 and 1990, respectively. Global trade and subsistence value of rattan and its products is now estimated at US\$ 6.5 billion (Catriona, 1997).

## Lessons from case studies across Africa

The need to increase the economic contributions of NWFPs to African economics requires sensitivity to the following generic lessons drawn from case studies across Africa that could be used to guide the promotion of processing and marketing of NWFPs in Africa. These include:

1. *Organized producers of NWFPs take advantage of market opportunities, get more benefits.* When local people are organized, they can make greater income from NWFPs activities because they behave like the middleman, who integrates factors such as better transportation, bulk sales and better information on markets. The case studies on *Prunus africana*, rattan, devil's claws and marula clearly illustrate that income can be tripled when local people are grouped. For example in Namibia, a harvester of devil's claw receives US\$ 0.50 kg<sup>-1</sup>, middlemen US\$ 1.8 kg<sup>-1</sup> and exporters US\$ 3.2 kg<sup>-1</sup> (Wynberg, 2004). Marketing in community groups has been seen to be more beneficial to the producers than marketing individually or through the middleman (Ndam and Tonye, 2004). People working together are capable of developing business plans than individuals (Tieguhong and Ndoye, 2004).
2. *Quality and hygiene are major determinants of price and acceptability of NWFP.* Markets expect a more commercial and professional looking product with high quality standards. This is the corner stone for increasing consumer demand. Importers are sensitive to quality of raw material supplied with implications on prices offered. For example, the prices of different grades of gum Arabic are associated with quality. Rattan products in West and Central Africa are not getting into international markets because they are of lower qualities than the more competitive products from South East Asia. Therefore, the quality of NWFPs is a cornerstone for stimulating and increasing consumers' demand.
3. *A change in attitude by developed countries is an ingredient for increased processing in the developing countries.* A change of attitude by developed countries to accept high standard of quality-processed products from Africa. This is a prerequisite for the development of the NWFP sector in Africa because the current trend is that foreign monopolies are only interested in cheap raw materials for their industries as observed in the cases of gum Arabic in Sudan and devil's claw in Namibia. The processing companies are located in developed economies but exercise reluctance to cede processing technologies to raw material producing countries. Despite international recognition to transfer these

technologies, many companies in developed countries still prefer to buy the raw material and process it by themselves. According to Tom (ud), the processing issue is more political than economic because the industrialized countries will not give the developing countries the technology that will upgrade local processing of gum.

4. *Business development approach matters.* Instead of focussing on the development of a single product it is better to develop business approaches that can be employed at grass roots level for economic development based on different products. Efforts should not be geared at developing brand new products but rather at repackaging and redesigning existing products and knowledge into a more business orientated approach (CP-Wild, 2004). For example, by turning marula nuts into oil, the Batanai Group in Zimbabwe has tremendously increased their income. Therefore, value addition and improved marketing strategy can improve the revenue of producers.

## Implications for future NWFPs processing and marketing interventions

NWFPs have commanded many debates over the past three decades as resources for survival and poverty alleviation in rural communities. Some NWFPs have high poverty alleviation potentials because markets exist for them and many people make use of their products. Some are purely for subsistence uses due to their low economic importance or because a small number of people know and make use of them. However, various socio-economic factors may render some subsistence NWFPs to become commercial and some commercial NWFPs to become subsistent within different time scales. This creates some dynamism in the commercialization of NWFPs. Therefore, not all NWFPs have the potentials to alleviate poverty within the same time scale in a given community. However, the general outlook for economic viability of NWFPs production and trade is positive with the increasing interest in natural ingredients for the treatment of diseases in the developed world. For instance, prostate disorders have been observed to be more associated with old age in North America and Europe, where the major market for *Prunus* products resides. ICRAF (2000) research showed that in terms of consumer demographics, 50% of men aged over 50 years suffer from symptoms of prostate enlargement and this percentage continues to grow as age increases. This has implications for increasing global demand. For instance, the global demand for *Prunus africana* bark and its extract rose from 2450 tons in 1995 to 3091 tons in 1997 (Schippmann, 1997). The current

annual market demand has soared to 4000 tons with predictions of increase to 7000–11000 tons in the next decade (ICRAF, 2004). In Germany, the percentage of prescriptions by physicians of *Harpagophytum procumbens* for the treatment of poly-arthritis, and joint pains has increased significantly from 40% in 2000 to 60% in 2001. *Harpagophytum* accounts for approximately 74% of the treatments for rheumatism in Germany constituting the third most frequently used medicinal plant, with sales of approximately 30 million Euros (Cole, 2003).

Based on the above understanding, the process of developing the processing and marketing of NWFPs in any given community in Africa have to be procedural and strategic requiring communities to reduce costs in order to increase their income. One of the main reasons that local producers of highly valued NWFPs (such as devil's claw, *Prunus*, etc.) may remain poor is that they do not benefit from the value that their products generate as those products move through the market chain to end user. This situation is created by lack of information, low local value addition and poor competition in the marketplace. Therefore, adding value to what local producers are already selling can generate higher revenues without increasing the off-take of natural resources (Clay, 1995). The following are five basic strategies suggested for the future improvement in the processing and marketing of NWFPs in Africa.

### *Adding value locally on NWFPs*

Local NWFP producers seldom process their products before marketing them. Processed products could earn them added income, increase product value, increase shelf-life and allow adjustments to seasonal excess of supplies.

Increase in technological innovations on local production and processing activities can be an asset to local producers. Therefore, adopting appropriate technology is a major way producers can save their time or improve the quality of or add value to their products. Such technology should be user friendly and reliable.

### *Choosing right marketing strategies for NWFPs*

The seasonality of prices shows the need to consider market strategies as a means to add value to NWFPs. It could be more advantageous to decide on the scale of production based on local and national demands and the possibilities for secondary processing or use in the manufacture of other consumer products such as soaps, cosmetics and pharmaceuticals. For example, marula can be used as fruit, jams, jelly, cosmetics, wines, creams and the various applications of gum Arabic could be explored to the fullest. This implies

reducing risk of not being able to sell one product by diversifying the number and type of end users for each NWFP. Moreover, products can be sold on local, regional, national, or international markets, or a combination of all of them. In addition, producers can sell to end users who have different uses / markets for the product themselves. Communities can also use market strategies to differentiate their products in order to command higher prices by labeling to differentiate them in the marketplace, e.g. organic / green / natural, or socially responsible (Clay, 1995). This calls for some sort of certification by a third party, although at some costs.

### *Research and development*

Research and development (R&D) work is a key ingredient required to tap the full potential of NWFPs. The success of industries based on essential oils, dyes, medicinal plant products are highly associated with R&D on naturally occurring plant species. Such R&D works dwell on intensive research on breeding new and better oil yielding varieties, improvements on agrotechnology and post-harvest technology, by-product utilization, value added product development and new formulations. These result in cheaper and reliable natural raw materials, making them more competitive against their synthetic substitutes. Therefore, synthetic substitutes form major threats to the markets of NWFPs, meaning that the price of any NWFP can be greatly influenced by its synthetic substitute. The major drivers behind the production of synthetic substitutes are economic; to have cheaper and reliable all-season raw material supply. Therefore, R&D is a major tool to use in the NWFP sector to counter the threat by ensuring that research results can lead to the production of cheaper and reliable natural raw material.

### *Information resource base and Market conditions*

The lack of information keeps local producers of NWFPs in weaker positions to traders. Therefore, a more transparent marketing chain would enable the local producers to be aware of monthly price information from key points in the marketing chain including the Free on Board (FOB) price for NWFPs leaving the country. A sound knowledge of all producers, buyers, sellers, importers, exporters, brokers and agencies, freight forwarders and others included in the commercial chain would enable local producers to have a stronger bargaining power with the traders. The role of the mass media (newspapers, radio, television and other forms of local communication channels can be instrumental in increasing information flows on the markets on NWFPs. Non-governmental organisations can also play a role in this regard.

### *Capacity building for extension and training needs*

It is generally recognized that local communities do not have the required skills to process and market their products in ways that can increase their income and pull them out of poverty. They also lack the required financial planning and management skills. This implies that the development of processing and marketing of NWFPs in Africa should seriously provide training to producers on how to make higher incomes from their products and on how to make use of such income for greater economic and social impacts. This suggests that an appropriate mix of skills have to be developed on the following:

- Production technologies (resource management, harvesting, storage) for sustainable supply of raw materials and reduction in harvesting and post-harvest losses;
- Processing and packaging to add value, reduce weight, increase quality and shelf-life;
- Marketing to capture maximum possible income by integrating several marketing functions, reducing costs of transportation and making strong price negotiations with buyers;
- Institutional arrangements to become more organized and understand the local and international roles and regulations governing processing and trade in NWFPs. Transparency in economic transactions involving NWFPs could become more apparent if local producers and organisations were fully abreast with existing laws and regulations governing the sector; and
- Financial know-how to plan and manage income from NWFPs for greater economic and social impacts and to gain economic autonomy and independence.

The success of this capacity building will enable rural communities to get the necessary skills and resources that will enable them to improve their well being, their revenue and protect natural resources and biodiversity.

### **Conclusions and Recommendations**

NWFPs have tremendous economic potentials for income generation and poverty alleviation at the local level, where other sources of income are less apparent. These potentials can be realized following from improved institutional arrangements and implementation of available policies, improved technologies and transport infrastructure for processing and marketing, improved information flows and the capture of green premiums from international markets. Added to this is the positive outlook for the economic viability of NWFPs production and trade, associated with increasing

interest in natural ingredients for the treatment of diseases in the developed world. Overall, the expectations from a value-added processing strategy for NWFPs in Africa should reduce post-harvest losses through better storage, reduction in the weight and volume of raw products through consistent drying, increase standardization using international guidelines, and guarantee consistent quality and acceptability in multiple markets through processing under better hygienic conditions. These may lead to reduction in transportation and handling costs and consequently to competitive sales of products in distant markets. More research adapted to local production systems and capacities would be needed to foster the possibility of ensuring sustainable supply of uniform grades of raw materials to industries. Moreover, African governments need to:

- sustain the strengthening of current institutional arrangements and the revision of legal instruments governing NWFPs production and marketing by rural people. This would require directly supporting the development of accountable and effective local organisations (production, processing and marketing groups) based NWFPs. Such efforts should be able to strengthen, scale-up or multiply the impacts of existing local organisations (Sauter and Satterthwaite, 2008);
- clearly specify community non-timber forest products (NTFPs) harvesting rules, access rights and tenure (Malleon 2001), domestication of key NWFPs in order to improve marketing and create incentives for sustainable use through increased incomes from forests;
- create or opening up of regional and international market channels with introduction of policies that guarantee minimum producer prices and the purchase of surpluses to provide an incentive for increased production;
- fund research in poorly understood social, economic and biological/ environmental aspects important NWFPs.

Emphasizing the economic role of NWFPs in forest communities, Clark and Sunderland (2004), asserted that the harvest of NWFPs by marginalised forest-dependent peoples enable them to capture income, provide social benefits and gives them the opportunity to continue to contribute to the conservation of natural forests. Taking this seriously implies that, developing and formalizing the NWFP sector could help meet the often contradictory goals of development and conservation. Therefore, as a local sustainable livelihood strategy, forest communities could be assisted to develop their NWFP resources through training in business and legal issues, consultations on small and medium scale enterprise development and support on sustainability,

monitoring and financial management. With these efforts in place, the future may be brighter for local producers of NWFPs, in terms of higher income and greater impacts poverty alleviation.

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