



Marketing of non-wood forest products in the humid forest zone of Cameroon

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Fruits, nuts and bark provide income opportunities for large- and small-scale traders.

The Central African tropical humid forest covers 280 million ha and is the largest of its kind in the world after the Amazon (Talbot, 1993; FAO, 1995). Within this region, the 26 million ha of the Cameroon's humid forest zone (HFZ) contain some of Africa's most diverse ecosystems. (Alpert, 1993) and have provided a large number of non-wood (plant and animal) forest products (NWFPs) to the local populations (Koppert *et al.*, 1993; Doucet and Koufani, 1997; Ngala, 1997).

[Traders cutting Gnetum leaves in Mbalmayo market](#)

Like many other tropical countries, over the past 20 years Cameroon has experienced major deforestation and forest degradation resulting from a combination of factors related to agricultural expansion, population increase and general development activities (Talbot, 1993; FAO, 1995; Oyono, 1997). This has reduced the supply of many different forest products, which has been further affected in a number of cases by conflicts between logging and NWFP extraction (Schneemann, 1995; Nef, 1997).

At the same time, the predominantly traditional subsistence land use has given way to increased commercialization as a result of urbanization and development. Consequently, markets selling NWFPs have been expanding throughout Cameroon's HFZ. However, NWFP trade in the region lacks a market infrastructure. This article summarizes the main results of studies by the Center for International Forestry Research (CIFOR) that characterize the performance and operation of these markets, estimate the volume and value of their transactions and the importance of their international trade, and analyse their spatial characteristics. Evidence of mounting pressure on the NWFP resource base suggests the need for improved management systems to guarantee a stable supply and to reconcile the improvement in livelihood with forest conservation.

NWFP MARKET ORGANIZATION IN CAMEROON

Twenty-five markets selling NWFPs of plant origin, accounting for an estimated US\$1.9 million in half-year sales, were studied in two consecutive seasons (January to July) in 1995 and

1996 (see Figure 1). The markets were selected based on criteria of significance (the presence of NWFP trade), regional coverage (representation of the main districts of Cameroon's HFZ) and accessibility. The study was based on a questionnaire administered to 426 NWFP traders, representing 26 percent of the estimated 1 100 traders that operate in these 25 markets. After this general study, 12 reference markets were selected to follow monthly fluctuations in supply, demand and prices. (The results of the monthly surveys are currently being processed.)

FIGURE 1 - The markets studied

NWFPs from Cameroon's HFZ tend to be sold by specialized vendors who operate regularly (daily to weekly) within general food markets. The markets are organized around the *buyam-sellam* (buyers-sellers), who are predominantly women, as in other West African countries. Intermediary traders also sort and grade NWFPs and often process them to some degree (Fereday, Gordon and Oji, 1997).

The markets are subject to a number of local regulations and municipal taxes. In practice they are operated by traders, who designate a *cheftain* or *cheftaine* (head of the market, normally a woman) to be in charge of the physical arrangement of the marketplace and the monitoring and enforcement of the local and informal regulations. The *cheftaine* also tends to coordinate the informal credit organizations used to finance trade, such as *njangi* or *tontines* (rotating savings and credit associations whose members agree to make periodic savings payments into a fund which is allocated to a different member of the group each time the savings are collected). Such credit organizations are also common in many other African countries (Miracle, Diane and Cohen, 1980). The NWFP markets form a broad hierarchically organized network and can be divided into four categories according to their size, product specialization and degree of localization (Ruiz Pérez *et al.*, 1998):

- The major urban markets of Douala and Yaoundé, with estimated half-year NWFP sales above 100 million CFA (US\$200 000), sell a large variety of products and rely to a large extent on distant sources for their supplies. These two markets act as the organizers or "attractors" for the trade of forest products in the region.
- Several regional markets, such as Bafia, Mbalmayo, Ebolowa and Kribi, with half-year NWFP sales of 10 million to 100 million CFA (US\$20 000 to \$200 000), act as the reference markets (i.e. indicators of supply and demand conditions and guiders of price) for the surrounding region, from which they obtain most of their supplies.
- A large number of local markets (e.g. Buea, Kumba, Batouri, Ambam or Abong Mbang), with less than 10 million CFA (US\$20 000) in half-year NWFP sales, deal with a reduced number of products available locally.
- Several medium- to small-sized frontier markets, such as Abang Minko (frontier with Gabon), Kye-Ossi (frontier with Equatorial Guinea) and Kenzou (frontier with the Central African Republic), specialize in a few products in demand in neighbouring countries.

MAIN NWFPs, THEIR TRADE VALUE AND PROFIT MARGINS

The nine products listed in the Table represent 95 percent of the total trade in plant-based NWFPs in the 25 markets studied. These markets also carry out trade in other products such as condiments and medicinal plants, of which some are very important, such as *Prunus africana* bark, which is sold to pharmaceutical companies for use in the treatment of prostate gland problems (Cunningham and Mbenkum, 1993). Other important products such as rattan

(*Laccosperma* spp.) and raphia palm (*Raphia* spp., used for basketry and furniture) are sold through specialized channels and do not pass through the marketplace (Oyono, 1997; Sunderland, 1997). Game and other animal products of major significance have not been recorded.

The main NWFPs traded in 25 markets of the humid forest zone of Cameroon

Species/product	English and/or local name	Uses	Estimated half-year value of sales (1 000 CFA) ¹	Net margin as % of total sales value
<i>Garcinia kola</i> (bark)	Onie	Medicine, palm wine	2 975	31
<i>Garcinia kola</i> (fruit)	Bitter cola, <i>onie</i>	Medicine, stimulant	9 944	28
<i>Garcinia lucida</i> (bark)	Essok	Medicine, palm wine	10 994	31
<i>Elaeis guineensis</i>	Palm nut, <i>eton</i>	Food, palm wine	11 089	31
<i>Gnetum</i> spp.	Okok	Food	23 334	38
<i>Cola</i> spp.	Cola nut, <i>abel</i>	Medicine, stimulant	129 578	19
<i>Irvingia</i> spp.	Wild mango, <i>andok</i>	Condiment	135 376	27
<i>Ricinodendron heudelotii</i>	Ezezang	Condiment	229 052	26
<i>Dacryodes edulis</i>	Plum, <i>assa</i>	Food	388 479	17

¹ Average of two seasons, 1995 and 1996; US\$1 = 500 CFA.

Some products identified as a single commodity in the marketplace actually come from different species. In other cases, a single species is the source of different commodities, e.g. bark and fruit from *Garcinia kola* or fruit and wine from the African palm.

In the survey, the average number of NWFPs sold per trader was 1.7, and the average number of all products (NWFPs and other, generally agricultural, products) sold per trader was 2.0. This indicates that the traders are highly specialized and rely on NWFPs for the bulk of their business.

The estimated value of half-year sales in the studied markets, averaged over the two years, amounted to 942 million CFA, or US\$1.9 million. In fact, this is a conservative estimate since the study missed most of the season of one of the region's main products, the fruit of *Dacryodes edulis*. It also missed some important markets such as Makenene (which specializes in *D. edulis*) and Idenao (which deals with a large part of *Gnetum* spp. exports to Nigeria). Products of species in four genera, *Dacryodes*, *Ricinodendron*, *Irvingia* and *Cola*, represent the bulk of the NWFP sales at the marketplaces in the region.

Sales profit margins were calculated based on all costs except processing -i.e. buying, handling, transport, storage, spoilage and taxes. On this basis, the net profit margin as a percentage of total value of sales for the products studied was 22 percent. However, as the Table shows, there are important differences among products. Three main factors influence this variation:

- **The perishability and speed of turnover among products.** Those that are more perishable, such as the fruits of *D. edulis* or *Cola* spp., tend to be sold faster

but at a lower profit margin. Less perishable products such as the bark of *Garcinia kola* and *Garcinia lucida* have a slower turnover, but the net profit as a percentage of the value of sales for each transaction is higher.

- **The amount of processing involved.** Products such as *Gnetum* leaves are perishable and require labour-intensive processing (cleaning and cutting), which produces the highest net profit margin as a percentage of the value of sales.

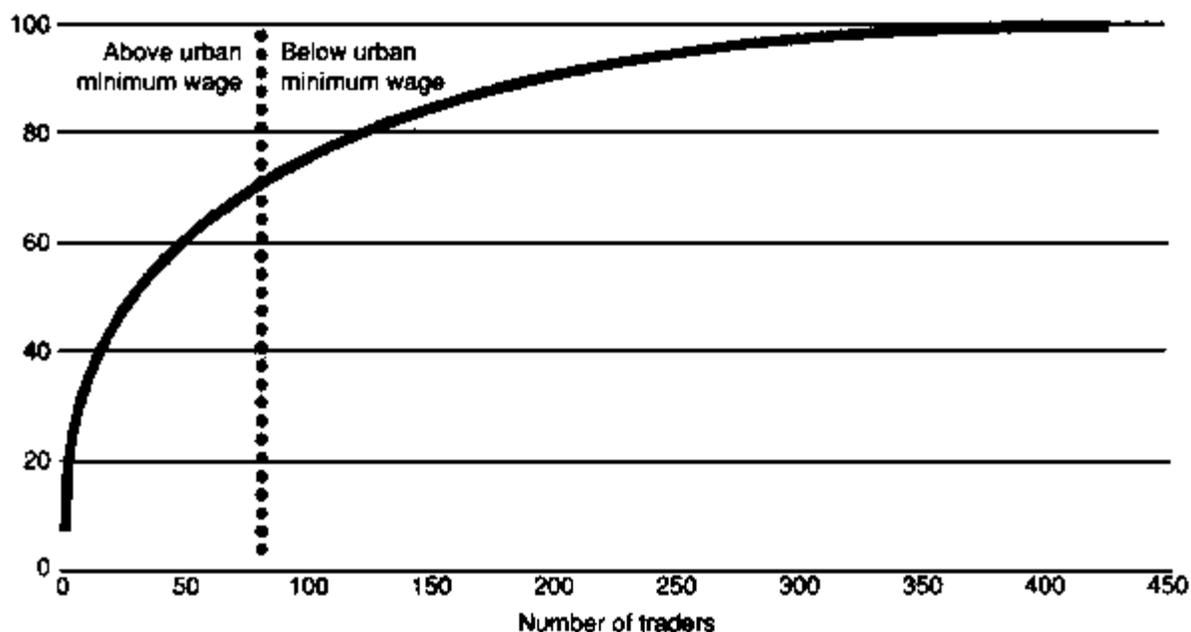
- **The geographical location of the market.** In general, products sold at frontier markets (specializing in a few NWFPs for neighbouring countries) enjoy a higher net profit margin as a percentage of the value of sales than the same products sold in local or urban, non-export markets (Ndoye, Ruiz Pérez and Eyebe, 1997).

The average weekly profit per trader for the combined sales of the nine main NWFPs (based on 16 weeks for the fruit of *D. edulis* and 29 weeks for the other products) amounted to 8 200 CFA (US\$16.50). This is above the government-established minimum wage for urban workers, which at the time of the study was fixed at 6 500 CFA (US\$13) per week. (The actual earnings of the average trader would be higher, because many also trade in agricultural commodities.)

These results conceal, however, a very large disparity in the size of the business of NWFP traders and their profits. The cumulative distribution of profits among traders (Figure 2) shows that just 79 of the 426 traders account for 69 percent of the total profit generated by the sale of the nine main NWFPs in the studied markets. Even allowing for the income from additional trade in agricultural commodities, the results show that most NWFP traders do not make big profits and are part of the large group of rural poor. These findings challenge the conventional assumption that traders represent a local elite that unfairly exploits NWFP gatherers. The results also reveal the particularly regressive nature of the *impôt libérateur*, a flat business tax introduced in 1996, which in addition to market taxes already imposed by municipal authorities, takes a much higher percentage of profits from the small traders (Ndoye, Ruiz Pérez and Eyebe, 1997).

There is also a clear gender division in the market: male traders concentrate on the largest, most lucrative products, while women tend to deal with the less attractive commodities (Ruiz Pérez *et al.*, 1999). There were no women among the ten largest traders interviewed, and only two women among the 30 largest. While 75 percent of male traders interviewed have sales of more than 1 million CFA (US\$2 000), only 17 percent of female traders reach that level.

FIGURE 2 - Cumulative distribution of profit margins among NWFP traders



PRICE FORMATION AND OTHER MARKET FEATURES

NWFP markets in Cameroon's HFZ are extremely variable; their role in assembling and distributing products may change a great deal through the year and from one year to another. This variability has a strong influence on buying and selling prices, since prices depend mainly on supply and demand conditions. The bargaining power of traders and farmers changes with the season; traders tend to go to the villages in the low season and to wait at the marketplace during peak season. The lack of storage facilities is a constraint to both farmers and traders dealing with perishable products which tend to have a more dynamic market and closer buying and selling prices.

Since a large number of NWFPs are gathered from different types of forests (fallow, secondary or primary), their supply tends to show larger yearly fluctuations than most agricultural commodities. These fluctuations, compounded by pressure on the resource, can lead to dramatic reductions in availability at a given locality. Moreover, because the same commodity may come from different species, the market may experience more than one peak per year. This is the case for kernels of the wild mango, which are obtained from *Irvingia gabonensis* from June to August and from *Irvingia wombolu* from January to March (Harris, 1993).

In a study of the prices of four products, cola nut, wild mango and *Garcinia lucida* bark all showed positive elasticity of prices to supply conditions (Ndoye, Ruiz Pérez and Eyebe, 1998). The fourth product in the study, *Garcinia kola* bark, demonstrated negative price elasticity (prices falling despite reduced supply), which was attributed to transportation problems. A ferry linking the frontier market of Abang Minko (which dealt with all the transactions of *G. kola* bark registered in the two years of the survey) with Gabon broke down, dramatically reducing the exchanges between the two countries. The consequent market glut of unsold bark brought prices down despite the lower trade volume. This case does not represent a market aberration, but rather illustrates the effect of transportation and general infrastructure problems on NWFP trade.

PRIORITIES FOR IMPROVING NWFP TRADE

As part of the survey, traders were asked to comment on the main priorities for improving NWFP trade. A total of 280 traders responded, offering 435 suggestions. These were grouped in four main categories:

- improvement of the physical conditions of the marketplace, including the addition of shelter, storage areas and basic product handling facilities;
- improvement of the forest-farm management system, in order to guarantee stable NWFP supplies and relieve the pressure on resources;
- improvement of the transportation of products, particularly in the peak season;
- improvement of the loan and financial system.

Improvement of the physical conditions of the marketplace outranked the other priorities by two to one (Figure 3). Improving the formal credit system for financing of NWFP trade was viewed as least important, which may be indication of the efficiency of the existing informal credit system (*tontines*) for the retail trade of NWFPs. It is worth noting that no trader identified as a priority the improvement of sorting and grading or the improvement of quality control, when these are considered essential measures for the development of international NWFP trade (Iqbal, 1995; Ladipo, 1998) which represents a significant part of NWFP trade in the region.

FIGURE 3 - Priorities for improving NWFP trade

THE IMPORTANCE OF TRADE WITH OTHER COUNTRIES

Several authors have stressed the importance of NWFP trade among countries in West and Central Africa and with countries outside Africa as well (Falconer, 1990; Cunningham and Mbenkum, 1993; Mialoundama, 1993; Tabuna, 1999). There are three main reasons for regional exchange:

- **Ecophysiological.** The production period for some products differs geographically. For example, the season of *Dacryodes edulis* is from June to November in Cameroon and Nigeria and from November to April in Angola, the Congo, the Democratic Republic of the Congo and Gabon. This seasonal variation changes the direction of trade, with countries exporting a given product during one period of the year and importing during another.
- **Consumer taste.** Differences in consumer appreciation for a given product encourage bidirectional trade. For example, Cameroon exports the red variety of cola nut to Nigeria and imports the white variety from Nigeria.
- **Linguistic-cultural.** It is common to find related ethnic groups living on both sides of a given frontier, and they often consume similar products and to trade a great deal with one another.

Three of the studied markets are frontier markets specializing in particular products: wild mango and bark in Abang Minko, wild mango in Kye-Ossi and cola nut in Kenzou. Other products, such as *D. edulis*, are traded to neighbouring countries from the large urban markets of Douala and Yaoundé.

There is also trade in NWFPs between Cameroon and some large European cities such as Paris and Brussels, which have substantial communities of immigrants from West and Central Africa. Products of *Dacryodes*, *Gnetum*, *Ricinodendron* and *Irvingia* species are frequently found in the stalls of shops specializing in tropical products (Tabuna, 1999).

The volume and value of international trade registered by the Customs Office tend to be underestimated (Oyep and Kamanda, 1996) and refer mainly to traditional agricultural products rather than NWFPs. The authors estimate that exports from the studied markets in

Cameroon to neighbouring countries in 1996 amounted to at least US\$980 000.

POTENTIAL DEGRADATION OF FOREST RESOURCES

In spite of the economic importance of NWFPs (or perhaps precisely because of it), there is strong evidence of mounting pressure on the resource base, which is a factor leading to the requests of many traders for improved forest-farm management. The pressure varies depending on the part of the plant being harvested and the harvesting technique (Peters, 1994). The most obvious problem is that related to the extraction of bark from species such as *Garcinia lucida* and *Garcinia kola* for the production of palm wine. In studies conducted in the Tropenbos programme site in southern Cameroon, van Dijk (1995) did not find any *G. lucida* trees in an inventory of 11 complete transects and suggested that their absence could be a result of high harvesting levels; Ntamag (1997) found *G. lucida* occurring only in virgin forests and with an average density of just four trees per hectare; and Guedje (1996) recorded a high density per hectare but found that 50 percent of the trees were dead because of debarking.

The density of *G. kola* trees per hectare of little-disturbed forest also appears to vary widely. Tchatchou (1997, cited by Doucet and Koufani, 1997) estimated a density of 0.01 trees per hectare in eastern Cameroon, whereas Doucet and Koufani (1997) did not find any *G. kola* trees in their inventories carried out in the same region. In southern Cameroon, van Dijk (1995) found 0.4 trees per hectare, noting that the species showed signs of overexploitation because of bark extraction. Unlike *G. lucida*, however, *G. kola* is also common in fallow lands and in cocoa plantations because of the importance of the bitter cola fruit that it produces.

A possible response to increased pressure on valuable resources is to bring them closer to agricultural plantation cycles. For example, farmers from M'mouck village in Southwest Province of Cameroon have started planting *Prunus africana*, which had almost disappeared from the village forests (BDCPC, 1997). The market value of the bark of *P. africana* is estimated at US\$150 million per year (Cunningham and Mbenkum, 1993). More than 1 900 tonnes of the bark were processed yearly in Cameroon between 1986 and 1991. This represents an average of 35 000 trees debarked annually, affecting at least 6 300 ha of Afromontane forest in Cameroon every year (Cunningham and Mbenkum, 1993).

A plantation approach has also been proposed by Shiembo, Newton and Leakey (1996) to deal with the high pressure on *Gnetum* spp., although the relative abundance of this climber in the early stages of the fallow cycle seems to have temporarily precluded the need for more intense management practices.

Changes in extraction techniques to accommodate increasing demand have also added to the pressure on several palms. Ndoye (1995) found that a sample of farmers in the Mbalmayo tapped *Elaeis guineensis* for the production of palm wine by cutting the trees rather than climbing them, killing 58 percent of the trees. Similarly, Oyono (1997) reported that some 1 000 raffia palm trees (*Raphia hookeri*) were killed every year after tapping in Ekom in the Lomié region of southeastern Cameroon.

CONCLUSIONS

Cameroon's forests offer a large supply of NWFPs used for subsistence and medicinal purposes and traded in the local markets and abroad. The magnitude of this trade amounts to thousands of millions of CFA (millions of US dollars), representing an important contribution to the country's rural economy. NWFP markets in Cameroon's HFZ offer income opportunities not only for large-scale, specialized traders, but also for many poor traders who rely on them to obtain their small cash income. Most of the traders are women, although the study found that those trading on the largest scale were men. Rural dwellers and traders deal simultaneously with NWFPs and agricultural commodities. Because of their seasonal nature,

NWFPs complement agricultural commodities in improving the welfare of rural households and market traders.

NWFP markets are very dynamic and are hierarchically organized into a widespread network around local, provincial and national nodes. Supply constraints for some products lead to a fairly elastic response in prices. The products are traded throughout West and Central Africa, with some reaching migrant communities in large cities of Europe.

[Trader of wild mango \(*Irvingia spp.*\) at the frontier market of Abang Minko](#)

The absence of a market infrastructure (an indication of lack of institutional interest and support for NWFP trade) is an important feature common to the NWFP trade across the region. Improved market conditions and improved management systems to guarantee a stable supply are key priorities of the traders, while a need to improve the credit system is less strongly felt. A number of NWFPs from Cameroon's HFZ seem to be under increasing pressure as a result of the reduction of forests and the increasing demand - a problem for which a plantation approach may offer solutions. Reconciliation of the potential for income generation and for local development with forest conservation is one of the urgent tasks to be undertaken in Cameroon. Policy-makers need to be more aware of the value of NWFPs and to include them in official statistics.

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