

Optimizing the production and marketing of NTFPs

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Abstract: Farmers in West and Central Africa find it difficult to achieve good returns from their tree products despite national, regional and international market potential. Failure to exploit these growing markets is often attributed to product seasonality, weak infrastructure, limited and conflicting market knowledge, lack of networks and associations and inadequate processing and storage methods. In response, a team of researchers, extensionists, traders and producers developed an innovative approach to assist smallholder farmers develop marketing skills and knowledge, while also assisting them to increase on-farm production of agroforestry products. The present paper highlights major achievements under the project "Farmer Enterprise Development" using the experience of a farmer group (ADEAC) in Cameroon in selling *Ricinodendron heudelotii*. *Ricinodendron* commonly called *njansang* is an endemic African tree species belonging to the family of Euphorbiaceae. The seeds (kernels) are used for preparing soup and a variety of dishes due to its appetizing aroma and its richness in fatty acids and essential oils and proteins and low in carbohydrates. The species also gives high energy values as compared to food crops. Experiences so far indicate that household's income from marketing agroforestry tree products can be significantly increased using the sub-sector approach, in combination with development of post-harvest technologies and on-farm production methods. Results indicated that farmers involved in *njansang* production realized an average 31% increase in their selling price and more than 80% increase in their revenue derived from *njansang*. We also believe that the approach can be scaled-up to other locations and to other products, because it is a step-wise procedure that can be adapted to emerging needs and opportunities.

Key words: Group sale, income generation, marketing, farmer enterprise.

Introduction

Forests are important sources of non-timber forest products (NTFPs) for health care, domestic consumption and income generation for people living in the rural communities. Although NTFPs play an important role in livelihoods for rural poor, they usually put their hopes on potential gains generated from marketing of NTFPs for poverty alleviation and for more conservation of the natural resource base. It has been established that farmers in Cameroon spend three quarters of their work time and energy on farming, whereas they could, with half of this investment in time and energy earn twice their income. They can do this by making the best of new markets and strategies and appropriate harvest as well as post harvest handling of Agroforestry Tree Products (AFTPs).

One of the promising strategies for the marketing of AFTPs is the 'group sales' approach. Group sales consist of farmers storing their harvests and selling them only during peak price periods as a group, and not as individuals. This strategy has been successfully tested by a farmer association: ADEAC (*Association pour le Développement Intégral des Exploitants Agricoles du Centre*), within the framework of the Farmer Enterprise Development (FED) project. This association based in Cameroon's Centre province harvests and sells the spicy and popular 'njansang kernel' or *Ricinodendron heudelotii* of its members during group organised sales.

Priority setting studies conducted by ICRAF and partners in West and Central Africa coupled with market surveys of main NTFPs clearly indicate that a

considerable amount of income is generated from their sale and marketing (Tchoundjeu *et al.*, 1999). In terms of economic importance, *Ricinodendron* seeds have a good market potential in and out of Cameroon. A study carried out on 104 households in Yaoundé in 2003 shows that 98% of them consume *njansang* (CIFOR 2003). According to Ndoye *et al.* (1998), a total of 36 tons of *njansang* kernels worth 43,432,200 FCFA (approximately US\$ 82,728) was sold in Yaoundé in 1995. Another study by Tabuna (2001) revealed that a total of 4 tons of *Ricinodendron* was exported from Cameroon to Europe in 1998. It is a source of employment and income especially for women (Vabi and Tchamou 1999).

Experiences so far indicate that household's income from marketing agroforestry tree products can be significantly increased using the sub-sector approach, in combination with development of post-harvest technologies and on-farm production methods. The present paper looks at the strategy developed in ADEAC area that aimed at reinforcing farmers' skills to enable them derive greater income from marketing of some NTFPs and natural resource base conservation. Preliminary results indicate that the strategy has the potential to address problems encountered. We also believe that the approach can be scaled-up to other locations and to other products, because it is a step-wise procedure that can be adapted to emerging needs and opportunities.

Product description

Ricinodendron heudelotii commonly called *njansang* is an endemic African tree species belonging to the family of Euphorbiaceae. The distribution of this species spans from Senegal to East Africa and Madagascar. The tree is fast growing and reaches a height of 40m and a width of 120cm (Ayuk 1999). Peak flowering in the Centre province of Cameroon occurs in March at the end of the dry season and lasts for approximately two to three months. When mature, its fruits drop from the trees and are processed to obtain the seeds. Both the seeds of *Ricinodendron* and the trunk of the tree have varying uses to humankind.

The wood of the tree is dull white and used for various purposes in different regions of Africa. It can be sown in to planks used for making crates, boxes, coffins, fishing net floats and air floats for heavy timber. It is also a good wood for carving masks, spoons, cups, and plates, bowls,

Table 1 Chemical composition (100 g⁻¹ DM) of *Ricinodendron heudelotii* kernels

Total carbohydrates	Ash	Crude protein	Crude fibre	Energy value (kj 100 g ⁻¹ DM)
4.9 – 6.4	14.4 – 17.7	49.9 – 65.2	7.4 – 9.4	2748 – 3558

Source: Tiki Manga et al. (2000)

Materials and Methods

Study site: ADEAC area

ADEAC is a strong farmer organization working in the Centre province of Cameroon. The Centre province covers around 70,000 km² of the area, which represents 14.7 % of the total area of Cameroon. The region belongs

to the humid forest zone of Southern Cameroon. The Centre province is the second largest in population, with 2,285,025 inhabitants in 1995 (33 inhabitants per km²). Farmer institutions have been disrupted by significant migration from the area and “boom and bust” cycles of the major cash crop, cocoa. In the rainy season, roads are impracticable and so food crops and tree products rot in villages.

stools etc. (Shiembo 1990 cited in Ayuk 1999). For example, in the Democratic Republic of Congo (DRC), the wood is used for making drums. Its high resonant capacity makes it a good wood for producing musical instruments. In Ghana, it is currently recommended for use as an insulation material and the sawdust is suitable for use in sun helmet. The wood is seldom used for general construction (Shiembo 1994).

In this paper we focus on the seeds (kernels) that are used in Cameroon for preparing soup and a variety of dishes due to its appetizing aroma. From literature, *R. heudoletii* crude fat content varies between 49.3 to 63.5%. The species exhibits an energetic value of 2748 to 3558 kJ per 100 g DM, 49.9 to 65.2% crude protein, 4.9 to 6.4% total carbohydrates, 14.4 to 17.7% ash and 7.4 to 9.4% crude fibre (Table 1)

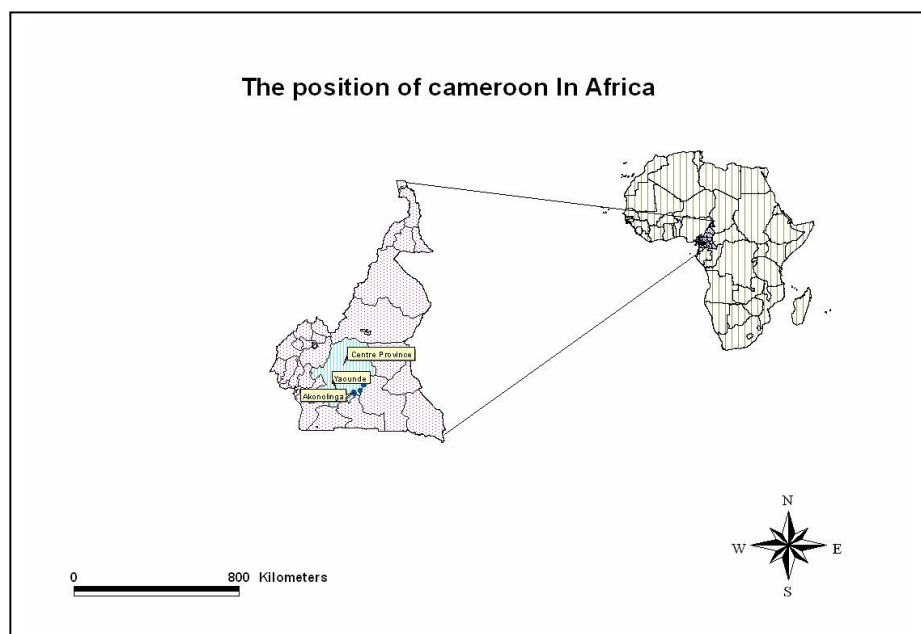


Figure 1: The humid tropical forest zone of Southern Cameroon.

ADEAC has a total of 816 active members (with 216 women) with activities in six different domains: perennial crops, food crops, fish farming, small animal husbandry, crafts and vegetable farming. One of the objectives of ADEAC is to reinforce the economic power of its

members through a participatory communication system. The activities of ADEAC are centred on the following:

- A decentralized system of storage facility for agricultural inputs
- A marketing system that permit members to better sell their products

- A credit and loan system which permit members to realize without difficulties their activities
- A good communication system amongst members that guarantees transparency.

Farmer enterprise development (FED) approach

ICRAF and partners in Cameroon developed an innovative approach to assist smallholder forest farmers develop marketing skills and knowledge. This process, characterized by training (collective strategies, financial & conflict management), technology development (tree

domestication and post harvest), team-building and enterprise promotion techniques is illustrated in figure 2 below and provides a schematic representation of the ICRAF-led FED innovation as it has developed and evolved in Cameroon since 2003.

While the general approach operates at community level as depicted in Figure 2, individual farmers/producers who are the *raison d'être* of this model occupy a central place at the operation level, as demonstrated in Figure 3.

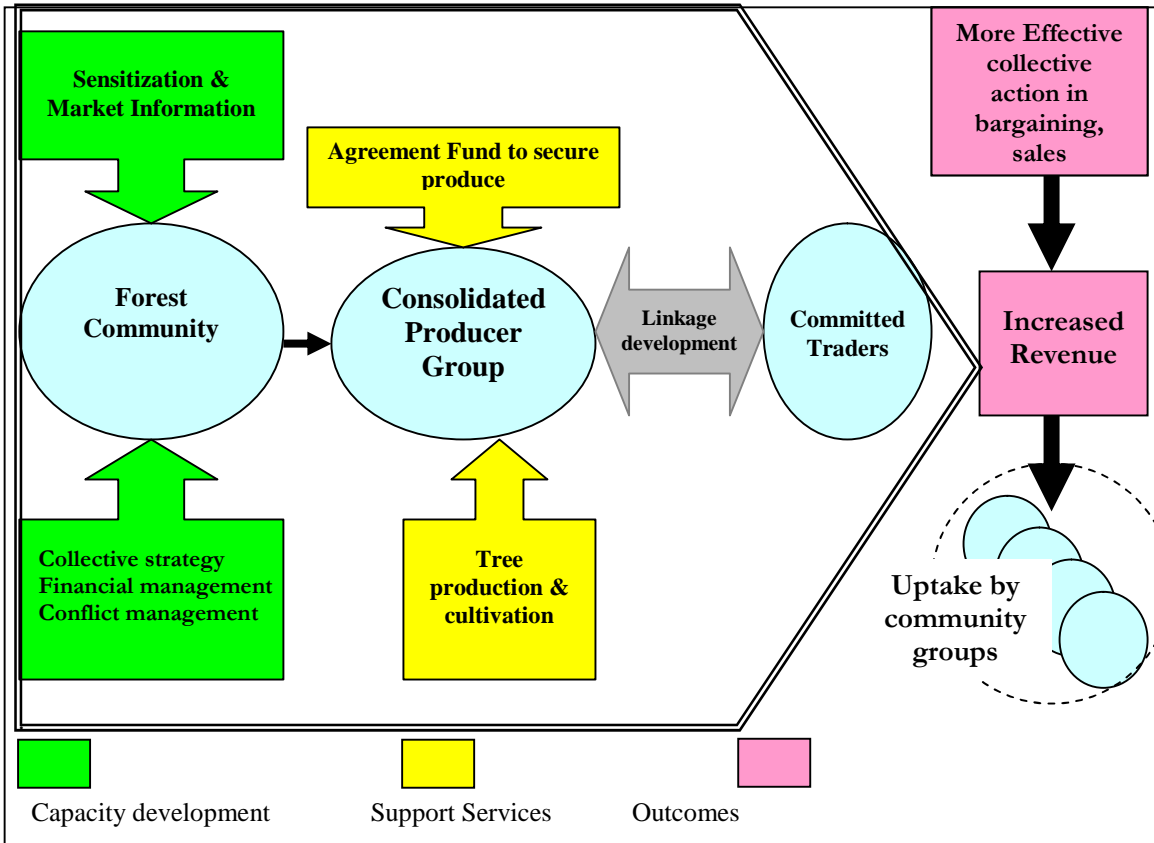


Figure 2: ICRAF's FED Framework at Community Level

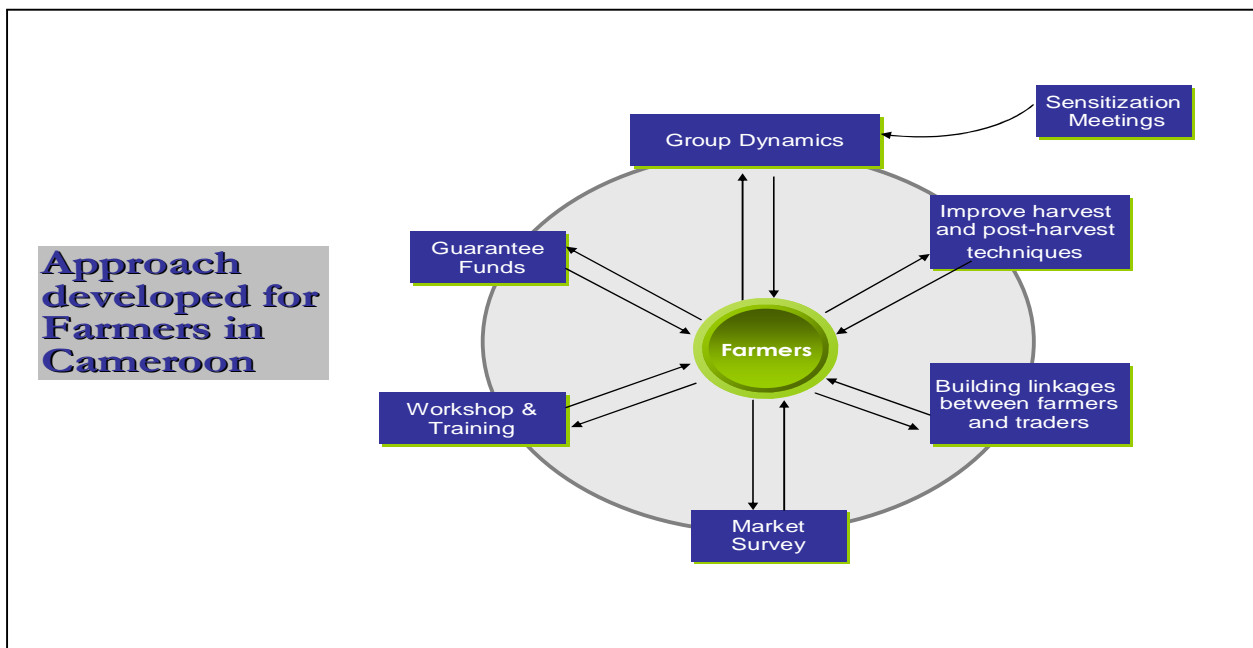


Figure 3: A Farmer Focused Approach to NTFP management

Results and Discussion

FED project follows a sub-sector approach which consists in assessing and developing farmers' capacities in all stages of the production chain; from harvesting, conditioning, processing, packaging and marketing and consumption. The part of this paper examines the effects of key parameters of the farmer focused approach (fig. 2)

Group strengthening

A total of 71 female and 88 males njansang producers were trained in at least one of the aspects related to group dynamics and enterprise development (table 2). These specific training modules resulted in consolidating group activities, increased negotiation and bargaining skills, as well as in enhancing leadership and entrepreneurial skill of farmers.

Table 2: Distribution of men and women trained in different modules

Training module	Number of participants	
	Men	Women
Group dynamics	11	7
Financial management	59	64
Marketing	40	47
Conflict management	46	48
Tree propagation and management	59	37

Increase quality products and build partnership between farmers and traders through increased linkages

As part of the preparations to group sales, the building of linkages and trust relationships between farmers and traders was deemed crucial. Through market surveys aimed at understanding the existing marketing system of njansang, traders who have the will and the capital to collaborate in such a partnership were identified. Bottlenecks in the existing marketing systems, as related to each community and specific to each product, were identified. During stakeholder workshops, bringing together farmers of the selected communities, traders, project staff and other development actors, main marketing problems were identified and common solutions to these problems sorted. The most important bottlenecks were: problems with conservation of the target products faced by traders and farmers, farmers not offering desired quality in the market due to poor handling or processing during and after harvesting and lack of standardisation of measuring units. Participating farmers gained knowledge from traders on the quality of products required in different markets and on grading and pricing issues. This discussion led to increased quality of products presented by farmers during subsequent group sales and consequently, to increases in per unit prices.

Increase the proportion of njansang that farmers keep for group sales, thanks to micro finance support

At the beginning of this experience a special Guarantee Fund was put in place to help farmers meet up with pressing financial needs that could not wait for group sale calendar. Small loans were granted based on the quantity and monetary value of the individual farmer's harvest earmarked for group sales. A loan agreement was signed

with farmers marketing njansang. The loan is given out at a monthly interest rate of 2%. The management fee for this loan at the level of the farmer organisation was kept low since the loan was reimbursed during group sales. 100% of the loan was recovered. This loan scheme permitted farmers to secure all of their harvest for group sales and to resist pressure from local buyers who exploit periods of financial needs like school reopening to offer low prices to farmers.

Increase on-farm production

Tree cultivation is an integral part of the enterprise development approach. The objective is to encourage farmers to plant and manage njansang trees on their farms in order to increase production and improve tree product quality. Increasing on-farm production is necessary because improved marketing strategies will most likely lead to higher demands. For example, in 2005, 45 households in two pilot villages of ADEAC mobilised a total of 833 kg of njansang, while in 2006, 105 households in 4 villages sold 3000 kg (figure 2). As a result of these successes with group sales, ADEAC members have now gone into planting of njansang trees. In doing so they will increase future production without necessarily increasing pressure on the natural population of njansang trees.

Improved processing technique and adding value to produce

Local harvest and post harvest practices on njansang were inventoried and improved to enable farmers save time and fuel used and also to reduce the health hazards involved in the manual cracking of the hard nut shells in order to extract the kernel. In this regard, a diesel powered cracking machine is currently under testing. An initial factory testing exercise showed a 65% rate of success. It is expected that production will significantly increase if the extraction process is facilitated by a cracking machine. Also, collaboration with the private sector is unveiling new forms under which the products can be conditioned, packaged and marketed in super markets. For example, njansang paste and powder is expected to be easier to use and more appealing to urban customers than the kernels. These perspectives offer possibilities to recycle the broken kernels from the cracking machine by milling them into powder or pressing them into njansang cubes.

Standardization of selling units

The usual measuring unit during njansang sales is a milk cup. By using this system traders very often "cheat" by adjusting the quantity per cup using their hands. Differences in quantities per cup of more than 50% were registered. Despite stiff initial resistance from traders, farmers and traders finally agreed to use the kilogram as measuring unit. This was obtained thanks to increased collaboration between both parties and farmers' improved negotiation skills.

Increased income

The average household income generated from njansang rose from 16,882 FCFA in 2005 to 23,364 FCFA in 2006

(table 3). A survey relates this performance to a better bargaining standpoint as a result of group action.

Table 3: Progress of income from njansang between 2005 and 2006

Villages	Membership		Quantity sold (kg)		Income generated (FCFA)	
	2005	2006	2005	2006	2005	2006
Epkwassong	21	49	347	2097	323,675	1,782,450
Nkolobodou	21	26	456	454	385,400	385,250
Ondeck	0	38	0	642	0	544,875
Melen	0	8	0	132	0	114,495
Total	42	121	803	3325	709,075	2,827,070

As shown in figure 4, in 2005, farmers received 709,075 CFA fr (approximately 1,420 US\$) from the sales of 833 kg of njansang while in 2006, they received the sum of 2,826,000 CFA fr (5,652 US\$) from the sale of 3,000 kg of njansang.

In addition to augmenting the quantity sold, njansang farmers increased per unit selling price by an average of

31%. This was attributed to the fact that farmers succeeded in applying newly acquired negotiation skills to convince traders to buy at relatively higher prices compared to what was usually obtained.

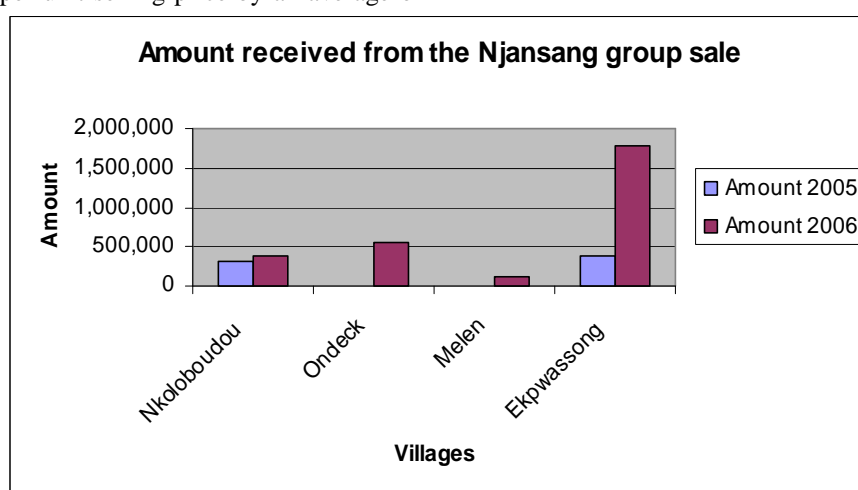


Figure 4: Amount received from the njansang group sale

Conclusion

By adapting and integrating competitive marketing skills and links between producers, traders and eventual consumers involved in these agroforestry products (AFPs) chains, farmers have been able to develop and link-up with a dynamic production base via marketing channels and other exchanges with potential markets. By improving their understanding of markets and consumer preferences, these smallholder producers have been able to increase their revenue from markets, simultaneously feeding back this knowledge to stimulate ecologically sound and appropriate harvesting/production and processing approaches. Experiences in ADEAC zone so far indicate that household income can be significantly raised through the marketing of agroforestry tree products. This step-by-step model we believe can easily be adapted to and replicated with other AFPs and in other places. In Cameroon, the same model is already being applied on kola nut (*Cola spp.*), another income earning tree product, and similar results are being obtained.

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