Cultivation and Sustainable Management of Eru (Gnetum spp) In the Buffer Zone of the Korup National Park, SW Region Cameroon

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1. About the implementing organization

The Centre for Nursery Development and Eru Propagation (CENDEP) was created in 1999 as a farmer group and legalized as a Common Initiative Group (CIG) on the 19th July 2000. Her mission is to assist and/or train local people in the domestication, sustainable production and marketing of Non Timber Forest Products (NTFPs) and agricultural products of economic importance and in the sustainable management of natural resources".

CENDEP's activities cover principally the Northwest and Southwest Regions of Cameroon. In the NW Region our activities are aimed at addressing issues of climate change indirectly. This is through our Analogue Forestry program through which we are assisting local communities to establish permanent forests to buffer extreme weather events and also to act as carbon sinks. The interest and participation of the local population is driven by their assurance on the water supply services of permanent forests.

In the SW Region our activities are centred on domestication and development of the value chain for eru. Eru is a perennial crop which starts to produce after 3-5 years, and then can be productive for 30-50 years. Value chain development activities are carried around the Mount Cameroon Region and in the buffer zone of the Korup National Park. Being a shade loving plant, eru domestication is promoted together with agro forestry.

Sustainable agriculture and environmental education activities are carried out in the two regions.

2. Summary of experience

Eru is a forest vegetable with high economic and social importance in the forest regions of Cameroon and the Central African sub region. Local and regional demand has resulted in economic depletion of the product in the Western part of Cameroon that formerly supplied the international and local markets. So, harvesting pressure has now shifted to East Cameroon where the product is still available in commercial quantities. East Cameroon is now responsible for meeting the increased demand from the local, regional and international markets.

In the Western part of Cameroon efforts towards domestication are underway since the late 1990s when Limbe Botanic Garden developed a method of growing eru out of its natural habitat. The main objective of domestication is to conserve the species from extinction that may result from high harvesting pressure and to improve on the livelihoods of the local people. The dissemination of the domestication technology to farmers has been marred by challenges such as unpredictable weather events, slow growth rate of the vegetable, lack of technical know-how by frontline extension workers, on and off interventions, and the absence of further research to produce high quality germplasm. The purpose of the project is to assist the trainees to contribute to forest conservation and improve their livelihoods by diversifying their production through the introduction of a high value NTFP into their farming system.

CENDEP adopted two approaches to conserve this vegetable namely conservation and value chain development. The conservation approach adopted was that of "Conservation through Cultivation". The process adopted to accomplish this was that of building the capacity of the farmers on how to establish and manage their farms as well as how to sustainably manage the wild stocks of the vegetable. In terms of conservation, there has been success especially in ex-situ conservation through the establishment of nurseries and pilot farms that now serve as sources of seed materials for seedling production.
The Key elements of the value chain approach were:

a. market analysis to see if increased production could be translated into financial and social gain.
b. capacity building of farmers on eru domestication (training and follow up),
c. farmer organisation and
d. linking the farmers to interested buyers supplying the local and international markets with the raw or transformed vegetable

The following achievements were realized:

1. A market analysis of eru was conducted and the results presented to all the stakeholders
2. 255 farmers were sensitized and trained on eru domestication in 10 communities. 8 (government) Agricultural Extension Workers and 2 local NGOs also benefited from the training. These farmers were organized into 10 groups, 8 of which are legalised and the process of legalisation already engaged for the rest.
3. 9 eru seed nurseries were set up to produce seedlings for farm establishment/expansion.
4. Trial processing and export of eru was conducted and a non governmental business enterprise, Forest House, created to collect and market eru at the local and international market
5. Key public and private institutions intervening in the Eru sector in the project area were identified and their roles documented.

No comprehensive stakeholder forum was organized as it was not within the remit of the project. Stakeholder forums were limited to farmers, NGO and local government extension services.

3. Context

Gnetum spp (Eru) is a highly priced and harvested Non-Timber Forest Product (NTFP) in the forest regions of Cameroon and the Central African sub region. Because of free access and high demand, the vegetable is being overexploited. Thus *Gnetum spp*. is now seriously threatened by habitat loss, poor methods of harvesting such as uprooting, over-exploitation and destruction of useful trees that provide support to the plant. Several studies show that this overexploitation intensified after the economic crisis of the 1980s. NTFPs were considered to be used to offset the declining revenues from cocoa and coffee. These studies also indicate a fast depletion of the wild stocks but no data is available to substantiate this as no comprehensive inventory is available. Similarly in the early 1990s following the devaluation of the local currency, many workers turned to the forest for timber, fuel wood/NTFP extraction or agriculture, increasing the rate of deforestation. In the Mount Cameroon Region for example, pressure on the forest have been extremely high due to the growing urban populations in the surrounding cities like Limbe, Tiko, Buea and Douala. Deforestation affected the local ecosystem and contributed to the regional climate change pattern affecting especially rainfall on which the farmers rely. At the time of documenting this experience (2009) tomato farmers in the upper villages in the Mount Cameroon Region are considering changing their planting period as the rains are ending earlier than before making it difficult for their crops to mature.

Nigeria constitutes the main export market for Cameroon's raw eru. The effects of over exploitation have been severer on West Cameroon because of her proximity to the Nigerian market. In West Cameroon the vegetable is no more available in commercial quantities. As such harvesting pressure has now shifted to forests in East Cameroon. In the Western part of Cameroon efforts towards domestication began since the late 1990s when Limbe Botanic Garden developed a method of growing eru out of its natural habitat. The main objective of domestication is to conserve the species from extinction that may result from high harvesting pressure and to improve on the livelihoods of the local people. The dissemination of the domestication technology to farmers has been marred by challenges such as poverty, unpredictable weather events, slow growth rate of the vegetable, lack of technical know-how by extension workers of the ministry in charged of agricultural extension, on and off interventions, and the absence of further research to produce high quality germplasm.

4. Project intervention

In 2004/2005, CENDEP established 7 experimental farms averaging few square meters (100m² or less), in seven communities in the Mount Cameroon region. 211 forest resource users (107 men & 104 women) were sensitized on the rational exploitation and cultivation of NTFPs and the link to biodiversity conservation. It then built the capacity of 179 (92 women & 86 men) on ex-situ cultivation of *eru* through the organisation of 7 training workshops, 63 technical support visits, 4 exchange visits and an open field day.

The results demonstrated that the vegetable could actually grow out of its natural habitat and that conservation could be achieved through cultivation. With this

success the project now embarked on spreading the method of cultivating eru amongst farmers in other areas of Cameroon notably in the Buffer Zone of the Korup National Park. The purpose of the intervention was to assist the trainees to contribute to forest conservation and improve their livelihoods by diversifying their production through the introduction of a high value NTFP into their farming system. Funding for this project was provided by the Interchurch Organization for Development Cooperation, ICCO, Netherlands.

In this area there was a growing demand from women for training and assistance. Some of the project beneficiaries were local people who had been resettled out of national park and no longer had the right to exploit the resources from it. Other communities were chosen on the basis that due to over exploitation it had reduced drastically.

The project began with a market analysis (July-August 2006) to see how a thrust in production could be translated into financial and social gain. This market study identified a number of opportunities and constraints and made some recommendations that were out of the scope of CENDEP's intervention but which needed action. In order to make good use of the study it was necessary to present the report to all those who could make a contribution in enhancing eru production and marketing in the area. This was achieved through a one day workshop in February 2007 with three main objectives, namely to:

a. Share findings of the eru market analysis with development actors in the Korup Project area
b. Initiate the organization of producers/harvesters into harvester groups and unions and
c. Sensitize stakeholders on the need for sustainable exploitation of NTFPs in buffer zone of the Korup National Park.

The main expected output of the workshop was the participatory development of an action plan for organization of NTFP producers/harvesters into a union. To achieve this, a series of tools were used: presentations, brainstorming and group work. The 47 participants included prospective eru farmers, eru harvesters, village chiefs, local government services and local NGOs.

In order to mobilize local support for the project contacts were made with local stakeholders and potential development partners. Representatives of KfW (German Investment Bank) and RUMPI project (a participatory development project financed by the African Development Fund through the government of Cameroon.) were briefed at the project headquarters, while all other stakeholders (village chiefs, government officials etc) were met in the field. The RUMPI project had a component on agricultural production, extension and training, and agricultural marketing. During the contact meetings agreements were made with hierarchy of the Ministry of Agriculture and Rural Development (MINADER) for their extension staff to participate in the project. Through these contacts the local agriculture extension workers, local administration, village chiefs etc were informed of the project, the new agricultural crop (eru) was introduced and ground work set for mass sensitization.

The sensitization of farmers was conducted through the organization of sensitization meetings. A meeting was organized in each of the project villages. These meetings took place in village halls village squares or in front of the village chief's residence and were attended by a cross section of the community (men, women and youths). Prior to the meetings the village town crier made announcement indicating the

purpose and venue of the meeting. Posters prepared for this purpose were distributed during sensitization meetings and to various stakeholders. At the regional level a local FM radio station was used to sensitize the general public on the project. Working with its collaborators and learning from its past experiences in training, a baseline appraisal was conducted to:

i. Determine the entry knowledge of the target population on eru and the relevant environmental issues as well as the potentials for learning to take place on the project and the challenges;
ii. Develop strategies for overcoming learning challenges based on sound educational principles & practice and knowledge of the eru cultivation process.
iii. Identify the indicators that should be monitored and addressed along the project cycle in order to ensure attainment of project objectives and achieve positive change towards sustainability.

Choice of the project beneficiaries was based on the outcome of the sensitization that took place. Through this interested farmers were identified and both organized and unorganized farmers benefited from the training.

Skill transfer on the cultivation and sustainable management technique of the new agricultural crop was through the organization of training workshops. These workshops were hands on and took place in the respective communities. This was so that participants could use the time allocated for the practical sessions to establish their nurseries and demonstration/trial farms. There was an average of twenty five participants per training. During the workshop participants were trained on technical aspects of eru cultivation comprising but not limited to: importance of eru, threats, choice of nursery site, building the propagators, preparing the rooting medium, obtaining cuttings, sowing/setting of cuttings, routine watering and propagator cleaning. The rest of module 1 comprising preparation of polythene bags with fertile soil, transfer of rooted cuttings into the polythene bags, weaning & hardening processes, would follow during technical support visits. Through the training workshops community nurseries were put in place and daily management entrusted to members proposed by the community.

As a follow up to the recommendations of the market study, the project staff experimented with drying, packaging and marketing of Eru at the national and international market. In order to determine the best cost efficient preservation techniques to guarantee high quality, the project contacted an Energy Management Consultant (Assistant Professor, Department of Agricultural Engineering University of Dschang. P.O Box 373, Dschang, Cameroon, Africa) in late 2006. This researcher designed a drier that was used in drying the produce in order to guarantee long lasting high quality products to reach the market in top form. This was successfully done and dry eru was introduced in local supermarkets, shops and in the international market (Thomas Royal Market, Newark, USA) in 2007, albeit for a while. This enabled the project to identify all necessary transactions, documentations required for the smooth running of the vegetable processing and market industry. Through regular communication and monitoring/support visits by the donor/donor consultants (2006/2007), the processing and marketing activities were identified as potential commercial functions. It was thus recommended that the institutional structure of the organization be reviewed to allow for the commercial activities to be handled by a separate legal entity. This was so that development aid should not be used to distort an emerging commercial market. In order to enable CENDEP to clearly define her role two staff from the organization were trained on value chain development (2008 & 2009) and later received coaching to assist the organisation to meet her objectives (2009).

The initial intentions for processing and marketing, however, were to do a feasibility study and hand over these activities to a trained farmer organization. This was not achieved because of lack of capacity and limited means at the disposal of the farmers/farmer groups. This role was taken over by Forest House, an independent non-governmental business enterprise and a subsidiary of CENDEP. The company was created in June 2009 and legalized in September 2009. The goal of the enterprise is to assembly, package and distribute organic food products and crafts starting with dry eru/eru seedlings and honey whose production CENDEP is promoting. Start up funds for Forest House was part of the grant provided by ICCO for trial processing and marketing of the vegetable, part of which was used to acquire fixed assets such as the electric dryer. A business plan for Forest House was developed and submitted for a competitive selection of development initiatives under "Business in Development (BiD)" and. approved by the BiD Network Approval Committee for presentation to BiD Network's investors and funds. In like manner a UK based charity organisation (www.HumanitarianManufacturing.org) ranked Forest House as type of social manufacturing enterprise that they support. This was after a visit to Forest House in late 2009. It is a non-profit organisation that sends Manufacturing Specialists as volunteers to existing and start-up manufacturing businesses in developing countries to help the organisation to build/improve production processes, to overcome technical difficulties, increase process efficiency and train employees.

At the end of the project CENDEP proposed an exit strategy/project (what is left to be done). This strategy/project was based on the understanding that donor support can not continue indefinitely and that the departure of CENDEP should be in such a way as not to jeopardize the work so far done. The main objective is therefore to ensure the continuation of eru chain activities when CENDEP support ends. Specific objectives are to:

1. Improve capacity of project beneficiaries to act as eru domestication trainers.
2. Build the capacity of local farmers to embark on commercial seedling production
3. Improve farm income

5. Stakeholders involvement

CENDEP was no the only institution intervening in the eru sector in the project area. Other key institutions included government or public institutions and non-governmental or private institutions. The government institutions included structures such as the Limbe Botanic Garden (LBG), Institute of Agricultural Research for Development (IRAD), Ministry of Agriculture and Rural Development (MINADER), Ministry of Forestry and Wildlife (MINFOF) and the Rumpi Project based in Buea. On the other hand, in addition to CENDEP other private institutions identified included the Forest House, Reach Out and Licensed institutions. These institutions/stakeholders played different roles in the eru chain. The following analysis is an excerpt from an independent evaluation conducted towards the end of the project. In the course of our work we realized the need to coordinate the activities of all these actors. Based on our experience training farmers on the domestication of eru over the last 9 years, and an analysis of the roles and approaches of these actors/stakeholders, there is need for the training of community members as trainers on eru domestication. This has been elaborated in our exit

project. This to us is the only way we can assure proximity support to interested farmers. This is crucial in the adoption of eru cultivation by farmers.

a) *Limbe Botanic Garden (LBG):* This is a government institution under the Ministry of Forestry and Wildlife. It is in charge of the conservation of various plant species from the wild including Eru. Apart from collecting various varieties of Eru nationwide to constitute a gene bank, it carries out research on Eru propagation and is one of the pioneer institutions in the domestication of Eru. It trained five pioneer groups on Eru domestication and extension in 1999 including CENDEP. Apparently, CENDEP is the only group among the five trained that has maintained its demonstration plot and has gone further to play facilitation and extension role for Eru domestication in the region. This role is recognized and known to LBG. During the implementation of our project this institution produced and sold more than 1500 eru seedlings to individual farmers. This contributed to the attainment of our goal of spreading cultivation techniques to new farmers and assist old farmers to improve and/or expand existing farms in order to raise production beyond traditional levels to meet local, national and international market demands in the long term. They contributed to this goal by supplying seedlings to farmers who hadn't the capacity to produce them.

b) *Rumpi Project:* This is a project with many components for the development of the South West Region of Cameroon. The Agricultural Component includes the promotion of Eru domestication. The Rumpi project does not implement but uses the services of competent institutions as this is the case with Eru propagation contracted to IRAD Ekona and Reach Out (Buea). The project has a determined time lapse and its implementation will soon phase out. The strategy adopted is seemingly not very clear as nothing assures us that farmers would continue Eru domestication upon withdrawal of the intervention. In about two years of existence, 35 persons have been trained and have not yet started planting in the farm. This project took on a limiting approach to train only those to whom it will provide propagators. In 2008, CENDEP collaborated with the Rumpi Project during a training workshop for farmers in the Mount Cameroon Region. The small grant scheme operated by this project was identified and a farmer group (comprising 15 farmers) benefited from it. The support in material by the Rumpi Project was backed by training on domestication techniques by CENDEP. One of the farmers that benefited from the Rumpi supported training is being assisted to put up a commercial Eru seedling multiplication farm to supply seedlings to other farmers. This will contribute in solving the problem of lack of eru seedlings by prospective eru farmers.

c) *Institute of Agricultural Research for Development (IRAD):* This is another government institution that carries out research for agricultural development including that on Eru propagation with emphasis on biomass production. However, at the time of this evaluation, IRAD Ekona's intervention consisted of transferring the Eru domestication technology to farmers on behalf of RUMPI project. In order words, Rumpi hired the services of IRAD for this assignment. IRAD on her side used the technical expertise of CENDEP. This was also confirmed by CENDEP upon cross verification. A total of 35 farmers were trained in Meme and Mamfe areas coupled with material support in the form of cuttings and propagators. The extension strategy of IRAD/Rumpi consists of training and providing support or assistance to farmers as earlier mentioned. It is too early to say something on the effectiveness of this extension strategy. However, we must note that it differs from that put in place by CENDEP in a number of ways.

First, CENDEP has the technical expertise and does not seek for technical assistance elsewhere. Secondly, CENDEP has field officers on the ground that monitor and provide technical backup to farmers unlike the other institutions whose interventions are short live. Thirdly, this strategy would not go without bottle necks. This probably explains why for close to two years that the project has been running, it is still at the level of producing cuttings. Thus, it still requires some time to get at least the required implementation results let alone the intermediary outcome and impact. One thing is certain about the strategy put in place as a result of the IRAD/Rumpi collaboration: the beneficiaries of the Eru domestication technique will not benefit from the proximity assistance CENDEP provides to the groups supported. Groups assisted through this project will therefore require monitoring for farm establishment when the project eventually rounds off.

d) *Ministry of Agriculture and Rural Development (MINADER):* This is the national authority in charge of promoting agricultural development nationwide. It has also taken great interest in the cultivation of Eru. It is in this regard that this ministerial department elaborated a support program for the cultivation of Eru. The first phase of the project will be in the centre region of Cameroon and will last for five years. The services of CENDEP are being solicited by one of the subcontractors engaged by the MINADER. The major activities of this phase of the project consists of sensitization intended to ease the adoption of Eru cultivation; the promotion of Eru domestication as an income generating activity for livelihood improvement; support and assistance to farmers who adopt the Eru cultivation technique; continuous monitoring and the establishment of Eru marketing chain. This program will be executed with the collaboration of non-state actors and government field agents who will be expected to monitor the activities on the ground agents. CENDEP already contributed to this venture by training the staff (8) of MINADER and some private institutions. This demonstrates the collaboration established between MINADER and CENDEP on the ground within the framework of the CENDEP's intervention in the sector. This collaborative work has also permitted CENDEP to position itself as a leading institution as far as Eru domestication is concerned.

e) *Ministry of Forestry and Wildlife (MINFOF):* This ministerial department is in charge of implementing the sustainable management policies adopted by the government including supervision and controls all wildlife and plant products such as Eru. It regulates the exploitation and marketing of Eru from the wild through granting of exploitation quotas and concessions to exploiters. It collects regeneration fee from exploiters and pay it to the central treasury. It tracks and discipline illegal or unauthorized exploitation of NTFP including Eru (MINFOF, 2008). However, there are several instances of untracked trade as smaller quantities of Eru are often noticed between the South West Region and the bordering Nigeria (Ligondo et al, 2006).

f) *License owners:* These are individuals or corporate bodies that exploit and market Eru from the wild. They are purely commercial in nature and are responsible for marketing harvested Eru in the fresh state to Nigeria where it is either consumed directly or processed and packaged for marketing out of Africa. In 2008 and 2009 for instance, seven permit owners transported Eru from the wild in the Centre and Littoral Regions through Idenau to neighboring Nigeria.

g) *Forest House:* This is a private initiative created with the objective to assemble, package and distribute non timber forest products and crafts starting with Eru and honey whose production is promoted by CENDEP. This is purely a commercial unit intended to provide the opportunity to the rural masses and protectors of forests to earn as much income as possible on a sustainable basis. Currently, it markets honey produced by individual farmers and grouped such as Forest and Water Management Committees in the NW Region of Cameroon where CENDEP is introducing Analogue Forestry. It also has the responsibility to process and market Eru. The Eru marketed is first processed into a semi finished product that could be stored for longer periods of up to one year. It has successfully marketed dry Eru at local and international markets. Though legally registered to market non timber forest products the institution requires authorization or license to export the product. Currently, they do not have this license.

6.Success Factors

Many factors contributed to the success of this project amongst which were:

a. Ready local and international market

A ready local market exists with very high demand as consumption of eru increasingly transcends ethnic and cultural culinary habits. Eru constitutes one of the main dishes in most parties and restaurants within the national territory, and features conspicuously as a regular menu in several households, especially in the humid forest zone.

b. Simple technology to transfer

The technique develop to domesticate Eru is quite simple and can be easily studied, adopted and adapted by rural people at relatively low costs. It can be implemented by women and children on-farm under mixed cropping systems and in home gardens. In addition, ground work had been set for research and extension on eru domestication. This included the development by the Limbe Botanic Garden of a cultivation model using eru vine cuttings; the establishment of experimental/demonstration farms; the organization and training of pilot farmers amongst whom CENDEP and extension workers on how to cultivate eru; the production of an eru cultivation manual and the establishment of a gene bank. Experimental farms have been established in several communities demonstrating that the vegetable could actually grow out of its natural habitat and that conservation can be achieved through cultivation. Some of the trained farmers also established experimental farms averaging few square meters (100m^2 or less), showing that the cultivation of eru by small holder farmers was feasible. This helped in encouraging other farmers to try the technique.

c. Human resources are available to promote sustainability of activities

Resource persons are readily available to sensitize, mobilize and organize local communities towards the sustainable management of eru. The technical backup provided by the project played a vital role in scaling up Eru domestication.

d. Consistent donor support

There was a wide range of donors who intervened in one way or the other to promote the domestication of eru. Of particular interest to this project was the US embassy that financed the first community based eru seed multiplication and distribution farm, The Netherlands Committee of the International Union for the Conservation of Nature, NC-IUCN that financed extension activities in the Mount Cameroon Region and finally ICCO that permitted the spread of this technology to the project area (buffer zone of the Korup National Park).

e. Staff capacity building

In the partnership agreement between ICCO and CENDEP provision was made for the development of the capacity of project staff. This support was provided during the implementation of the project through a series of trainings, workshops and coaching to enable CENDEP to meet the project objectives. During the same period CENDEP staff attended other short courses financed by different donors that led to an overall improvement in the performance of the organisation. These included training on financial management for NGOs and grant management.

f. Collaboration with government services

Staff of the Ministry of Agriculture and Rural Development participated in project activities especially in the training workshops. The project was visited by key personnel from this ministry including the minister. The activities of the project were recognized and project beneficiaries made exhibitions during agricultural shows organized by the ministry winning prices.

This ministerial department has taken great interest in the cultivation of Eru and has elaborated a support program for the cultivation of Eru. This program will be executed with the collaboration of non-state actors and government field agents who will be expected to monitor the activities on the ground agents. CENDEP already contributed to this venture by training the staff (8) of MINADER and some private institutions.

g. Role of CENDEP

The review of the institutional structure of CENDEP allowed for the creation of a legal entity to handle commercial activities. This permitted CENDEP to position herself as chain supporter and not chain supporter and actor at the same time.

7. Difficulties encountered

The ability of the farmers to establish their individual farms depended on the capacity of the nurseries that supplied seedlings to group members. Only eight nurseries were established to serve over 255 farmers. The nurseries (propagators) in the communities had low capacity estimated at 600 seedlings per annum. This explains why needs in seedlings could not be entirely met at this production capacity. This low production capacity coupled with slow growth rate of the vegetable dissuaded many willing farmers from joining the initiative.

Although some local farmers had the technical capacity to produce seedlings, they did not have the entrepreneurial motivation to do so. They still believed that it is the role of an outsider to assist them in the production of seedlings. A contributing

factor to this was the effect of some past projects that used incentives to encourage farmers to participate in project activities.

Because of over exploitation it was not possible to get viable material in the communities for seedling production. To collect suitable materials the farmers needed to trek for about a day in the forest. So material for the nurseries was supplied by the project from her demonstration farm. Because of long distances to the project area and the frequent bad roads, some of the material deteriorated along the way leading to poor results. This limited the number of seedlings that were raised in the group nurseries.

Two staff left the project for various reasons. Though CENDEP had adopted a policy of having back up staff for each position in the form of volunteers the departure of the two staff had negative consequences on the project. New staff had to acquaint themselves to their work area and this needed time and caused delays.

In the course of the project we encountered one organization that considered the buffer Zone of the Korup National Park their territory and a no go area. When CENDEP indicated she did not require approval from them to work in the area they decided to collaborate. Then suddenly they suggested that CENDEP put signboards in the eru seed multiplication farms she had established stating the farms were a joint venture between them and CENDEP. This was rejected by CENDEP. Rather than waste energy fighting this organization CENDEP decided to cement links with the project beneficiaries and the collaborating stakeholders like MINADER, the Park Conservator, local administration (village chiefs, divisional officers etc). However, this organisation was very instrumental in introducing CENDEP to the villagers. Later during the project they protested CENDEP did not involve them in technical support visits depriving them of the opportunity to learn. This is a positive change in their relationship with CENDEP.

8. Results & Lessons learned

As a result of this project, nine (9) groups now carry out Eru domestication and related activities. Some of the problems associated with the extension of eru cultivation techniques, marketing and sustainable management of wild stocks have been addressed. The major challenges addressed included:

a. Lack of eru cultivation skills by front line Agricultural Extension Workers;
b. Lack of materials to establish nurseries;
c. Lack of start up materials like polythene bags for the nursed seedlings;
d. Lack of eru vines in most villages as the vegetable is almost extinct;
e. Inadequate or no follow up of trained farmers,
f. Absence of producer organisations
g. Short shelf life of the produce

Eight field workers of the Ministry of Agriculture and Rural Development (MINADER) and 2 local NGOs were sensitized and trained in Eru domestication techniques and participated in follow up activities. Additional training and sensitization were achieved through collaboration with partner institutions particularly the RUMPI project/IRAD Ekona. This resulted in the training of 255 farmers, 145 of whom have joined 8 groups, all of which are legalized.

Eight nurseries have been established in the various communities to produce seedlings for the local farmers thus contributing in solving the problem of lack of materials to establish nurseries. The trained groups and individual farmers have established pilot farms that now serve as sources of seed materials for seedling production. These farms also provided small quantities of eru for the local market, thus contributing an alternative income for the farmers. In terms of conservation, there has been success in ex-situ conservation i.e. 'conservation through cultivation'. Since 2008 CENDEP deployed two field staff to provide proximity assistance to the trained farmers. These staff have ensured the organization of farmers into legalized producer organizations.

As a follow up to the recommendations of a market study, CENDEP experimented with drying, packaging and marketing of Eru at the national and international market. The initial intentions were to do a feasibility study and hand over these activities to a trained farmer organization. This was not achieved because of lack of capacity and limited means at the disposal of the farmers/farmer groups. This role was taken over by Forest House, an independent subsidiary of CENDEP, created with the objective to assembly, package and distribute non timber forest products and crafts starting with Eru and honey whose production CENDEP is promoting. Forest House is purely a commercial unit intended to provide the opportunity to the rural masses and protectors of forests to earn as much income as possible on a sustainable basis. Currently, it markets honey produced by individual farmers and collectives such as Forest and Water Management Committees in the NW Region of Cameroon where CENDEP is introducing Analogue Forestry. It has successfully marketed dry Eru at local and international markets. A contract was signed with a distributor in the US (New Jersey) and 300kg of dry Eru supplied. This represented about 50% achievement of the targeted amount. However, this contact was lost because the seller moved out of business to another state. By the end of the project an agreement has been reached with a distributor at the regional level (Equatorial Guinea) for supply of at least 2400 packets of dry eru annually. Though legally registered to market non timber forest products, the institution requires authorization or license from the forestry ministry to export the product. Forest House is now financially independent from CENDEP. A business plan for Forest House was developed and submitted for a competitive selection of development initiatives under "Business in Development (BiD)" and. approved by the BiD Network Approval Committee for presentation to BiD Network's investors and funds. In like manner a UK based charity organisation (www.HumanitarianManufacturing.org) ranked Forest House as type of social manufacturing enterprise that they support. This was after a visit to Forest House in late 2009. It is a non-profit organisation that sends Manufacturing Specialists as volunteers to existing and start-up manufacturing businesses in developing countries to help the organisation to build/improve production processes, to overcome technical difficulties, increase process efficiency and train employees.

Awareness creation has been carried out in major areas where the product have been depleted and in potential production areas and farmers are now aware that they can actually grow eru out of the forest; in their farms. This has led to an increase in demand for seedlings for farm expansion and for the establishment of new farms. But farmers have not adopted seedling production as a commercial activity. However three organizations, Good Friends CIG, Forest House and Limbe Botanic Garden recently are undertaking seedling production as commercial activities. Notwithstanding demand in seedlings surpasses the production capacity of

the commercial seedling producers as well as that of the functional seedling production facilities put in place by the project during training on eru domestication. Therefore, because production is below demand the price of seedlings remain expensive for an estimated 500 small scale farmers interested in embarking on eru production. The price per seedling is about €1.5/seedling. This is beyond the reach of poor rural farmers targeted for poverty alleviation.

Recommendations

In order to achieve the overall objective of this project, promote Eru domestication and contribute to Eru conservation in the S.W. Region, the following recommendations are suggested:

a. Additional effort is required to complete the broadening of the establishment of Eru stands in the farmers' fields. The stakeholders could consider using wildings as the seedlings are insufficient to meet up with the seed needs of the farmers. Also, stakeholders of the program should exploit ways of rehabilitating the propagators at the disposal of farmers so as to increase the chances of meeting up with their seedlings needs.
b. CENDEP should maintain and expand collaboration with ministerial departments responsible for the production, control, supervision and regulation of eru exploitation and management in the country and the region in particular. These include MINADER and MINFOF respectively.
c. The need to sustain the strengthening of the capacity of the "eru domestication groups" is eminent as they are yet to stand on their feet. Furthermore, technical backup and monitoring of their activities and farm operations are essential to lay down a sustainability framework.

9. Conditionality & Replicability

In order to succeed in a similar project elsewhere there is need to define a clear exit strategy well in advance to ensure the continuation of project activities when donor support ends. For the just ended project this can be achieved if the project:

a. Improves the capacity of project beneficiaries to act as eru domestication trainers.
b. Builds the capacity of local farmers to embark on commercial seedling production
c. Improves farm income by promoting the production of short cycle crops

10. Sustainability of experience

The project identified multiple stakeholders intervening in the Eru sector in the project area. These were government or public institutions and non-governmental or private institutions. The institutional framework is established and what needs to be further done is to organize stakeholder meetings. These forums will link farmers to sources of knowledge, finances and facilitate market information sharing and confidence building. Follow up actions should lead to the attainment of three objectives outlined above.