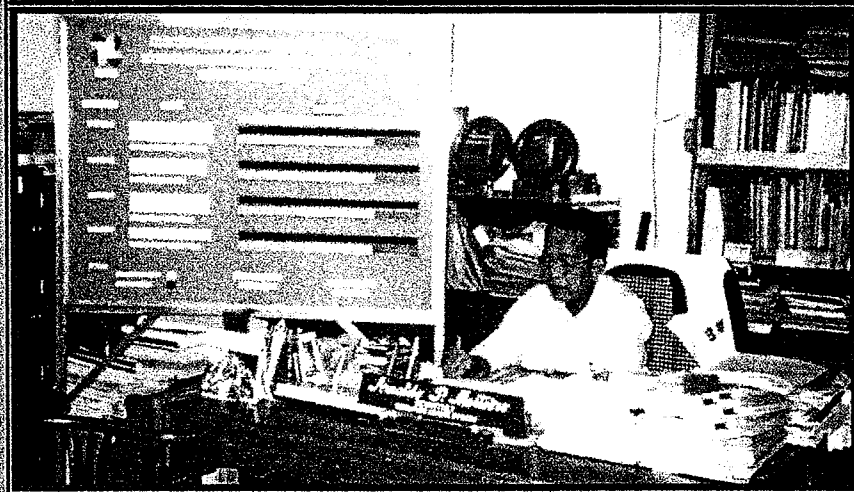
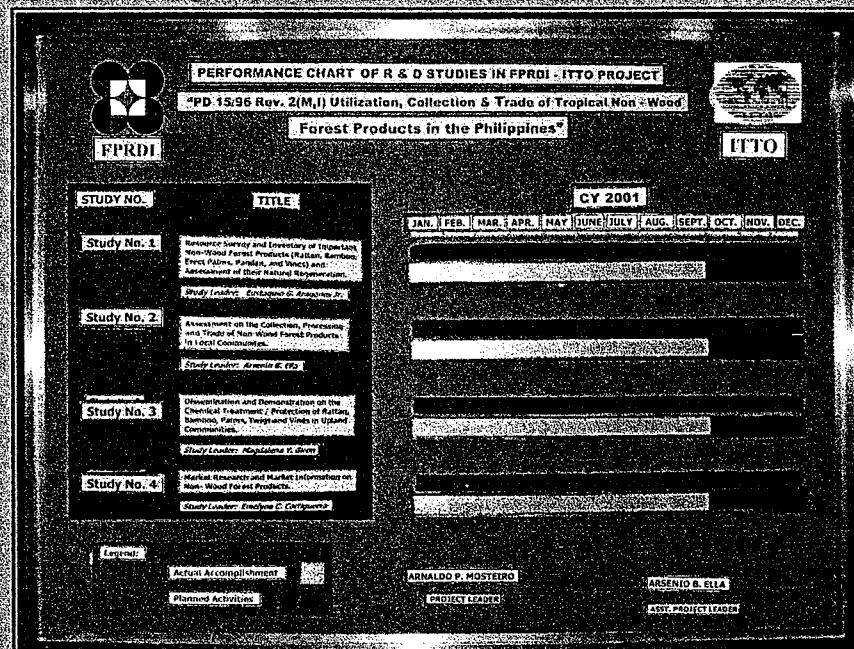
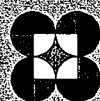


UTILIZATION, COLLECTION AND TRADE OF TROPICAL NON-WOOD FOREST PRODUCTS IN THE PHILIPPINES

Completion Report



Project Leader: Arnaldo P. Mosteiro
Asst. Project Leader: Arsenio B. Ella



Forest Products Research and Development Institute
 Department of Science and Technology
 College, Laguna 4031, Philippines



International Tropical Timber Organization
 Yokohama, Japan

PROJECT COMPLETION REPORT

A. Project Identification

- a) Title : Utilization, Collection and Trade of Tropical Non-Wood Forest Products in the Philippines
- b) Serial Number : PD 15/96 Rev. 2 (M,I)
- c) Executing Agency : Forest Products Research and Development Institute (FPRDI)
- d) Host Government : Philippine Government
- e) Starting Date : 01 October 1997
- f) Actual Duration : 46 months
- g) Actual Project Cost : U.S. \$ 383,493.00

PART I. EXECUTIVE SUMMARY

1. Background Information About the Project

- 1.1 The Philippines is endowed with forest resources composed of timber and non-timber or non-wood forest products. Although timber has been recognized as major product from the forest, other products derived from non-wood forest products (NWFP) are likewise valuable resources. These NWFP include bamboo, rattan, erect palms, vines, medicine plants, bast fiber plants and other species producing resins or gums. Since the early times, these resources have been used in producing housewares for domestic or household use. It has been found to be a good alternative for wood and is presently used in the production of handicrafts and furniture. It is well known that the cottage industry in the Philippines are primarily dependent on most of the NWFP for the production of furniture, baskets, fancy boxes, bags, decorative and souvenir items. Statistics indicated that the 1998 exports of furniture and handicraft from bamboo, buri and rattan were \$ 81.22 million FOB and US \$ 32.37 million FOB respectively. In 1999, exports for similar commodities using bamboo, buri and rattan increased to US \$ 86.93 million and US \$ 73.44 million respectively. The collection, utilization and trade of NWFP likewise provide more employment both in the local forest communities and in the urban areas. Substantial labor force in upland forest communities are being utilized for the collection and partial preparation of NWFP for various valuable finished products. Based from country papers submitted by some consumer member countries of ITTO during the Eleventh Session of the International Tropical Timber Council (ITTC) in response for the Proposed Progress Toward's ITTO's year 2000

target in accordance with ITTC Decision 3(x), some governments categorically stated the need to study the utilization of non-wood forest products and the commercially-less-accepted species on the basis of sustainable management and promote market information in order to ensure income of the local forest communities in producing member countries.

In the light of these inter-related activities and issues relative to tropical non-wood forest products collection, processing and trade, this project was proposed and implemented. It will undertake various activities to gather and provide information and possible solutions to issues and concerns specifically on the role of NWFP collection and trade in promoting income and livelihood in local forest communities. It will also relate NWFP collection, utilization and trade to sustainable forest management.

1.2 Specific Objectives

The specific objectives of the project are:

- a) To determine the approximate volume of non-wood products in the project sites/areas and the number of upland/forest dwellers engaged in the collection, processing and sale of the products for their livelihood. Assess the regeneration pattern and cycle of selected non-wood products and recommend sustain-yield collection practices and observation measures for sustainable supply.
- b) To determine the needs and problems of upland/forest dwellers in the collection, processing and storage of non-wood forest products. Recommend and introduce improved methods in the collection, processing and storage. Conduct market research on collection, utilization and trade and provide market information.

1.3 Specific Outputs

After the completion of the project, the following have been accomplished.

- a) The approximate volume of non-wood forest products in the project areas has been determined for information. The number of upland forest dwellers in the project areas engaged in the collection, processing and sale of NWFP for their livelihood have been determined. The regeneration pattern and cycle of selected non-wood products have been assessed. Sustained yield collection practices and observation measures for sustainable supply have been recommended. A report on these aspects has been prepared.
- b) The needs and problems encountered by upland/forest dwellers in the collection, processing and storage of non-wood forest products have been determined. Some improved and scientific methods/procedure in collection, processing and storage of important NWFP have been recommended/introduced in upland forest

communities in the project areas and vicinities. Market research on the collection, utilization and trade of NWFP has been done. Market information on NWFP have been prepared and likewise provided to target beneficiaries. Reports on the above aspects have been prepared.

1.4 Strategy Adopted in Carrying Out the Project

The strategy adopted in carrying out was primarily to ensure that the four (4) sub-projects or studies under the project are executed smoothly based on the approved work plan or time table for project implementation. The main strategies and measures were followed.

1.4.1 Identification and designation of Project Staff and Personnel namely: Project Leader, Assistant Project Leader, the DENR Counterpart on Resource Inventory, four Study Leaders and Project Accountant was done by the Executing Agency (FPRDI) in consultation with ITTO. The terms of Reference (TOR) for the Project Staff as specified in the Project Document were properly emphasized. The International Marketing Consultant was identified, contacted and informed of their scope of work and responsibilities. Research Assistants, Research Aide and Computer Operator were recruited and oriented on their duties and responsibilities.

1.4.2 The Project Leader and Assistant Project Leader made frequent dialogue with staff and personnel of the project and informed them of the objectives, the activities to be undertaken and expected output after project completion. The Project Leader always emphasized that the planned activities should be accomplished on specified time frame. A performance chart for the 4 studies was prepared and the semi-annual performance of individual study for each calendar year was reflected. Studies that are operating as planned and studies that are delayed in their actual activities during the quarter and during the year can be identified. Study Leaders are required to submit their semi-annual and annual reports of accomplishments to the Project Leader. The Project Leader takes care/monitor the day-to-day operation of the Project.

1.4.3 The Project Monitoring, Review and Evaluation Committee composed of representatives from the ITTO, the FPRDI and the DENR met every six months to monitor, review and evaluate the progress of project implementation. In this meeting issues and problems encountered in the implementation of the project were being discussed and some recommendations and remedial measures are generally forwarded. The Project Leader prepares and submits to ITTO semi-annual progress reports, committee reports and statement of budget, expenditure and balances for information.

1.4.4 Procurement of supplies and materials for the project followed the standard operating procedure of the Philippine government and the ITTO Guidelines for Procurement and Payment of Services. Request for cash advances for travel by project personnel followed standard government procedure. All

disbursements, vouchers documents or papers related to the above mentioned transactions were signed by the Project Leader, Assistant Project Leader, Project Accountant. Bank Cheques to serve as payments and to all procurement purposes and to all services rendered were signed by the Project Leader and the Cashier. Project funds were transferred and deposited by ITTO to a government at Los Baños, Laguna, Philippines. All funds required for the project implementation were being drawn from bank account. Project Management regularly updates project funds in the bank.

1.5 The project planned duration and planned overall costs.

1.5.1 The planned duration of the project was for three years.

1.5.2 The planned overall costs was US \$ 383,493.00. The specific sector in the Philippines to which project relates is the upland forest dwellers and local forest communities. Considering that there are about 17.8 million forest dwellers in 1996 and about 22 million in year 2000 in the Philippines, the benefits that will be derived from the project would directly relate to the economic, social and ecological dimensions of the forest dwellers/occupants. Forest dwellers will gain technical knowledge and skills in collecting and processing NWFP to maintain and improved the quality of their products resulting to higher prices and improved income. With the skills and knowledge gained, forest dwellers can also gain employment in neighboring towns where processing of NWFP for various handicrafts are being done. Besides, upland forest dweller or occupants would acquire some know-how on sustained-yield collection practices and observation measures for sustainable supply of identified NWFP. The benefits and other social impact that may be derived from the project areas would not remain secret or isolated but will find ways to reach other rural forest communities in which their occupants could likewise adopt. The sustain-yield collection practices and observation measures for the sustainable supply of important NWFP such as bamboo, rattan, palm leaves and forest vines has a strong linkage to handicraft and furniture industry sector. The above stated NWFP's are the main raw materials for the production of various handcrafted items/products and furniture.

2. Project Achievements

2.1 Outputs Achieved

2.1.1 A resource survey and inventory of important NWFP and the assessment of their natural regeneration pattern or cycle was conducted in the four project areas. Data and information were generated collected and evaluated for dissemination and information.

2.1.2 The assessment of the collection, processing and trade of NWFP in local communities was done not only in the four project areas but in other strategic areas in the country where collection, processing and trading of NWFP are commonly practiced.

2.1.3 The dissemination and demonstration of the chemical treatment of NWFP in forest communities and in rural training centers were carried out in project areas and vicinities.

2.1.4 Market research was conducted in the four project areas and market information were gathered evaluated and will be disseminated to collectors, processors and traders of NWFP.

2.2 Specific Objectives Achieved

The specific objectives of the four R & D studies have been achieved after three years and ten months of research efforts.

2.2.1 The supply and volume of rattan, bamboo and erect palms (pandan, buri, anahaw) and vines in the project areas were determined. The regeneration pattern and cycle of the above-mentioned NWFP were assessed and some sustained yield collection practices and conservation measures for the continuous supply of selected NWFP were recommended.

2.2.2 The past and present methods of harvesting/collection of selected NWFP in local communities were monitored, reviewed and evaluated. The needs and problems of upland forest dwellers engaged in the collection and use of selected NWFP were determined. Volume and income derived in trading selected NWFP were assessed. Some improved technical skills on the collection of important NWFP were demonstrated and recommended in local communities. The over-all impact of harvesting NWFP in the socio-economic conditions on dependent communities in the project areas was likewise presented.

2.2.3 Three simplified technical pamphlets were prepared and printed as part of the training materials namely:

- a) Pamphlet No. 1E 1998. Prevention and Control of Fungal and Insect Attack on Rattan, Bamboo, Palms, Twigs and Vines.
- b) Pamphlet No. 2 E. 1998. Treatment Procedures Against Insect and Fungal Attack on Bamboo, Rattan, Palms, Twigs and Vines
- c) Pamphlet No. 3 E. 1998. Handling and Preparation of Fungicides and Insecticides.

The above-mentioned pamphlets were translated/printed in the national language "Tagalog" version for the benefit of most of the forest dwellers and local communities in which the population (tribal groups) are not well versed of the English language.

The training and demonstration of the technology on the application of chemicals on bamboo, rattan, palms, twigs and vines in upland forest communities were conducted in eleven (11) training sites:

- a) Sabani Agricultural College Dupinga, Gabaldon, Nueva Ecija
- b) DOST Regional Office, Puerto Princesa City, Palawan
- c) Jiabong Municipal Hall, Jiabong, Samar
- d) Kiamba Municipal Stadium, Kiamba, Saranggani
- e) PENRO Office, DENR, Tandag, Surigao del Sur
- f) Babuyan, Adlay, Norcia and Cantilan, Surigao del Sur
- g) DENR Training Center, Baler, Aurora
- h) Aurora Trading Center, Setan, Aurora
- i) Diteki, Aurora
- j) Casecan Handicrafts, Caranglan, Nueva Ecija
- k) Mircan Furniture and Handicraft Manufacturing Inc. Angeles City, Pampanga

Certificate of attendance were given to participate who successfully completed the course. Certificates of appreciation were presented to the coordinators and cooperators for their assistance in the organization of the trainings.

- 2.2.4 A report on Market Research and Market Information on Important Non-Wood Forest Products in the Philippines was prepared. Information on marketing and markets for different NWFP were gathered in the four project areas in the Philippines. Prices were gathered at each point of the distribution channels. End products and their prices were also documented. NWFP covered by the study were bamboo, rattan, buri, almaciga resin, sabutan, pandan, vines, twigs, ferns and honey.

A separate report was prepared by the International Marketing Consultant on Marketing of Non-Wood Forest Products in the Philippines which focuses on the review of the relevant literature both local and international on Non-Wood Forest Products and the summary of the study on the marketing of non-wood forest products. Presented are the numerous problems associated with the marketing of NWFP and the general principles that will enhance the success rate of marketing NWFP to the international community. Numerous researchers identify the lack of information of markets and marketing channels as a problem. That gatherers of NWFP usually receive a small share of the final value of the products they gather. Middlemen and processors received the bulk of the net profits from these operations. The project likewise conducted a workshop-seminar on the preparation and analysis of marketing case study which was attended by

participants from FPRDI, the academe, and the community crafts association of the Philippines.

2.3 Contribution to the Achievement of the Development Objective

After three years and ten months of research efforts, essential data and information and technology on the role of NWFP (specifically bamboo, rattan, erect palms, vines, twigs, almaciga resins and honey) utilization, collection and trade in promoting the income and livelihood in local communities was generated for dissemination. The aim to assist in the promotion that the collection and utilization of NWFP will be on sustainable basis and an integral component of sustainable forest management was given primary focus and attention.

The volume of important NWFP available in the project areas and vicinity were determined and their regeneration pattern and cycle were studied and documented. Forest dwellers/occupants engaged in the collection, processing and sale of NWFP in the project areas were surveyed and documented. Their daily/monthly income derived from the collection and sale of NWFP were determined. The needs and problems of forest dwellers in collection, processing, storage and sale NWFP were also identified. Likewise, information on marketing strategies/practices and price structure of NWFP were gathered and evaluated. Relevant data/information on the growth and yield, seasonability of harvesting, collection and procurement system, expenses incurred in collection, storage, transport and processing practices for NWFP were gathered/generated. Although the project has no pre-project component, it can be stated that the situation after the completion of the project was very informative and important to the forest dwellers and the local forest communities as far as collection, utilization and trade of NWFP is concern. In addition the handicraft and furniture industry sector would be benefited considering that the availability and volume and location of NWFP required by the sector is known. In the past, the handicraft and furniture industry has no specific idea of volume of other important NWFP except for bamboo and rattan.

3. Target Beneficiaries Involvement

The project was implemented in cooperation and support of the Department of Environment and Natural Resources (DENR) and some Timber License Agreement (TLA) holders specifically, Industries Development Corporation (IDC), San Jose Timber Corporation (SJTC), Surigao Development Corporation (SUDECOR) and a Non-Governmental Organization the Nagkakaisang Tribo ng Palawan (NATRIPAL). The four project areas and the corresponding experimental plots were established in the concession areas of the three TLA holders and in the area covered by the NATRIPAL in Palawan province. It is also worthwhile mentioning that additional experimental areas/plots were established in Quezon and Laguna Provinces where some NWFP are predominantly existing.

The direct beneficiaries of the project are the forest dwellers/occupants in the four project areas and those that are dwelling in other forests areas in the Philippines who are dependent on NWFP for their livelihood. Subsequent beneficiaries are the furniture manufacturers using bamboo and rattan as their raw materials. The handicraft producers of baskets, bags mats, other woven products, souvenir items, decors, gift items using bamboo, rattan, abaca, leaves of erect palms and vines are actual beneficiaries of the project. The results of the project will served as a guide and reference in programming their collection activities, processing techniques, utilization and marketing strategies to improve their income and livelihood.

The participation of the forest dwellers in the implementation of the project was primarily in supplying the data and information during the actual survey of their number in the project areas, their collection practices, the quantity of NWFP they harvest/collect daily or monthly. The prices for each product/raw material, the market and the income derived from the sale of NWFP. Some of the forest dwellers were designated by the project staff as over-seer/keeper of the project areas particularly the experimental plots. This was done in coordination with the community head known as "Barangay Captain." This is very necessary so that during the period of observation and evaluation of regeneration pattern and cycle of selected NWFP, the experimental plots are not disturbed or altered by man or animals.

It is also worth mentioning that some forest dwellers are participants in various trainings and demonstration seminars conducted in the project areas and vicinities.

4. Lessons Learned

4.1 Development Lessons

4.1.1 Aspects of Project Design which Most Contributed to its Success or Failure in Achieving Development Objectives.

The design of the project is simple and it follows the format of the ITTO Guidelines for Project Formulation. After the approval of the project proposal by the ITTC and the release of funds by the ITTO to the Executing Agency (FPRDI), Project Management headed by the Project Leader and the Assistant Project Leader convened a meeting with the Sub-Project Leaders or Study Leaders. In this meeting, the working plan of the project and sub-projects were discussed, assessed and reexamined. The members of the Project Monitoring and Review Committee were selected and formed to undertake review and evaluation of project work and accomplishments every after six months. The international marketing consultant was selected in consultation with ITTO. The consultant work with the project staff/personnel one month every year to strengthened the marketing component of the project. Besides, the travel of the project personnel to the four project areas were properly programmed and coordinated with the cooperators during the period of implementation. After three years and ten

months, the work plan was carried out as consultant was selected in consultation with ITTO. The consultant work with the project staff/personnel one month every year to strengthened the marketing component of the project. Besides, the travel of the project personnel to the four project areas were properly programmed and coordinated with the cooperators during the period of implementation. After three years and ten months, the work plan was carried out as per planned targets. Based from the outputs obtained, it was evident that the development objective of the project was attained. This is an indication that the project design is appropriate and the implementation is successful.

4.1.2 Changes in Intersectoral Links which Affected Project's Success

So far, there were no changes in intersectoral links that affected the project's success. Maintained were a strong linkage, coordination and cooperation between FPRDI and ITTO and between FPRDI and DENR including their regional offices together with the TLA holders. The ITTO was very supportive to the project not only on the release of funds but also on the monitoring, review and evaluation of the project. It is believed that this cooperation will be maintained and continued in future undertakings.

4.1.3 Additional Arrangements that Could Improve Cooperation Between the Relevant Parties Interested in the Project

Communication with local authorities i.e., village chieftains and tribal leaders could be done in advance so that the scheduling of travel to visit the project areas will coincide with the period of harvesting and marketing of NWFP. Arrangements for a longer period of stay of project personnel in the project areas and vicinities should have been to give more time to communicate with gatherers and agents and to observe collection and marketing practices. Coordination has to be intensified with non-government organizations and organizations of tribal communities since these organizations play a significant role in sustainability of livelihood programs in upland forest communities.

4.1.4 Factors which will Most Likely Affect Project Sustainability after Project Completion

One of the factors that may affect the sustainability of the project after its completion is the kind of regulation and support the government would initiate particularly on the collection/harvesting of NWFP in the forest. If the collection of the products will be properly regulated by concerned government and non-governmental organizations, it can be assured that the project can be sustainable even after project completion. The second factor that may affect sustainability of the project after completion is the adoption and practice of the scientific methods of extraction or collection of NWFP. Although some upland indigenous people have adopted some cultures from the lowland communities and are practicing sustainable collection of rattan, palm leaves, bamboo and vines, it would be more advantageous if they would be able to adopt the more scientific way of collecting the products,

particularly resin or gums and applying the proper methods of protecting NWFP in transport and storage. Another important factor that may affect sustainability of the project after completion is the cost of the NWFP in the market. If the cost would become too high it could promote the overexploitation of the NWFP that sustainability would be endangered.

4.2 Operational Lessons

4.2.1 Project Organization and Management

The principal experience gained in the successful implementation of the project was the support and proper guidance of the Project Monitoring, Review and Evaluation Committee on the overall execution of the project. The dedicated efforts and services done by the Project Leader, the Assistant Project Leader, Study Leaders and support personnel in management and implementation of the project led to the attainment of the established goals and objectives. The full cooperation and support of ITTO contributed very significantly to the success of the project. Project Organization System is the following order:

- Project Monitoring, Review and Evaluation Committee
- Project Leader and Assistant Project Leader
- Project International Consultant
- Study Leaders/Support Staff

The project office was at FPRDI in College, Los Baños, Laguna , Philippines.

Project Management Regulations

Project management regulations and procedure were followed in the following:

- Project activities implementation
- Project financial management/budgeting
- Project assets management/upkeeping
- Project monitoring, review and evaluation

4.2.3 Monitoring and Evaluation

The Project Monitoring, Review and Evaluation Committee (PMREC) conducted semi-annual meetings to check projects work, review and examine project's progress and discussed important issues and make decisions on pertinent matters. During meetings, the Project Leader reports to the committee the activities undertaken for the period under review. The members of the PMREC are, one representative from ITTO, one representative from the government of the Philippines, the Head of the Executing Agency and the Project Leader who act as the secretary of the PMREC. The committee makes suggestions and recommendations to project management to ensure the successful implementation of the project. Subsequently, the project leader submits the proceedings of the meeting to the members of the committee for information and reference.

4.2.4 Quality of Project Planning

The project plan was formulated after careful review and analysis of the various activities to be undertaken. A performance chart which indicates individual studies/activities and its planned targets for a specific calendar year was prepared as reference and guide for project management and staff. Every after six months, the actual performance output of each study was compared with planned targets. By this chart, project management can easily detect and identify the activities/studies that are on track, short of target and ahead of the planned targets. The travel of project personnel, procurement of supplies and materials were properly planned and coordinated by project management. Monitoring, review and evaluation work were properly planned and coordinated with ITTO Secretariat and members of PMREC. In the overall project planning was good and of desirable quality.

4.2.5 Definition of the Roles and Responsibilities of the Institutions Involved in Project Implementation

The Role of ITTO

The ITTO as provided in the original agreement and the addendum agreement contributed an amount not exceeding US \$ 383,493.00 for the purpose of implementing the project. It conducted semi-annual monitoring, review and evaluation of the project. Saw to it that the project was completed on the specified time frame and the objective and expected outputs were satisfactorily attained.

Role of FPRDI

The FPRDI implemented the project under the supervision and guidance of the PMREC. It made available inputs in cash and in kind amounting to US \$ 382,800.00 for the purpose of implementing the project. The contribution included the provisions for land, office facilities and appropriate accommodation for all project activities. It provided ITTO technical progress reports, completion report and periodic statements of budget, expenditure and balances of the project.

4.2.6 Actions Taken to Avoid Variation Between Planned and Actual Implementation (Schedule, Cost, etc.)

During the implementation of the project, the releases of funds by the ITTO were on schedule except for the approved additional budget for the approved additional budget for the marketing case study. Official travels of project personnel to the project areas were well planned and coordinated. The facilities required for the conduct of the different activities under the project were available. In the overall operation, there was a minimal deviation of the actual to the planned target activities except for study No. 1 and 2. The two studies which focus on resource survey and inventory of selected NWFP and on the assessment on the collection, processing and trade of

NWFP was delayed for 6 to 8 months during the second year of implementation due to the El Niño and La Niña phenomenon particularly in project areas facing the pacific ocean.

The establishment of a performance chart for individual activities during the period of project implementation served as a vital instrument in the execution of the project.

4.2.7 External Factors that Influenced the Project Implementation That Could Have Been Foreseen

In the overall, the project went on planned except for study No. 1 and 2, which had incurred some delay in some activities in two project areas primarily caused by continued rain due to the El Niño effect. This factor is quite difficult to foresee. The extension of project implementation for 6 to 8 months solved the gap between the planned and actual target activities of the two studies.

4.2.8 External Factors that Influence the Project Implementation That Could Not Have Been Seen

The abovementioned El Niño Effect is quite difficult to foresee or predict and had influence project implementation. The increase in prices of supplies and materials during period of implementation and the depreciation of the Philippine Peso against the US Dollars affected the project. To cushion the impact of these developments, a strict prioritization on the procurement of supplies and materials and on the travel of project personnel was initiated.

5. Recommendations

- 1) In attempting to conduct and implement a similar project in the future, it would be best to identify exhaustively all agencies, organizations, sectors and individuals that could provide assistance and cooperation to the project. Allowance for delay in the implementation of activities should always be considered in relation to weather condition, peace and order situation prevailing in the project areas. Resource survey and inventory activities should cover a wider area to provide a wider base of data and information on NWFP distribution, supply and volume.
- 2) Though impact of collection, processing and marketing of selected NWFP have significant results in the socio-economic conditions of the dependent communities, still these people are looking for more benefits specifically in alleviating their social status. The government through DENR, Local Government Units (LGU), logging concessions, NWFP permittees should work hand in hand to find a smooth way to sustain an action program. The DENR should enrich their program on Community Based Forestry Management and on Natural Resource Management to assure that forest dwellers

especially the indigenous people that the concern of government is strong and dedicated. Further, there should be a close coordination among NWFP collectors and processors, government and private institutions in the collection, utilization and trade of NWFP.

- 3) The government should forge strong linkages with other agencies and NGO's so that appropriate training activities on the importance of NWFP collection processing and utilization could be properly emphasized.
- 4) It is necessary to get in touch with market outlets and NWFP buyers to help forest dwellers in marketing their extracted products and other products they produce.
- 5) Baseline information on seasonability or timing of harvesting and marketing of NWFP in the identified areas should be made available by DENR.
- 6) Data gathering should be conducted for longer period. Field immersions would enable researchers to stay in the community and communicate with gatherers and agents and observe harvesting and marketing practices.
- 7) Communication with proper authorities i.e., chieftains and tribal leaders should be done ahead of time so that the scheduling of visit will coincide with the period of harvesting and marketing.
- 8) The possibility of establishing forest settlers marketing cooperatives should be work out. This could serve as an organized vehicle for soliciting active and direct participation of forest settlers or upland dwellers.

PART II. MAIN TEXT

1. Project Content

The project is consistent with the objectives established in Article 1 of ITTA, to encourage the development of national policies aimed at sustainable utilization and conservation of tropical forest and their genetic resources, and at maintaining the ecological balance in the region concerned. It will also have peripheral beneficial effects on the attainment of the other objectives listed in the ITTA, as the project will assist to promote that the collection and utilization of non-wood tropical forest products will be on sustainable basis and an integral part of sustainable forest management.

The project is in accordance with areas and is consistent with the criteria set forth in Article 23 of ITTA: (a) natural forest development; (b) it should yield benefits to tropical timber economy as a whole and be relevant to the

producing as well as consuming members; and (c) it should offer reasonable prospects for positive economic returns in relation to cost. The project is also consistent with ITTO Action Plan and is related to the priorities and programs established.

- Identification of demonstration/pilot areas where sustainable production and utilization of timber and non-timber products may be combined.
- Delivery of trial volumes of new species and products and other approaches to facilitate acceptance in selected foreign markets.
- Projects in selected strategic areas/locations to promote the integrated development and sustainable forest management and industrial use of forest products.

The general objective of the project was to provide essential information and technology on the role of non-wood forest products (bamboo, rattan, erect palms, vines, bast fibers, almaciga resin, etc.) utilization, collection and trade in promoting the income and livelihood in local forest communities. Assist to promote that the collection and utilization of non-wood forest products will be on sustainable basis and an integral component of sustainable forest management.

In 1996 about 17.8 million of the country's population live within the forest zone. Majority of this segment of the population belong to the poorest of the poor. Historically, these upland dwellers or forest occupants have contributed significantly to the forest degradation, but more importantly, they have the potential and they present a great challenge to be harnessed, motivated, mobilized and sustained to become an effective force in forest rehabilitation and conservation.

During the past decades and up to the present, upland/forest dwellers are primarily dependent on the collection and sale of non-wood forest products for their livelihood. Some of the products are in demand in the furniture and handicraft industry in the Philippines.

After the completion of the project, the following output have been accomplished:

1. Actual volume of non-wood forest products available in the four project areas and the number of forest dwellers engaged in collection, processing and sale of the products have been determined.
2. Regeneration pattern and cycle of important non-wood forest products and the localities where they are located have been evaluated and documented.

3. Actual needs and problems forest dwellers in collection, processing, storage and sale of non-wood forest products have been identified and to some extent provided with some solutions.
4. Information on marketing strategies/practices and the price structure of some non-wood forest products in forest communities have been identified and documented.

The required inputs for the implementation of the project were the research and support personnel, financial resources provided by both the ITTO and the executing agency. The equipment and facilities for the conduct of the various studies. The project areas provided by the three TLA holders and one NGO are vital inputs to the project. The support of the regional offices of the DENR and DOST that has jurisdiction over the project areas are inputs in the implementation of the project. The project work and activities were specified to include: gathering of data/information on NWFP; dialogue with TLA holders and local officials in selected project areas; assessment of volume and regeneration cycle of NWFP; recommend sustain-yield collection practices; dissemination and demonstration of improved collection, processing and protection methods of NWFP in local communities; conduct market research and market information on NWFP; and conduct training workshop on preparation and analysis of marketing case studies.

Project Strategy

The criteria for determining project areas are:

- (i) Pre-survey of forest concessions where project areas and experimental/inventory plots are to be situated. The survey assessed the number of communities and forest dwellers engaged in the collection, processing and sale of NWFP;
- (ii) Availability of NWFP in the area which were collected, utilized and sold as a source of livelihood;
- (iii) Existence of market for NWFP in the area and neighboring towns;
- (iv) Willingness of forest dwellers to cooperate in the project;
- (v) Peace and order situation.

Four project areas were selected, the first project area is in the concession of Industries Development Corporation (IDC) in Aurora Province, Northern Philippines. The second project area is in the concession of San Jose Timber Corporation (SJTC), Samar Province, Eastern Philippines. Third area is in the NATRIPAL area an NGO, in Palawan Province, Western Philippines and the fourth area is in the concession area of Surigao Development Corporation (SUDECOR), Surigao del Sur province in Southern Philippines.

Resource survey and inventory of selected NWFP which included assessment of natural regeneration were conducted. The presence of wildings or regenerants was observed. The length of time for seeds to germinate was noted through periodic observation. Added information on the harvestable age and size of subject NWFP were taken and evaluated based on observed ecology of the species in nature. Actual interviews of forest dwellers directly involved with collection, processing, utilization and marketing of subject NWFP were done. Handling, storage and processing methods employed by forest dwellers were evaluated. Improved and scientific methods of collection, handling, storage and processing were introduced to rural forest communities. These activities were undertaken by holding of training and demonstration seminars of the technologies involved in the processing and utilization of selected NWFP.

On market research and market information activity, forest dwellers engaged in trade of NWFP were interviewed to gather some data and information on the following:

- NWFP traded by forest dwellers
- Marketing channels and pricing structure
- Seasonability of harvesting
- Growth and yield
- Harvesting/procurement system
- Expenses entailed in harvesting
- Storage, transport and processing methods
- Marketing cost, problems and issues in marketing
- Volume of products traded
- Method of payment, market structure

A structured questionnaire was used in the survey/interview.

2. Project Context

Upland forest dwellers in the Philippines are primarily dependent on the collection and sale of NWFP for their livelihood. NWFP in the form of rattan, bamboo, vines, erect palms are in demand by the furniture and handicraft manufacturers and exporters. To date, there is limited documented information on the actual volume of NWFP available in the forests and on their regeneration pattern or cycle. Limited data is available on the income of forest dwellers derived from the sale of NWFP. Marketing practices and price structures of products is not well documented. Actual needs and problems of forest dwellers on the collection, processing and storage of NWFP are not given priority attention.

In this context, The FPRDI planned, prepared and executed a research and development project on the resource inventory of important NWFP; assessment of the collection, processing and trade; dissemination and demonstration on the chemical protection of NWFP; and on market research and market information. Ultimately, the project will recommend collection practices and conservation measures for a continuous supply of selected

NWFP. It will also recommend appropriate technical skills on the collection of some NWFP and provide knowledge on the protection of NWFP in site and in storage. It will relate NWFP collection, utilization and trade to sustainable forest management.

This national development plan is linked and coordinated with relevant sectors of the local economy particularly the handicraft and furniture industry sector.

3. Project Design and Organization

3.1 Adequacy of Results of the Identification Phase

The main issue to be solved by the project is to gather and provide relevant data and information on the role of NWFP collection and trade in promoting the income and livelihood in local forest communities. The work plan and strategy for the implementation of the various activities/studies involved in the project were strictly followed to come up with the specified output contributed to the adequacy of the results of the identification phase.

3.2 Sound Conceptual Foundation of the Project

The concept of the project is to gather and provide essential information and technology on the role of NWFP such as bamboo, rattan, erect palms, forest vines and almaciga resins/gums utilization, collection and trade in promoting the income and livelihood in local forest communities. This concept followed a sequence of activities which include: (a) resource inventory of important NWFP; (b) assessment on the collection, processing and trade of NWFP in local communities; (c) dissemination and demonstration on the chemical protection of NWFP in forest communities; and (d) market research and market information on NWFP. The proper and effective conduct of the above stated activities and the support and cooperation of other government and institutions ultimately led to the successful attainment of the specific and development objectives of the project.

3.3 Adequacy of Time and Other Resources for Project Formulation

The project proposal was conceptualized and formulated by a Senior Staff of FPRDI in 1995 and submitted to the International Tropical Timber Organization (ITTO) for evaluation and possible funding. The ITTO referred it to the Expert Panel for Technical Appraisal of Project Proposals for evaluation. Some comments and recommendations were made by Expert Panel and the project proposal was returned to FPRDI for improvement. The revised project proposal was resubmitted to the ITTO in January 1996 for further evaluation. During the XX Session of the International Tropical Timber Council (ITTC) on May 1996, the project proposal was one of the projects evaluated by the Forest Industry Committee and commended to the Council for approval and funding. It was approved and funded by the ITTC. The project implementation started October 1997.

therefore the time for project formulation and reformation was sufficient and the project plans and schemes are practicable.

3.4 Understanding and Appropriateness of the Roles and Responsibilities of Institutions Involved with Project Implementation

The project was executed by FPRDI and was responsible for the management, administration and technical aspects during project implementation. With ITTO's approval, FPRDI designated the Project Leader and Assistant Project Leader to manage and supervise the implementation. It also recommended for ITTO approval the Local and Foreign Consultants to assist and guide the project personnel in the implementation process. FPRDI also provide the required laboratory facilities and the salaries of regular project personnel. The ITTO on the other hand provided the financial aspect of the project. It released appropriate funds to the executing agency semi-annually for the operation of the project. It approved the assignment of consultants to the Project Monitoring and Evaluation Committee. ITTO required the executing agency to submit a periodic report of the Statement of Budget, Expenditure and Balances of the project funds; a report of the Project Steering Committee meetings; a Bi-annual project performance report and finally a completion report. The roles and responsibilities of the institutions involved as reflected in the project document were strictly followed and recognized by all concerned. As expected, the roles and responsibilities of the institutions involved in the project were quite appropriate and properly understand and recognized.

3.5 Beneficiary Involvement with the Projects Efforts and Actions

It is quite important to state that the involvement of the beneficiaries with regard to the project efforts and actions particularly the local upland forest dwellers and the indigenous people in the project areas and vicinities, the local traders and processors of NWFP in the communities. The support and cooperation of the national and local government units and the Community Crafts Association of the Philippines (CCAP) significantly led to the successful implementation and completion of the project.

4. Project Implementation

4.1 The Most Critical Differences Between Planned and Actual Project Implementation (costs, components, schedules, output achievements)

The implementation plan of the project is persuasive, direct and rational. Detailed arrangement and cooperation undertaking were made on the stage-by-stage implementation of the individual component activities embodied in the work plan. Project Management managed and supervised the actual execution of the project particularly in relation to the schedule of activities, funds/costs management, and output achievement. With this operation, it can be safely stated that the actual implementation did not vary significantly with original planned targets.

Although there was a variation in the planned and actual schedule of activities on the resource survey and inventory of NWFP in Study No. 1 in one project area, the primary cause of the variation is beyond the control of man. The frequent occurrence/visit of tropical typhoons in the project area contributed the delay in the actual inventory work.

4.2 Measures and Actions Which Could Have Avoid These Variations

As mentioned above, the primary cause of the variations was attributed to the frequent visit of typhoons to the project area during the later part of the project implementation. To remedy these variations, project management requested ITTO for an extension of ten (10) months of project implementation.

4.3 Appropriateness of the Assumptions Made and Correct Identification of the Risks Involved

The continuity of implementation of project work plan was more or less directly related to the timely release and transfer of project funds except during the last installment. This situation particularly minimized the risks that were encountered during the execution of the project.

4.4 Project Sustainability After Project Completion as a Result of Project Implementation Conditions

After the completion of the project, the sustainability of the project will be primarily dependent on the demand for NWFP used by the handicraft and furniture industry. Secondly, the availability of NWFP to sustain the market demands for domestic and international. Lastly, the sustained yield collection practices and appropriate conservation measures to regulate collection and utilization of NWFP will significantly influence project sustainability after completion.

4.5 Appropriateness of Project Inputs (Quality and Quantity)

Considering the inputs provided by the institutions/organizations involved in the implementation of the project, this could be considered as quite appropriate, contributory and rational in the attainment of set objectives and expected outputs. The ITTO promptly provided the required funds for the project and FPRDI provided the technical and support staff to execute the project. It is also provided the office rooms and laboratory facilities to conduct some of the activities. The three logging companies, namely: (1) Industries Development Corporation (IDC); (2) San Jose Timber Corporation (SJTC) and (3) Surigao Development Corporation (SUDECOR) and one NGO, the NATRIPAL willingly provided portions of their areas to serve as project sites. In these sites/areas the resource survey and inventory of important NWFP were undertaken. The quality and quantity of the project inputs are reasonable.

5. Project Results

5.1 Situation Existing at Project Completion as Compared to the Pre-Project Situation

The project was implemented directly without a pre-project requirement.

5.2 Extent to Which Project's Specific Objectives was Achieved

The specific objectives of the project have been achieved. The resource survey and inventory of important NWFP in the form of bamboo, rattan, erect palms, vines, some bast fibers, almaciga resin and honey was conducted in the four project sites/areas. The approximate volume of the abovementioned NWFP were determined. Regeneration pattern and cycle of the selected NWFP were assessed and sustained-yield collection practices for sustainable supply were recommended. The number of upland forest dwellers engaged in collection, processing and sale of NWFP for their livelihood were assessed.

The needs and problems of upland forest dwellers in collection, processing and storage were determined. Some improved methods in the collection, processing, protection, and storage of selected NWFP were recommended. Market research on collection, utilization, and trade of NWFP was done. Marketing of some NWFP in the Philippines was assessed and some marketing strategies were recommended. A seminar-workshop on the analysis and preparation of market feasibility study was conducted during the later part of the project implementation. The participants are researchers, students, faculty members and from business sector/entrepreneurs.

5.3 Impact of the Project Results on the Sectoral Programs, on the Physical Environment, on the Social Environment, on the Target Beneficiaries

Non-wood forest products play an important and positive role in forest conservation and development. It has some impact on the physical and social environment. Their collection in the forest, if done on a sustainable and non-destructive way, poses a negligible threat to the maintenance of a continuous forest and results in minimal changes to the natural tropical forest. Subsequently, the systematic collection of barks and exudates without causing damage to the trees can increase the yield while preventing degradation of the forest. Trees and other plants yielding wood and non-wood products are available in timber species. Under natural conditions, non-wood products can be managed along with wood in an integrated manner, thus increasing overall productivity. The increase in productivity of economically useful non-wood products without affecting the long-term sustainability of the forest is the essence of sustainable forest management. Since NWFP can be collected in a sustainable way and utilized economically, it therefore relate to sustainable forest management.

The results of the project have some impact on the sectoral programs of the government particularly to the upliftment of the industry sector engaged in the utilization of NWFP. Foremost of these are the handicraft and furniture industry which is considered as one of the foreign exchange earner for the Philippines. The project specifically identified locations where some important NWFP in the form of erect palms, forest vines, bamboo, rattan and honey are predominantly found or growing. It has determined the regeneration and cycle pattern of some NWFP which is critical on the sustainability of supply. Scientific methods of tapping/collection of almaciga resin and some NWFP were introduced to the forest dwellers in the project areas and some local communities. The project has assessed the utilization, collection and trade of NWFP not only in the project areas but also in places where selected NWFP are being processed and manufactured into various commercial products. Market research and marketing information were done and gathered respectively for dissemination.

In the overall, the project results has significant impact on the sectoral programs of government on the physical and social environment of the country and finally on the target beneficiaries, the upland forest dwellers who are dependent on the collection and sale of NWFP for their livelihood.

5.4 Project Sustainability After Completion as a Result of Project Conceptualization, Assumptions Made and Conditions Prevailing at Completion

As a result of project conceptualization, assumptions made and conditions prevailing at completion, the sustainability of the project after completion would depend on several factors. First, the market demand for good quality raw materials of NWFP. The availability of raw materials to sustain the demand for products both domestic and international. Adoption of sustain-yield collection practices and appropriate conservation measures to regulate collection and utilization will significantly influence project sustainability. The slack performance of in trade of handicraft and furniture from NWFP materials would affect production. This will have negative impact to producers, workers and the communities dependent on NWFP collection and trade. On the other hand, the adoption of the technologies involved on proper collection, chemical protection and storage of important NWFP by upland forest dwellers and local communities will greatly contribute to the sustainability of the project after completion, considering that the continues application of such technologies would significantly meet the demand for high quality materials and finished products.

6. Synthesis of the Analysis

(a)	Specific Objectives Achievements	Realized
(b)	Outputs	Realized
(c)	Schedule	Delayed not seriously

(d)	Actual Expenditures	>10% above planned
(e)	Potential for Replacation	Significant Potential
(f)	Potential for scaling-up	Significant Potential

PART III. CONCLUSIONS AND RECOMMENDATIONS

(a) Development Lessons

In the implementation of multi-disciplinary project funded by an international organization like the ITTO, a clear view and understanding of project aims, objectives, expected outputs, project design and planning, and implementation strategies are very important. These aspects have been fully recognized, analyzed and worked-out by project management and implementers. Detailed project work plans and component studies and activities have been prepared in addition to full description of project design and implementation plans. As a result, the project plans worked smoothly and considered as a very encouraging development experience. Project budget and expenditure were properly and effectively planned and considered. It is very necessary to workout strict financial management regulations considering that the project covers a wide range of activities on the utilization, collection and trade of NWFP. Similarly, procurement of materials and disbursement of funds for travel and other activities involved big amounts. This would greatly reduce if not eliminate risks of budget shortage. Provisions for the use of contingency funds in the budget should be properly identified to prevent misconceptions during the actual implementation of the project. In this particular project, having determined in advance the project sites/areas where NWFP occur in fair quantity made the resource survey and inventory easier. It is also worthwhile mentioning that the presence of community development officers in the areas visited and the timely coordination with the appropriate projects of the government such as the community- Based Forest Management (CBFM) help facilitate data collection.

(b) Operation Lessons

The project has been properly organized and managed. Project documentation was achieved with the Project Leaders requirement for quarterly accomplishments and progress reports. The institutions involved in project implementation cooperated well and extended all out support in the conduct of field activities. At times, however, problems arise with non-issuance of logging operations permit to some private industries cooperators. This problem coupled with peace and order situation and the unfavorable weather condition in some project sites caused delays in project activities.

There was a positive response of participants in the various trainings and seminars conducted as evidence from their active participation in the

lectures, demonstrations and adoption of the technology being disseminated by the project. Adoption of the technology on proper harvesting of NWFP generates more employment, increased income of gatherers which could be attributed to higher production of NWFP. Moreover, the technology educates and appreciates environment awareness among IP's and others involved in NWFP extraction, thus, contribute to lessen environmental problems. Further, this minimized unscrupulous and crude system of extracting some NWFP, hence helps forest conservation program of the government. Adoption of technology on resin tapping, salago barks (a bast fiber) and vines extraction, the opening of bamboo and rattan plantations as enhanced by the government and private sectors, and the continuous agro-forestry farming, i.e., abaca and fuelwood/ITPS, ensures the sustainability of NWFP and related forestry/agricultural crops. Since the Certificate of Ancestral Domain Title (CADT) has already been obtained by the IP's, the ancestral domain management plan that will be formulated should consider maintaining areas supporting the growth of NWFP and agro-forestry crops.

Resource survey and inventory of important NWFP in project areas in the provinces of Aurora, Palawan, Western Samar, Surigao del Sur, Quezon, Laguna and Nueva Ecija provided valuable and useful quantitative data on species availability and supply. This answers the common queries on where to find them, what could be found and how much maybe obtained. The project likewise gave an ecological assessment of the species regeneration pattern and potential for sustainability of supply. In general, cutting and harvesting should be regulated based on volume of mature individuals and the population density of young regenerating wildings. On the marketing aspect, there are two systems of marketing NWFP. First is that the fore front in the marketing chain are the gatherers. They gather bamboo, rattan, resin, leaves, vines and fern fronds and passed them on to different intermediaries. A small portion of these products may be used to weave baskets and other household wares for their own use. Most of the products are sold either to intermediate processors or to representatives of licensees. Most often, there is very little value addition in rattan poles and almaciga resin at the gatherers' level where they are sold in their raw form. Preliminary sorting and grading are done at the traders' or concessionaires' level.

Another system is some gatherers already convert some NWFP into baskets, bags, nipa shingles, rattan splits and other products. They bring the processed goods in the local market or sell it to traders. This marketing route has lesser intermediate channels but a small market reach. Gatherers-processors who live far from the markets often find it advantageous to sell their goods to traders even if the price is lower since they are already assured of a ready market.

Most gatherers of rattan and almaciga resin sell only to concessionaire's agents, locally known as "kapatás." From the concessionaire, rattan poles are delivered to furniture and handicraft producers while almaciga resin is delivered to varnish producers or exporters. Gatherers have no access to market information. They rely on prices existing in the market or those

dictated by buyers. Their lack of information makes them too timid to negotiate directly with end-users. Their illiteracy makes them vulnerable to tricks made by some unscrupulous traders. Their lack of knowledge on business operation makes them stagnate as gatherers. The tenurial rights should make them managers of their own land but what prevails is that they do not have full access to extraction of resources. In this type of project, it is necessary to monitor and evaluate its progress in order to avoid any circumstances that may cause some hindrance or delays in the project work. On these aspects, the Project Monitoring and Evaluation Committee met annually to monitor, review and evaluate the technical aspect and the financial situation of the project. In all of these undertakings, the strict and skillful execution and management by the Project Leader and the Assistant Project Leader led to the smooth implementation and completion of the project.

c. Recommendations for Future Projects, regarding:

c.1 Identification

The project covers a small segment of the country's total upland forest communities. A bigger project is highly recommended in the future to cover more forest areas in the entire Philippine archipelago to augment the data and information generated by the completed project. The government should forge more linkages with other government agencies and non-government organizations so that relevant activities on the importance and socio-economic effects of harvesting NWFP which could pave the way for more employment opportunities in local and upland communities.

It is recommended that the possibility of establishing forest occupants marketing cooperatives be look into.

c.2 Design

For an efficient marketing of NWFP, it is recommended that the following factors should be addressed:

(a) Political and Institutional

The issue on tenurial rights must be addressed. Conflicts on granting of permits to indigenious over non-indigenious groups like concessionaires or permittees should be given immediate solution. The IP's who are mostly in the gathering activity could not take over the full management of their ancestral domain. This would not only prevent migration but would also help in sustainability of resources. Giving the IP's their right will make them more concerned on making the forest productive.

(b) Skills and Technology

The forest communities lack adequate skills in business operations specifically on marketing. FPRDI could intervene in terms of raw material processing i.e., preservation or treatment of NWFP. Other government institutions could also intervene by way of introducing sustainable livelihood projects. This should integrate marketing information and market research for products developed.

(c) Infrastructural Aspect

Existence of transport facilities, construction of roads, bridges and provisions for transport facilities to facilitate movement of products from source to market would help improve the economic and social well-being of the forest communities.

(d) Educational Aspect

The Department of Education, Culture and Sports (DECS) should initiate activities/programs to address the needs the educational needs of the forest dwellers. Training programs/modules for adult learning process should be designed to empower these people and believe on their capability to deal with people outside their community.

(e) Marketing

The Department of Trade and Industry (DTI) and the DENR should have the necessary baseline information/data on markets for NWFP. They should provide the linkage between markets and the source of the raw material. This would help reduce the cost of resources for the production sector as gatherers can deal directly with end-users. This would eliminate the mark-up added by intermediaries.

Product development from NWFP should be continuously done. This would help in honing the skills and creativity of the forest dwellers thus, high-end products could be developed. Since communities are also diverse, appropriate recommendations or marketing strategies can be developed to suit the needs of the concerned communities or organizations.

c.3 Implementation

The implementation strategies should be carefully work out to include the primary activities to be undertaken, planned duration of activities, the manpower requirements, their qualifications and specific duties and responsibilities in the project.

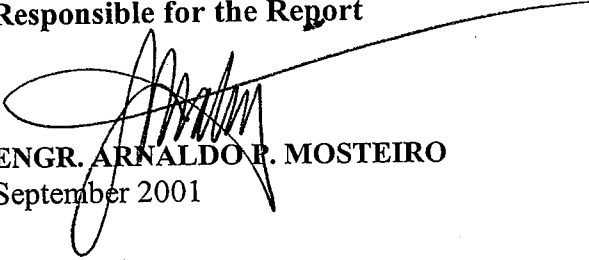
c.4 Organization

The organization and structure at least should be similar to the completed project except that the number of personnel and project cost should be varied depending on the activities and scope of work to be undertaken.

c.5 Management

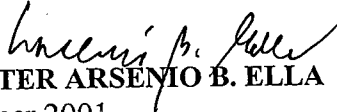
For future projects, the management process may be strengthened by incorporating new, advance and applicable management tools to further improve the efficiency and effectiveness of the project implementation.

Responsible for the Report



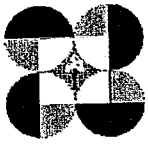
ENGR. ARNALDO P. MOSTEIRO
September 2001

*Project Leader and Scientist, SCS
FPRDI*

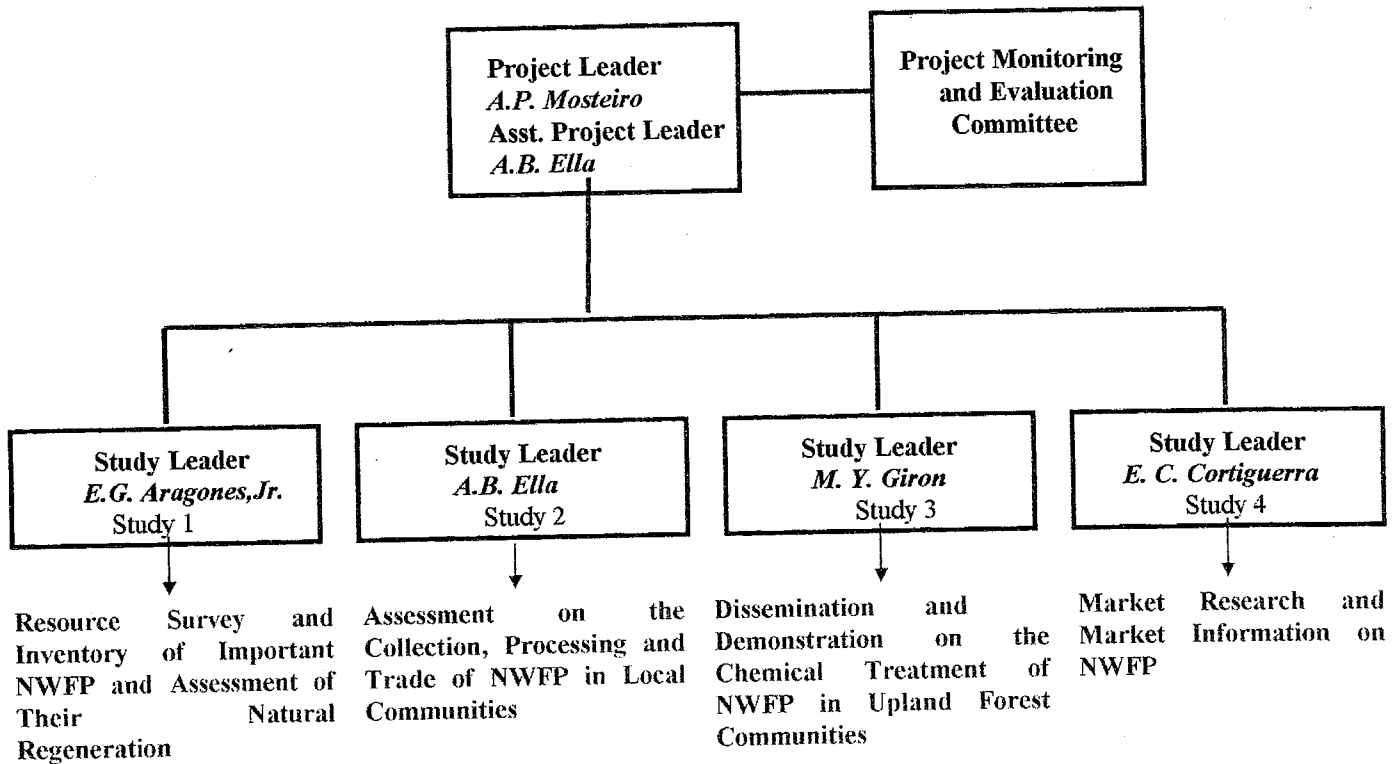


FORESTER ARSENIO B. ELLA
September 2001

*Asst. Project Leader and Supervising
Science Res. Specialist, FPRDI*



Project Management/Operation Chart



OBJECTIVES:

- 1.To determine the supply volume of rattan, bamboo, pandan, buri, anahau and forest vines in the project areas.
- 2.To evaluate through actual field observation and study including interview of NWFP collectors and users, their regenerative cycle and pattern.
- 3.To recommend sustain-yield collection practices and conservation measures for continuous supply of NWFP.
- 1.To monitor, review and analyze the past and present situation / methods of harvesting NWFP in local communities by field visit and interview.
- 2.To determine the actual needs and problems of people engaged in the collection and use of selected NWFP.
- 3.To assess the volume and income derived in trading selected NWFP.
- 4.To improve and recommend appropriate technical skills along people's expertise and collection practices of NWFP.
- 5.To present an overall impact of harvesting NWFP on the socio-economic conditions of dependent communities.
- 1.To provide / impart knowledge on the nature and cause of biological deterioration of bamboo, rattan, palms, vines and twigs.
- 2.To provide knowledge on the kinds of wood preservatives, how to handle and the methods of application.
- 3.To provide knowledge on remedial treatment of infected materials and on the safety precautions in handling, preparation and application on preservatives.
- 1.To determine the market outlets of NWFP.
- 2.To determine the marketing practices for NWFP in forest communities.
- 3.To determine the pricing structure of NWFP.
- 4.To provide information on markets, prices and strategies for marketing NWFP for forest communities.