

# **FPRDI-ITTO Project PD 448/07 Rev. 2(I)**

August 2009-January 2012

## **PROJECT TECHNICAL REPORT**

**Assessment of non-timber forest products  
production, collection and processing practices  
Los Baños, Laguna Philippines  
AUGUST 2012**

**Project Costs:** ITTO  
Philippines

**US\$ 354,672.00  
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## TABLE OF CONTENTS

Topic	Page
Summary	1
Introduction	1
Applied Methodology	2
Presentation of Data	3
Analysis and Interpretation of Data	10
<i>Seminar/trainings conducted</i>	11
<i>Assessment of the participation of women and children/ gender sensitivity in extraction and handling of NTFPs</i>	27
Conclusions	29
Recommendations	29
Implications for practice	29
Annex 1 Evaluation and assessment of the seminar/trainings conducted in 9 Community-Based Forest Management (CBFM) areas	30

## **SUMMARY**

The project has generated data and information on the availability of non-timber forest products (NTFPs) in 9 Community-Based Forest Management (CBFM) areas studied; and their suitability for handicraft production.

The seminars/trainings held on NTFPs collection, processing, utilization and marketing for handicrafts significantly affected the people's way of life by giving them livelihood at sustainable harvest level for NTFPs. The upgrading and innovative skills these farmers obtained led them to develop new products from alternative raw materials by NTFP collectors and handicraft producers. Some People's Organizations have already market of their woven products indicating of bright hope for steady income among farmers and forest dwellers in the rural communities.

Installations of mechanical equipment to press leaves of selected NTFPs prior to their weaving had already been recommended to 3 rural communities with strong support from Local Government Units (LGUs) and other cooperators.

The positive results of the project would somehow be a big boost to the growth of handicraft industry in the Philippines.

## **INTRODUCTION**

In the Philippines, non-timber forest products (NTFPs) are classified as "minor forest products". They are the principal source of fiber and valuable raw materials for handicrafts. Collection and weaving of these NTFPs into handicrafts has provided people who live within forestlands and/or community-based forest management (CBFM) areas additional sources of income.

Most of NTFPs are gathered from the forests although many plants are domesticated and grown in backyard (CBFM areas) by indigenous people, upland settlers and farmers. The collection of NTFP in the forest is regulated by the government through the issuance of licenses or permits to sustain its existence and also for ecological balance.

Production and processing of NTFPs for handicrafts like baskets, bags, mats, brooms and fancy fans has captured the local and international market. NTFPs are exported in raw form; others are utilized by gatherers themselves or sold to local processors and manufacturers. With the rapid declining number of wood-based industries and restrictive logging bans in the country, attention has shifted to maximize the utilization and development of NTFP-based industries.

Export of NTFP, particularly handicrafts and gift items and décor has increased substantially over the past 10 years. In 1999, exports of handicraft totaled US\$74.48 million. In 2000, export increased to US\$79.24 million but thereafter it receded to US\$62.96 million in 2002 and further declined to US\$56.81 million in 2005.

But since 2006 to present, there is a growing demand for finished and semi-finished products from NTFPs, e.g., baskets, bags and other handicrafts following climate change, awareness of people to environmental changes and the implementation of local ordinance on zero-plastic waste management by Local Government Units (LGUs).

The handicraft industry directly employs large numbers of people from the rural poor and indigenous people, in the collection of NTFP raw materials and the production of handicraft items. It provides direct economic benefits to many people in rural communities and indigenous groups, particularly women. However, little information is available on resource availability, extraction, regeneration, processing and marketing of NTFP used for handicrafts.

Demand for NTFP-based handicrafts had tremendously increased, thus, NTFPs collectors and handicrafts workers need to undergo technical trainings on the production, collection and processing techniques. This intends to upgrade their skills, enhance maximum production and ultimately improve the product quality.

With this situation, it is therefore important to conduct these activities in the identified CBFM areas to generate adequate data and information on the above subjects and to ensure that NTFP are utilized in a substantial manner.

## **APPLIED METHODOLOGY**

Negotiations/coordination and consultations/dialogues with partners in government agencies, e.g., the Provincial Environment and Natural Resources Offices (PENRO) and Community Environment and Natural Resources Offices (CENRO) of the Department of Environment and Natural Resources (DENR); Department of Science and Technology (DOST); Department of Trade and Industry (DTI); Local Government Units (LGUs) and target beneficiaries of the project were all identified and assign tasks depending on their capacities and capabilities.

Reconnaissance survey/ocular assessment of NTFPs growing in proposed study sites were made to all CBFM areas treated in the study. This helped determined the species identity and quantity of NTFPs found in the areas. Interviews were made to validate traditional species used for handicrafts in the area surveyed. Results of inventory works (conducted by Study 1) further helped validate NTFPs species density found in the study sites.

Pre-testing of research instruments was done to determine the effectiveness of research instruments for recipients POs and LGU members. Research instruments include interview questionnaires, powerpoint and video presentations, pamphlets, posters/papers and bulletins for the seminar/trainings.

Seminar-trainings on production, collection, processing practices of selected NTFPs, e.g. *Canarium* resin, anahaw, pandan, buri, tiger grass, rattan, hagnaya, tilob/lamon, lukmoy/amlong, white vine, red vine, nito, banot and bamban were scheduled based from the target activities of the study. POs were provided of lecture series (powerpoint presentations) and hands-on exercises (practicum).

Data collection/interviews were done with key informants and PO members in their respective areas. Informal short discussions with POs and LGUs concerned were also carried out for additional information as far as locale of project sites and communities are concerned.

Assessment of women and children/gender sensitivity and their participation in extraction and handling of NTFPs was also carried out. Gender plays major role in the collection, handling, processing and marketing activities of NTFPs based finished products.

## PRESENTATION OF DATA

Following results of project sites assessment, seven (7) CBFM areas met the criterion required as recipient of the project, viz:

### A. Quezon Province

1. Kapit-Bisig Farmers Association, Inc. (KBFAI), Sta. Catalina, Atimonan
2. Kapatirang Samahan ng mga Magsasaka ng Casispalan-Multi Purpose Cooperative (KASAMACA-MPC)
3. Luntiang Magsasaka ng Casispalan (LUMACA), Casispalan, Tagkawayan

### B. Camarines Norte

1. Caayunan Bantay Kalikasan, Inc. (CBKI), Caayunan, Basud
2. San Pascual Community-Based Resources Management, Inc. (SPCBRMI), San Pascual, Basud
3. Tuaca Environment Action Brigade, Inc. (TEABI), Tuaca, Basud
4. Tao-Kalikasan Foundation of the Philippines, Inc., Tigbinan, Labo

With strong recommendations from For. Cyril Coliflores and For. Alfredo Palencia, CENRO-Calauag and CENRO-Catanauan, respectively, 2 additional sites both in Quezon Province were added as project sites. These were Mapulot Community Resource Development Association, Inc. (MCRDAI), Mapulot, Tagkawayan, Quezon and Samahan ng Magsasaka sa Mataas na Lupa ng Bagupaye (SMMLB), Mulanay, Quezon. Therefore, a total of 9 CBFM areas completed the number of project sites, viz: 4 in Camarines Norte and 5 in Quezon (Tables 1 and 2). Figure 1 shows the location map of the study sites.

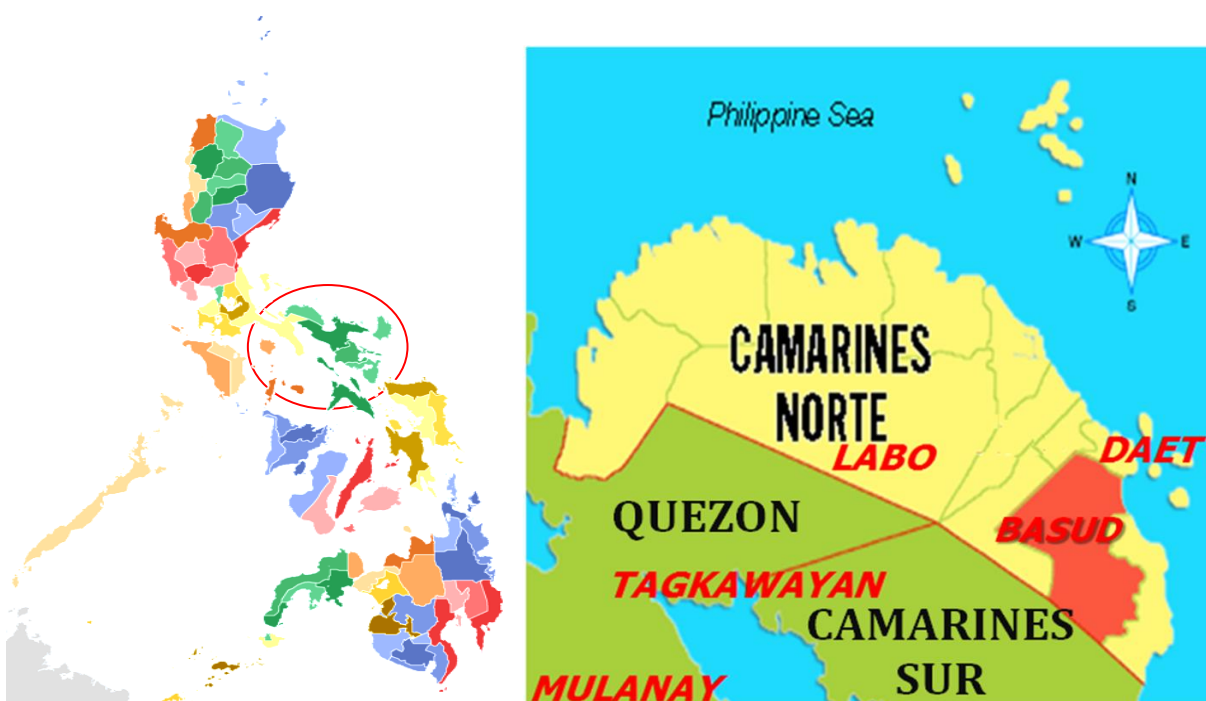


Figure 1. Map of study sites.

Table 1. Information on CBFM areas in Camarines Norte.

REGION	PROVINCE	DISTRICT	MUNICIPALITY	BARANGAY	PO NAME	AREA (ha)	# of HH
REGION V	CAMARINES NORTE	LONE	BASUD	CAAYUNAN	Caayunan, Bantay Kalikasan, Inc. (CBKI)	51.88	86
				SAN PASCUAL	San Pascual Community – Based Resources Management, Inc. (SPCBRMI)	27.99	107
				TUACA	Tuaca Environment Action Brigade, Inc. (TEABI)	45.02	143
		LABO		TIGBINAN	Tao-Kalikasan Foundation of the Philippines, Inc. (TKFPI)	2,137.75	300

Table 2. Information on CBFM areas covered in Quezon Province as project sites.

REGION	PROVINCE	DISTRICT	MUNICIPALITY	BARANGAY	PO NAME	AREA (ha)	# of HH
REGION IV	QUEZON	3 <sup>rd</sup>	MULANAY	BAGUPAYE	Samahan ng Magsasaka sa Mataas na Lupa ng Bagupaye (SMMLB)	302.12	32
		4 <sup>th</sup>	ATIMONAN	STA. CATALINA	Kapit-Bisig Farmers Association, Inc. (KBFAI)	2,207.03	125
		4 <sup>th</sup>	TAGKAWAYAN	CASISPALAN	Kapatirang Samahan ng Magsasaka ng Casispalan-Multi-Purpose Cooperative (KASAMACA-MPC)	521	42
		4 <sup>th</sup>	TAGKAWAYAN	CASISPALAN	Luntiang Magsasaka ng Casispalan (LUMACA)	465	6
		4 <sup>th</sup>	TAGKAWAYAN	MAPULOT	Mapulot Community Resources Development Association, Inc. (MCRDAI)	300	34

Table 3. Species density of NTFPs in 4 CBFM areas in Camarines Norte (based on Resource Inventory results conducted by Study 1).

Species	Scientific name	Family name	Plant habit	Plant part used	CBKI	TEABI	SPCBRMI	TKFPI	TOTAL
Anahaw	<i>Livistona rotundifolia</i> var. <i>luzonensis</i>	Arecaceae	Palm	Leaves	38	1	3	73	115
Gugo	<i>Entada phaseoloides</i> (L.) Merr.	Mimosaceae	Vine	Stem	1313	-	95	70	1478
Hagnaya	<i>Stenochlaena palustris</i> (Burm. f.) Bedd.	Blechnaceae	Vine	Root	-	1053	268 2	618	4353
Kamagsa	<i>Agelaea borneensis</i> (Hook. f.) Merr.	Connaraceae	Vine	Stem	323	150	378	637	1488
Katmon-baging/ Takinis	<i>Tetracera scandens</i> (L.) Merr.	Dilleniaceae	Vine	Stem	-	12	123	231	366
Lamon	<i>Dicranopteris linearis</i> (Burm. f.) Underw.	Gleicheniaceae	Vine	Stem	2284	11	814	22	3131
Nito	<i>Lygodium circinatum</i> (Burm.) Bedd.	Schizaeaceae	Vine	Stem	4298	1949	2525	1487	10259
Pandan	<i>Pandanus</i> sp.	Pandanaceae	Shrub	Leaves	4	28	1	37	70
Rattan	<i>Calamus ornatus</i> sp.	Arecaceae	Palm	Stem	-	8	189	544	741
Red vine	<i>Freycinetia</i> sp.	Pandanaceae	Vine	Stem	22	-	142	101	265

Table 4. Species density of NTFPs in 3 CBFM areas in Quezon Province (based on Resource Inventory results conducted by Study 1).

Species	Scientific name	Family name	Plant habit	Plant part used	KBFAI	KASAMACA	LUMACA	TOTAL
Anahaw	<i>Livistona rotundifolia</i> var. <i>luzonensis</i>	Arecaceae	palm	Leaves	101	-	10	111
Baling-uai	<i>Flagellaria indica</i> L.	Flagellaricaece	vine	Stem	77	39	35	151
Bamban	<i>Donax cannaeformis</i> (G. Forster) K. Schum.	Marantaceae	herb	Stem	296	-	385	681
Kamagsa	<i>Agelaea borneensis</i> (Hook. f.) Merr.	Connaraceae	vine	Stem	90	111	12	213
Lamon	<i>Dicranopteris linearis</i> (Burm. f.) Underw.	Gleicheniaceae	vine	Stem	242	25	40	307
Limuran/ Kalapi	<i>Calamus ornatus</i> var. <i>philippinensis</i>	Arecaceae	palm	Stem	27	13	24	64
Nito	<i>Lygodium circinatum</i> (Burm.) Bedd.	Schizaeaceae	vine	Stem	75	113	92	280
Palasan	<i>Calamus merrillii</i>	Arecaceae	palm	Stem	9	37	29	75
Tumalim	<i>Calamus mindorensis</i> K. Larsen & S. S. Larsen	Arecaceae	palm	Stem	1	14	16	31
Red vine	<i>Freycinetia</i> sp.	Pandanaceae	vine	Stem	-	391	26	417



Table 5. List of seminar/trainings conducted for each of the CBFM areas treated in the Study.

Name of POs	Commodity (NTFP)/other related trainings conducted with number of participants													
	Manila elemi resin		Tiger grass		Pandan		Anahaw		Buri		Harvesting, handling, materials preparation and processing of NTFP raw materials		Preservative and prophylactic treatments	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
A. Camarines Norte														
1.Caayunan Bantay Kalikasasn Inc. (CBKI), Caayunan, Basud	3	11	3	11	12	11	5	12	3	11	11	3	11	3
2.San Pascual Community-Based Resources Management, Inc. (SPCBRMI), San Pascual, Basud	16	21	16	21	4	33	5	19	16	21	7	9	7	9
3.Tuaca Environment Action Brigade, Inc. (TEABI), Tuaca, Basud	8	19	8	19	16	24	5	14	8	19	11	1	11	1
B. Quezon														
1.Kapatirang Samahan ng Magsasaka ng Casispalan-Multi-Purpose Cooperative (KASAMACA-MPC), Casispalan, Tagkawayan	10	6			5	25	1	17			2	11		
2.Luntiang Magsasaka ng Casispalan (LUMACA), Casispalan, Tagkawayan														
3.Kapit-Bisig Farmers Association, Inc. (KBFAI), Sta. Catalina, Atimonan	4	9	4	9	4	20	4	9	4	9	2	11		
4.Mapulot Community Resources Development Association, Inc. (MCRDAI), Mapulot, Tagkawayan	5	29	10	12	5	29	3	10	5	29	1	17		
5.Samahan ng Magsasaka sa Mataas na Lupa ng Bagupaye (SMMLB), Bagupaye, Mulanay	13	18	5	5			13	18	13	18				

M – male

F – female

Table 6. Top and selected NTFPs collected and processed into handicrafts for all the CBFM areas studied.

NTFPs	Products	Prevailing prices/unit	Product disposed/ month/family	Income derived/ month	System of trading	Means of transportation	Frequency of collection
Anahaw	Anahaw fans	P7.00 (US\$0.16)/pc	100 pcs	P700.00 (UD\$15.6)	Contract basis	By jeep (pick-up)	As order comes
Hagnaya	Picnic basket	P250.00 (US\$5.56)/pc	1 pc	P250.00 (US\$5.56)	Contract basis	By jeep (pick-up)	As order comes
Lamon	Raw materials	P150.00 (US\$3.33) /bundle	5 bundles	P750.00 (US\$16.67)	Contract basis	By foot from cutting site to pick-up site	As order comes
	Baskets	P75.00 (US\$1.67)/pc	7 pcs	P1,500.00 (US\$33.33)		By jeep to market site as pick up by traders	
	Plates	P15.00 (US\$0.33)/pc	24 pcs	P360.00 (US\$8.00)			
	Fruit tray	P150.00 (US\$3.33)/pc	2 pcs	P300.00 (US\$6.67)			
Nito	Plates	P8.00 (US\$0.18)/pc	10 pcs	P80.00 (US\$1.78)	Contract basis	By jeep to market site as pick up by traders	As order comes
Rattan	Baskets	P200.00 (US\$4.44)/pc	5 pcs	P1,000.00 (US\$22.22)	Contract basis	By jeep (pick up)	As order comes
Pandan	Baskets	Medium-P40.00 (US\$0.89)/pc	8 pcs	P320.00 (US\$7.11)	Contract basis	By jeep (pick-up)	As order comes
		Small-P20.00	11 pcs	P220.00			

	Mat	(US\$0.44)/pc P250.00 (US\$5.56)/pc	4 pcs	(US\$4.89) P1,000.00 (US\$22.22)			
	Vase	P45.00 (US\$1.00)/pc	3 pcs	P135.00 (US\$3.00)	Contract basis	By jeep (pick-up)	As order comes
	Hanging planters	P75.00 (US\$1.67)/pc	4 pcs	P300.00 (US\$6.67)			
Tiger grass	Raw material	P50.00 (US\$1.11) /bundle	100 bundles	P5,000.00 (US\$111.11)	Contract basis	By foot from cutting site to pick-up site	Seasonal (once a year)
	Walis tambo	P150.00 (US\$3.33)/pc	42 pcs	P6,300.00 (US\$140.00)		By jeep (pick-up)	As order comes

(US\$1.00 = P45.00)

## ANALYSIS AND INTERPRETATION OF DATA

Table 6 shows that among NTFPs found and collected in the CBFM areas studied, the following were processed and found with high potential for handicrafts: Anahaw, lamon, nito, rattan, pandan, anahaw and tiger grass for “walis tambo or broom making”. For basketries a family averages an income of P1,000/month (US\$22.22) following contract basis as their system of trading; while the mode of transporting their finished products are either by foot from cutting site to pick-up site or by jeep hiring to market site for traders to collect. The frequencies of collection are as order comes.

### *Evaluation of NTFPs processing techniques employed by handicraft people.*

Past and present practices in the production, collection and processing of selected NTFPs found in the areas surveyed were evaluated. People were mostly engaged in buri (Figure 2), \*pandan (Figure 3), tiger grass (Figure 4), and anahaw (Figure 5) harvesting, production and processing. An “iluhan”, a very important traditional knowledge/practice (fiber flattening) is necessary tool to weave pandan and other NTFPs into handicrafts. Iluhan is a mechanical tool to flatten pandan leaves especially at time when orders for pandan handicrafts are plentiful. Drying and processing of selected NTFPs were also photo-documented. People followed traditional and manual methods in the preparations of raw materials. Gatherers of these NTFPs were also interviewed.



Figure 2. Processing techniques of buri as raw material for handicrafts.





Figure 3. Processing techniques of pandan as raw material for handicrafts.



Figure 4. Processing techniques of tiger grass as raw material for handicrafts.



Figure 5. Processing techniques of anahaw as raw material for handicrafts.

### ***Seminar/trainings conducted.***

Seminar/trainings on production, collection and processing practices of selected NTFPs were conducted to all CBFM areas covered in the project.

- 1) Seminar/trainings on improved tapping of Philippine *Canarium* trees for Manila elemi were conducted in KASAMACA-MPC and LUMACA (Figure 6); SPCBRMI (Figure 7); TEABI (Figure 8); CBKI (Figure 9); SMMLB (Figure 10); and MCRDAI (Figure 11).





Figure 6. KASAMACA-MPC and LUMACA members during the seminar-training on improved tapping of Philippine *Canarium* trees for Manila elemi.



Figure 7. SPCBRMI people during the seminar-training on improved tapping of Philippine *Canarium* trees for Manila elemi.





Figure 8. TEABI people during the seminar-training on improved tapping of Philippine *Canarium* trees for Manila elemi.



Figure 9. CBKI people during the seminar-training on improved tapping of Philippine *Canarium* trees for Manila elemi.





Figure 10. SMMLB people in the seminar-training on improved tapping of Philippine *Canarium* trees for Manila elemi.



Figure 11. MCRDAI people during the seminar-training on improved tapping of Philippine *Canarium* trees for Manila elemi.



- 2) Seminar-trainings on harvesting, processing, basic weaving skills, advanced and modern techniques of pandan weaving were introduced to MCRDAI (Figure 12), TEABI (Figure 13), KASAMACA-MPC and LUMACA (Figure 14), CBKI (Figure 15), SPCBRMI (Figure 16) and KBFAI (Figure 17).



Figure 12. Seminar-training on harvesting, processing, basic weaving skills, advanced and modern techniques of pandan weaving in MCRDAI.



Figure 13. Seminar-training on harvesting, processing, basic weaving skills, advanced and modern techniques of pandan weaving in TEABI.





Figure 14. Seminar-training on harvesting, processing, basic weaving skills, advanced and modern techniques of pandan weaving in LUMACA & KASAMACA-MPC.



Figure 15. Seminar-training on harvesting, processing, basic weaving skills, advanced and modern techniques of pandan weaving in CBKI.





Figure 16. Seminar-training on harvesting, processing, basic weaving skills, advanced and modern techniques of pandan weaving in SPCBRMI.



Figure 17. Seminar-training on harvesting, processing, basic weaving skills, advanced and modern techniques of pandan weaving in KBFAI.

The participants showed their enthusiasm by participating actively in the discussion and hands-on exercises. LGUs were very supportive in these endeavor/activities. They are optimistic that this would become their other source of livelihood in their communities.

Most of the participants signified that they have already knowledge in basic weaving skills of pandan but limited only to “banig”-making/weaving. They were taught on proper methods of harvesting, handling and processing especially on the aspect of flattening pandan leaves using the “iluhan”. After which, basic weaving skills, advanced and modern weaving techniques of pandan leaves into handicrafts, e.g., bags, baskets, decorative items and other souvenir products followed. Further, they were introduced into different skills and designs to weave pandan leaves into simple and sophisticated bags.

- 3) Seminar/trainings on production, collection and processing techniques of tiger grass for handicrafts were conducted in MCRDAI (Figure 18), SMMLB (Figure 19) and KBFAI (Figure 20).

Though some are neophytes in this field, participants showed great interest in the seminar/training. They were found patient in handling and preparation of materials and more importantly in fixing tiger grass into finished products.

With our highly competent trainor from Camarines Norte, participants had painstakingly acquired the necessary skills in making “walis tambo” amidst limited time and resources. Further, participants showed much interest on the propagation of the species. In this regard, plantation techniques and maintenance had also been included in the lecture series and in the practicum. Starting planting materials were distributed to selected participants for their initial plantation. This will serve as their possible sources of raw materials for their “walis tambo” income-generating activity in the future.



Figure 18. Members of SMMLB in action.





Figure 19. MCRDAI people following the seminar/training on tiger grass.



Figure 20. KBFAI members trying their best in fixing tiger grass into “walis tambo”.

In Atimonan, KBFAI members echoed that the reason why they came in for the seminar/training was primarily to learn more about proper handling of tiger grass as raw materials. Some revealed that they were interested in the manual sewing of panicles for sturdy “walis tambo”. Added to this was their enthusiasm to propagate tiger grass into massive plantations. Participants were also found to be fast learners. At the end, they showed that they have learned much about proper and accurate methods of manual sewing of tiger grass panicles into quality brooms.

Correct way of detaching tiger grass flowers was likewise included in the hands-on part of the seminar/training. Further, the systematic way of fixing bundles of tiger grass panicles using improvised needles and plastic rattan was also introduced to the participants.

- 4) Seminar/trainings on harvesting, processing, propagation of materials, basic weaving skills, bleaching and dyeing of anahaw for fancy fans and handicrafts were conducted in SPCBRMI (Figure 21), CBKI (Figure 22), MCRDAI (Figure 23), TEABI (Figure 24), KASAMACA-MPC and LUMACA (Figure 25).

The trainer/expert on anahaw gave lectures and demonstrations on harvesting, handling and processing of anahaw leaves before going into actual weaving, hands-on and practicum. Participants were introduced into the correct way of extracting, separating and stripping leaf sheaths of anahaw leaves from midribs manually. They found it tough and complicated to weave anahaw leaves into fancy fans compared to weaving pandan leaves, rattan and vines into handicrafts. At the end of the day participants were able to weave at least 1 anahaw fan each.

Proper dyeing at the right time and correct color combinations was further taught to produce quality and attractive colored fans.



Figure 21. Seminar/training on harvesting, processing, propagation of materials, basic weaving skills, bleaching and dyeing of anahaw for fans and handicrafts in SPCBRMI.





Figure 22. The CBKI members in action during the seminar/training.



Figure 23. The people of MCRDAI trying their acquired skills in weaving anahaw for fans and handicrafts.





Figure 24. The people of MCRDAI trying their acquired skills in weaving anahaw for fans and handicrafts.



Figure 25. The people of KASAMACA-MPC and LUMACA trying their acquired skills in weaving anahaw for fans and handicrafts.



- 5) Seminar/trainings on harvesting, material preparations, processing and treatment of selected non-timber forest products, e.g., rattan, nito, hagnaya, tilob, bamban, etc. in TEABI (Figure 26), CBKI (Figure 27), SPCBRMI (Figure 28), KBFAI (Figure 29), MCRDAI (Figure 30), KASAMACA-MPC and LUMACA (Figure 31).

Our trainer/expert on harvesting, handling, materials preparation and processing of selected NTFPs as raw materials for handicrafts gave lectures on the subject matter. He was once engaged in weaving handicrafts from rattan and woody vines. He comes from Tigbinan, Labo, Camarines Norte and also a member of people's organization in the area. Participants were introduced into the correct way of extracting, cleaning and stripping of selected NTFPs from its sources (ground/air) manually. Materials were all provided by the trainer himself for demonstration purposes.

Most of the participants have already basic skills, knowledge and experiences on harvesting NTFP, e.g., rattan and vines, hence, find the training program easy and comfortable. They easily learned the correct and proper methods of harvesting, handling, materials preparation and processing of NTFPs for handicrafts making. Indigenous and traditional knowledge in gathering NTFPs were also shared by the trainer to the participants. Pricing, sizing and grading of raw materials for handicrafts were further provided and discussed in the lectures.



Figure 26. Seminar/training on harvesting, material preparations and processing of selected non-timber forest products, e.g., rattan, nito, hagnaya, tilob, bamban, etc. in TEABI.



Figure 27. Seminar/training on harvesting, material preparations and processing of selected non-timber forest products, e.g., rattan, nito, hagnaya, tilob, bamban, etc. in CBKI.



Figure 28. Seminar/training on harvesting, material preparations and processing of selected non-timber forest products, e.g., rattan, nito, hagnaya, tilob, bamban, etc. in SPCBRMI.





Figure 29. Seminar/training on harvesting, material preparations and processing of selected non-timber forest products, e.g., rattan, nito, hagnaya, tilob, bamban, etc. in KBAI.



Figure 30. Seminar/training on harvesting, material preparations and processing of selected non-timber forest products, e.g., rattan, nito, hagnaya, tilob, bamban, etc. in MCRDAI.





Figure 31. Seminar/training on harvesting, material preparations and processing of selected non-timber forest products, e.g., rattan, nito, hagnaya, tilob, bamban, etc. in KASAMACA-MPC and LUMACA.

- 6) Seminar/training on treatment of selected non-timber forest products in 3 CBFM areas in Camarines Norte (Figure 32).



Figure 32. Lectures, demonstrations and hands-on exercises on biodeterioration/prophylactic treatment of selected NTFPs.



Our trainer/lecturer is an expert in handling and application of preservatives and prophylactic treatment of NTFPs. He demonstrated the proper handling of chemicals and preservatives to increase serviceability and quality of raw materials for handicrafts and other finished products. The lecture series include nature and causes of biodeterioration; signs and symptoms of insect and fungal attack; methods of treatment application; proper handling and application of chemicals; handling of treated materials; impact of preservations; and health and safety measures in handling chemicals and preservatives.

*Assessment of the participation of women and children/gender sensitivity in extraction and handling of NTFPs.*

Participation of women and children in different activities of the study was assessed. In general, NTFPs collection is a male-dominated activity with the women and children participation only in the materials preparation especially in weaving and marketing of finished handicrafts (Figure 33).



Figure 33. Participation of women and children in the collection, processing and utilization of some NTFPs.

Some seminar/trainings were not implemented neither followed its original plans and schedules. Most officers of POs in different treated CBFM areas could not cop up with our schedule. Moreover, in some cases, participants came in handy, a far cry from the expected number of trainees/participants in the seminar/training. These were experienced inspite of advanced notices and reminders, e.g., written and oral communications, texting and word of mouth we sent through concerned LGU officials and POs officers.

The seminar/trainings gave PO members basic information on proper methods of collection, production and processing of selected NTFPs. Participants acquired new techniques, skills and proper methods of handling, utilization and processing of NTFPs thus, ensure sustainability of NTFPs in the area. The people's interests with regard to NTFPs collection, processing and utilization were evident in their active participation in the lectures and practicum/hands-on activities.

No major problems were encountered as far as operations of the study. Activities were smoothly implemented following the lined-up of activities stipulated in the project proposal. The responsibilities of cooperators were well-defined. Evaluation, assessment and seminar/trainings were all conducted in 9 CBFM areas treated in the study.

For all the communities studied, traditional extraction/harvesting of NTFPs still exist hence, unregulated which leads to environmental degradation. The people lack with technical skills/knowledge in collection, production and processing of NTFPs into finished products.

The sustainability of the project depends on demand for NTFPs, as raw materials for handicrafts. It is necessary therefore, that LGUs should support the undertakings of POs since they are now equipped with necessary skills. Assistance to POs in marketing their raw materials and finished products should be provided by cooperating agencies especially LGUs. This will ensure the sustainability of handicraft industries in CBFM areas treated.

### **Problems encountered by farmers engaged in NTFPs for handicrafts**

- Marketing of collected NTFPs and finished products.
- Unavailability of appropriate equipment and tools, e.g., “iluhan” for pandan leaves weavers.
- Insufficient knowledge on the application of preservative/ prophylactic treatment for NTFPs to prevent insect and fungal attacks.
- Absence of knowledge on dyeing/bleaching of raw materials for handicrafts.
- Workmanship of handicrafts especially vine crafts produced need further improvement.
- Design innovations are wanting.
- Limited knowledge on correct practices of harvesting NTFPs especially woody vines; some people still resorted to follow rituals/traditional knowledge while others embraces superstitious beliefs in collecting NTFPs thus, hampers the effective execution of project's activities.

## CONCLUSIONS

- The project offers positive impacts to communities especially on sustainability production of NTFPs found in the area.
- Some POs have already market of their finished woven NTFPs handicrafts. For instance, the Mapulot Community Resources Development Association, Inc. (MCRDAI) based in Mapulot, Tagkawayan, regularly bring their produced handicrafts in “tiangge” (open-market) sessions which holds every Wednesday and Saturday in Tagkawayan proper. Other products are collected and transported by entrepreneurs to Metro Manila and neighboring Lucena City, the provincial capital of the province of Quezon.
- The benefits of holding seminar/trainings on NTFPs collection with prophylactic treatment and processing can improve people’s methods of optimizing the use of these materials.
- Scientific tapping techniques of *Canarium* trees for resin yield has provided the potential resin tappers in the CBFM areas with the information on conserving pili trees and sustaining resin production. Further, the procedure prolongs the tree’s life and sustains resin production.
- For all the CBFM areas studied, NTFPs gathering is a male-dominated activity with the women participating only in the processing, weaving and marketing of woven products.

## RECOMMENDATIONS

- An “iluhan” for pandan leaves should be installed in Caayunan and San Pascual, Basud, Camarines Norte for people’s easy access to handicrafts and related products using pandan leaves.
- Seminar/trainings on dyeing/bleaching of raw materials for handicrafts should be carried out.
- Market surveys should be initiated to determine which of these NTFPs have strong market potential.
- An impact assessment of various trainings/technologies imparted to 9 POs in Camarines Norte and Quezon should be conducted.

## Implications for practice

The project has generated data and information on the availability of NTFPs in CBFM areas studied, and their suitability for handicrafts production.

The seminars and trainings conducted on NTFPs collection, utilization, processing, and marketing used for handicrafts have significantly affected the lifestyle of people living in the local communities like the CBFM areas. The upgrading and innovative skills they got to develop new products from alternative materials by NTFP collectors and handicraft producers/workers would truly strengthen the production and export capabilities of handicraft industry and the development of rural communities in the country. At the end, the project brought bright results to the community and people by giving them livelihood thus promoting the sustainable collection, utilization and marketing of selected NTFPs.

### **Evaluation and assessment of the seminar/trainings conducted in 9 Community-Based Forest Management (CBFM) areas**

The study indicated that seminar/trainings conducted on harvesting, processing and utilization of NTFPs gained support from the communities, e.g., farmers and forest settlers in 9 treated CBFM areas.

Impact of extracting NTFPs on socio-economic and everyday living of people are indeed important findings of the study, viz.: upliftment of socio-economic standard of the people in such a way that harvesting/processing of NTFPs resulted to reduction of slash-and-burn agriculture activities and illegal harvesting of forest products due to employment opportunities among people.

Seminar/trainings on proper and scientific method of *Canarium* resin tapping showed positive impact among resin tappers. Assessment and monitoring activities of study sites showed that people are now more adept to follow the correct methods of resin tapping, i.e., not inflicting the cambium in the course of tapping/collecting the resins, application of polyethylene sheet to serve as receptacle for resins and correct rechipping. With these new practices, farmers are vocal to say that aside from increasing resin yield, clean and quality resins are produced, thus, high prices of resins and more income are generated.

Farmers in San Pascual, Tuaca and Caayunan in Camarines Norte; and Mapulot and Casispalan in Quezon, representing their respective CBFM areas revealed their impressions of the trainings. These CBFM areas are known to be the source of erect palms specifically anahaw (*Livistona rotundifolia* var. *luzonensis*). People displayed the positive impact of the training, e.g., sustainable system of collecting raw materials like anahaw for processing into fancy fans and other decorative items. Farmers are now adopting the ideal frequency of collecting young shoots of anahaw leaves once a week for processing into desired end-products to enhance sustainability of raw materials.

On the other hand, rattan gatherers revealed that they are now following corresponding norms in harvesting rattan (*Calamus* sp.), e.g., cutting only mature canes (at least 20 meters in length). In other words, the seminars have reduced gradually the people's wanton trip of harvesting and cutting immature rattans.

People in 9 CBFM areas have limited knowledge on correct practices of harvesting NTFPs especially woody vines. Some still resorted to follow rituals, old beliefs and practices and traditional knowledge in their extraction. Others still embrace superstitious beliefs to collect them, thus, hampers the optimum collection of NTFPs like vines, e.g., nito (*Lygodium circinatum* (Burm.) Bedd.), hagnaya (*Stenochlaena palustris* (Burm. f.) Bedd.), tilob/lamon (*Dicranopteris linearis* (Burm. f.) Underw.), red vine (*Freycinetia* sp.), bamban (*Donax cannaeformis* (G. Forster) K. Schum.), etc. However, conduct of seminar/trainings on proper methods of harvesting them for handicrafts have immersed into their minds the reality of harvesting woody vines at sustained production.



For CBFM areas with plentiful of pandan (*Pandanus* sp.), like (Sta. Catalina and Casispalan, Quezon; and San Pascual, Tuaca and Caayunan, Camarines Norte), the people clamored for installation of traditional “iluhan”, a fiber flattening equipment to flatten pandan leaves necessary especially at time when orders for pandan handicrafts are at peak. This issue had already been elevated to Local Government Units (LGUs) and other cooperators of the project, viz.: Department of Environment and Natural Resources (DENR), Department of Science and Technology (DOST) and Department of Trade and Industry (DTI). As a whole the people were satisfied of the training carried out since their skills in weaving pandan were upgraded and further improved the quality of their products, e.g., incorporating new designs, application of dye and proper color combinations.

Both the Mapulot Community Resources Development Association, Inc. (MCRDAI) and Kapit-Bisig Farmers Association, Inc. (KBFAI) members mentioned that seminar/trainings on tiger grass (*Thysanolaena maxima* Kuntze syn. *T. latifolia* (Hornem) Honda) harvesting and utilization have strong impacts in their daily activities. Tiger grass are in huge plantations in the areas but not properly handled, maintained and utilized at the maximum level. Through these trainings, the people learned on proper handling, harvesting, drying and preserving of raw materials prior to weaving into local “walis tambo” or brooms. Proper and accurate methods of manual sewing of tiger grass panicles into sturdy finished products and quality brooms was among the technologies gained from the seminar/trainings.

Knowing the correct way of detaching tiger grass flowers from panicles was further appreciated by participants. The most interesting parts of the training was the systematic way of fixing bundles of tiger grass panicles using improvised needles and plastic rattan. However, name tagging of finished “walis tambo” coupled with decorative designs using assorted colored plastic rattans has captured most the interest of people in the seminar/trainings.

Participants in the training also showed their interest on massive plantations of the species. Starting planting materials courtesy of LGUs were therefore distributed to interested parties for venture of initial plantations in their respective CBFM areas.

Adoption of the technology on proper harvesting of NTFPs through seminar/trainings generated livelihood and employment and increase income of local people. The different technologies were instrumental to educate and appreciate environment-awareness among CBFM members. This would somehow minimizes the unscrupulous crude and unsustainable system of collecting NTFPs, hence, helps in the forest conservation program of the government.

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