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Abaca *(Musa textiles)* Sub-sector Assessment to Scale-up Biodiversity Initiatives

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Abstract

The abaca subsector analysis facilitates the scaling up and development of biodiversity-friendly enterprise (BDFE) in Mondragon, Northern Samar, Philippines. It identified the growth opportunities within the subsector and realized their links to the overall system within which the subsector functions. The subsector includes all producers and traders engaged in abaca fiber production, marketing, and distribution. This analysis also reviews the policy and institutional environment supporting the subsector and offers a framework for rapidly evaluating BDFEs dynamics and the prospects for cost-effective interventions which can have the most widespread impact on small abaca producers in the subsector. It forms an integral part of the planned expansion by the Centralized Farmers Association (CEFA) which benefitted from funding through the UNDP Global Environmental Fund Small Grants Programme-7.

Keywords: subsector assessment, BDFE, abaca production, market dynamics.

1. Introduction

This study is a systems approach to analyze the economic activity of the abaca sub-sector in Northern Samar, Philippines. It offers a tool that can aid in the development of social enterprises focused on the BDFEs; identifying the growth opportunities within the abaca subsector and understanding their links to the overall system within which the sub-sector functions.

Abaca (*Musa textiles)* is a sub-sector offering important growth opportunities for small farmers that were analyzed as part of this expansion. It has identified sub-sector dynamics, and constraints, highlighting the implications, and provide a strategic focus on how it can best support the growth of BDFEs and farmers within the sub-sector. A sub-sector is delineated by a particular final product and includes all abaca producers engaged in raw material supply, production, and distribution of the product. It also reviews the policy and institutional environment supporting a sub-sector and offers a framework for rapidly evaluating the BDFE dynamics and the prospects for cost-effective interventions which can have the most widespread impact on small abaca farmers in the sub-sector.

2. Methodology

Subsector assessment used an iterative approach where the content of the discussion was adapted throughout the study. Learning from initial discussion sessions is used to influence the inputs for subsequent interviews. The subsector assessment was conducted over five months beginning October 2019 to April 2020. The study presented the following questions: *Who are the key abaca players in the industry? What channels exist and which ones are growing faster? What is helping or impeding the abaca growth in Northern Samar or the region? Where do opportunities exist for future growth and expansion of the industry?*

The fieldwork component of the study was conducted using qualitative research techniques, i.e. Key Informant Interview (KII) and a series of consultations. The KII was used for collecting data on individuals' perspectives, and experiences, including quantitative data to generate a broad overview of issues that matter to the Abaca association. The data on the constraints and interventions were further elaborated based on the responses during the KII and taking views from the perspectives of third-party observation (i.e. the PhilFIDA, DTI, DENR, NGAs, academe, and LGU); secondary data on the experiences of other major abaca-producing areas in the Philippines.

2.1 Data Analysis

The study made use of descriptive or qualitative analysis. The data was summarized in a meaningful way to show patterns that might emerge from the data; analyzed to detect common responses and interpreted together to determine trends and tendencies in the answers of the respondents using descriptive statistics. Triangulation was likewise employed to compare data using different methodologies that will converge, resulting in answers that reinforced each variable to ensure reliability and validity of data. Statistical tables summarized the data using frequency counts, averages, and percentages allowing the reader to quickly see the results.

2.3 The Respondents

Around 150 abaca farmers (sex-disaggregated) were asked from covered barangays in Mondragon, Northern Samar. A guide questionnaire was used detailing the farm activities, duration (man-days/hours involved), quantity and type of inputs used, cost of production, number of years in farming, farm size, other crops planted, membership in organizations, reasons for adopting the farming method and barriers to entry in the sub-sector: *what works and what did not*. The information gathered was aggregated, triangulated, validated, and analyzed. It looked at the main actors and their role in the value chain, implementation issues, constraints, opportunities, and institutional support. To substantiate the data from the series of consultations and KII, secondary data and information were collected from relevant agencies such as PhilFIDA, PSA, provincial government, traders, and LGU.

2.4 Significance of the Study

This paper provided a frame of reference for policymakers, decision-makers, potential funders, and other interested groups. For project beneficiaries this provided the tools for the development of social enterprises focused on biodiversity-friendly enterprises; identifying growth opportunities within the abaca sub-sector and defining their links to the overall system within which the sub-sector functions.

RESULTS AND DISCUSSION

3. Philippine Abaca Industry in Context

The Philippine abaca industry is centuries old that is widely cultivated and utilized by early Filipinos for textiles. Antonio Pigafetta (https://philippinediaryproject.com) wrote that natives of the archipelago were wearing clothing made from abaca (1521). The Spaniards used abaca fiber to make ropes for ships of the Galleon Trade (1565-1815). During the American regime, abaca fiber is one of the most important Philippine export items until World War II (US, UK, and Japan as the biggest importers). In 1904, abaca fiber comprised 72% of total Philippines export generators. In 1914, the Philippine Legislature passed Republic Act No. 2380 mandating inspection, grading, and baling of abaca and other fibers (i.e. four classes: excellent, good, fair, and coarse; with 21 grades of definite description). Long before the Bicol region, Samar Island, and Leyte remains the major producers of abaca fiber during WWI.

3.1 Industry Decline & Resurgence

After WW II, abaca fiber trading in the Philippines involved several middlemen. With the numerous involvement of middlemen, the farmers end up receiving only 25% to 50% of the buying price. Commercial use of plastic, nylon, and other synthetics for cordage in the Philippines after the war has greatly reduced the market for abaca fiber. This was worsened by the Philippine abaca industry which almost collapsed in the 1960s to 1980s due to the following: i) low production (i.e. an average of 0.60 MT per ha. 1982), ii) low and unstable prices of abaca fiber, iii) poor farming practices (i.e. farmers used unidentified and low-yielding varieties which resulted in the decline of production by 8,000 MT in 1982), iv) lack of farmers' capital, (v) incidence of pest and diseases, the occurrence of natural calamities (i.e. typhoons), and lack of production inputs and drying facilities.

On May 29, 2013, PhilFIDA promoted the growth and development of the natural fiber industry through research and development, production support, fiber processing and utilization, standards implementation, and trade regulation.

Complementing PhilFIDA, the National Abaca Research Center (NARC) at the Visayas State University (VSU) in Leyte helped uplift the abaca industry. The development of local businesses that process abaca raw materials in the Philippines saved the industry from collapsing. Currently, a whole range of abaca products is being produced such as specialty papers, cordage products, handwoven fabrics, and fiber crafts. The biggest exporters of Philippine abaca products, particularly pulp—the raw material used to make paper—accounted for the bulk of abaca exports to Germany and other European countries, Japan, and the US as well.

The Philippines still dominates the abaca world market, supplying about 87.5% of the total world demand. PhilFIDA reports that due to the increasing demand of local industries, and limited abaca fiber production the current demand deficit for abaca fiber in the country is 59,000 MT annually. This is primarily attributed to increasing local and international demand for abaca products, and low abaca fiber production.

To rehabilitate the abaca industry, the PhilFIDA introduced mass production of *laylay* and *Inosa* varieties, as well as providing disease-resistant breeds and capability building for farmers to further establish and manage nurseries for tissue-cultured plantlets.

3.2 Trends, Opportunities, & Challenges

Rehabilitation of existing abaca farms will also be carried out. PhilFIDA targets to concentrate the expansion of production areas in Bicol and Eastern Visayas under the PAR. Existing abaca farms in Bicol (89,558 ha,) and Eastern Visayas (19,214 ha.) are also set for rehabilitation. PhilFIDA developed an Abaca Sustainability Manual (ASM) to provide a guide in the implementation of the roadmap. An upward path in prices of abaca fiber of all classifications was observed in the last 27 years. Renewed importance to abaca was promoted by the United Nations (UN) when it declared 2009 as the UN International Year of Natural Fibres which promoted natural fiber as an environmentally-friendly product. With the whole world “going green”, the art and fashion industry is recently embracing the use of abaca fiber.

In 2008, it is estimated that 1.5 million Filipinos (90 thousand are assumed as farmers) are employed by the abaca industry. Today, the estimated number of abaca farmers nationwide is about 128,958 who are into abaca production.

3.1. Eastern Visayas Abaca Industry

Eastern Visayas was the top abaca-producing region from 1993 to 2010. Its abaca production peaked at 30,174 MT in 2000 while the lowest was recorded in 2016 at 12,493 MT. Abaca production in the region started to descend in 2005 due primarily to the occurrence of disease infestation; declined further by super typhoon Haiyan in 2013 which ravaged the province of Leyte.

Abaca fiber production in the region was previously dominated by Leyte and Southern Leyte, coming in next is Northern Samar. However, Abaca Bunchy-Top Virus (ABTV) infestation severely affected abaca farms in Leyte and Southern Leyte starting in 2002. As a result, 80% of abaca fiber production in said provinces fell. Northern Samar took the lead in the region in terms of share in abaca fiber production starting in 2011. Overall, in 2017 Eastern Visayas produced 12,671 MT of abaca fiber. Northern Samar has the highest share of the regional production at 57%, followed by Southern Leyte (19%), then Leyte (13%), and Western Samar (11%). In 2017, Eastern Visayas had a total of 30,698 ha. of abaca plantation. Northern Samar had the largest share of planted areas at 39%, followed by Leyte (27%), Southern Leyte (20%), Western Samar (6%), Biliran (5%), and Eastern Samar (3%).

In 2016 only 60% or 27,816 ha. of the 46,360 ha. total abaca production in the region was productive while 40% were rehabilitated through the Abaca Disease Management Project (ADMP) of PhilFIDA (PPDO, 2018). The province of Northern Samar ranked as the largest abaca producer in Eastern Visayas, tailing Catanduanes in the Bicol region. In 2017, Northern Samar produced 7,235 MT of abaca fiber which represents 57% of the total regional production in 12,040 ha. of abaca farms. Abaca production in Northern Samar significantly increased starting in 2001, then leveled off from 2009 until today with an average of 12,033 ha. The Provincial PhilFIDA data shows that from 2009 to 2013 there were 11,000 farmers producing abaca in the province (3,000 in District I and 8,000 in District II, in that order).

Abaca fiber production in Northern Samar was stable from 1990 to 1998, then became precarious until 2006 but slowly increased in 2015 (PSA). The peak productivity of abaca fiber was attained in 2014 at 7,579 MT. A drop in production was posted in the last two years. The productivity of the farms in the province continues to be unpredictable due to the prevalence of typhoons in the area and the occurrence of abaca disease infestation. In December 2015 typhoon "Nona" (Melor) severely damaged abaca farms in Northern Samar.

3.2. Mondragon Abaca Industry

Mondragon is the 3rd largest abaca-producing municipality of Northern Samar. It is located in the province's 1st District. Mondragon is a 3rd class municipality with 24 barangays. Based on the focus group discussion (FGD) 14 of these barangays are producing abaca, and 11 are top producers. As of 2013, there are about 1,500 abaca farmers in Mondragon.

The abaca production in the municipality fell by 51% between 2013 to 2016 from 1,800 ha. to 890 ha. due primarily to typhoon Nona in December 2015. In March 2016 PhilFIDA assisted 336 farmers in seven barangays of Mondragon to replant one ha. each of abaca farms damaged by typhoon Melor. This BDFE initiative has the potential of promoting the abaca industry in the province of Northern Samar. Among its potential impact include production technology improvements, fair trade practices, farmer empowerment, and biodiversity conservation. Nonetheless, the abaca industry has to contend with three main diseases: Abaca Mosaic caused by abaca mosaic potyvirus; ABTV—a persistent type of virus causing stunted and bunchy growth; and Bract Mosaic—viral disease caused by a potyvirus similar to banana bract mosaic virus. Some scientists believed that the only way to preserve abaca from these diseases is by developing Genetically Modified Abaca (GMA) tested at the University of the Philippines Los Baños (UPLB).

4. MARKET ANALYSIS AND MARKET CHANNEL

The Philippines dominates the global production of abaca. Based on the FAO bulletin in 2016, the Philippines accounted for 63.23% of the total world production at 67,403 MT. The Philippines' closest competitor is Ecuador posting at 34.82% share. Other Southeast Asian countries produce abaca though not on a commercial scale. Indonesia, for instance, is the most prominent accounting for 0.53% of the world's abaca demand. The Philippines exports 87.50% of the total world abaca requirements.

4.1 Regional Abaca Production and Market

Eastern Visayas is the second largest producing region in the Philippines. In 2017, Northern Samar dominated the production with a 57% average share of the total regional production. This was followed by a wide margin by Southern Leyte at 19%, Leyte with 13%, and Samar with 11%. Eastern Samar and Biliran posted the lowest contribution to the regional abaca production (Table 1).

Table 1. Comparative Abaca Fiber Production in Eastern Visayas, 2013-2017 (in MT)

Provinces	2013	2014	2015	2016	2017	% Share in 2017
Eastern Visayas	**16,597.42**	**12,849.25**	**12,752.59**	**12,492.61**	**12,671.07**	**100.00%**
Northern Samar	7,433.55	7,579.32	7,550.15	7,241.25	7,234.90	57.10%
Southern Leyte	2,498.26	2,155.65	2,106.84	2,110.38	2,358.75	18.62%
Leyte	4,832.89	1,482.53	1,531.89	1,616.72	1,584.96	12.51%
Samar (WesSamar)	1,381.40	1,270.00	1,318.00	1,313.25	1,342.00	10.59%
Biliran	81.42	69.80	122.75	131.50	133.00	1.05%
Eastern Samar	369.90	291.95	122.96	79.51	17.46	0.14%

Source of data: Philippine Statistic Authority

Abaca production was previously dominated by Leyte and Southern Leyte, followed by Northern Samar. However, ABTV severely affected abaca farms of the former provinces thereby diminishing production by around 80%.

By 2011, Northern Samar led the region with the highest share in abaca production. In 2017, Eastern Visayas had a total of 30,698 ha. of abaca plantation with the production of 12,671.07 MT (Table 2.) Northern Samar had the largest share of planted areas with 39%, followed by Leyte (27%), then Southern Leyte (20%).

Table 2. Abaca Fiber Yield in Eastern Visayas, 2017 (in MT)

Provinces	Area Planted (Ha.)	Prod (MT)	Yield (MT/Ha/ Year)
Eastern Visayas	**30,698**	**12,671.07**	**0.41**
Northern Samar	12,040.00	7,234.90	0.60
Southern Leyte	5,998.00	2,358.75	0.39
Leyte	8,250.00	1,584.96	0.19
Samar (Western Samar)	1,950.00	1,342.00	0.69
Biliran	1,460.00	133.00	0.09
Eastern Samar	1,000.00	17.46	0.02

Source of data: Philippine Statistic Authority

PhilFIDA records show that there are 90 licensed abaca industry players in Eastern Visayas in 2017. These are composed of five (5) grading and baling establishments (GBEs), one (1) buying station, one (1) trader-exporter, nine (1) processors, and seventy-four (74) local traders (Table 3 and 4). Abaca industry players in Eastern Visayas are engaged in producing and trading abaca fiber, specialty pulp, *sinamay*, and twine. The bulk of the income of the abaca industry in the region is derived from abaca fiber and pulp exports.

Table 3. Major Abaca Industry Players in the Philippines, 2017-2018

	CAR	I	IV / NCR	V	VI	VII	VIII	IX	X	XI	XIII	Total
GBE			1	5		1	5		1	4	1	18
Buying Stations				6			1			1	4	12
Trader-Exporter			10	1			1		1	1	1	15
Processors	1	1	18	78	17	30	9	1	9	8		172
Local Traders			38	301	31	33	74	60	51	161	58	807
Total	**1**	**1**	**67**	**121**	**48**	**64**	**90**	**61**	**62**	**175**	**64**	**1024**

Table 4. Abaca GBEs, Buying Stations, Trader-Exporters/Processors in Eastern Visayas, 2017-2018

Type of Industry Player	Name	Class	Address
Grading-Baling Establishments	Specialty Pulp Manufacturing, Inc.	1st Class	Hilapnitan, Baybay City, Leyte
	Fibers Trading, Inc.	2nd Class	Magsaysay Avenue, Baybay City, Leyte
	S.C. Tan Export Corporation	3rd Class	Dalakit, Catarman, Northern Samar
	Justmar Marketing, Inc.	4th Class	Obrero, Calbayog City, Western Samar
Buying Station	Fibers Trading, Inc.	3rd Class	Rizal Extension, Sogod, Southern Leyte
Trader-Exporter	Ching Bee Trading Corporation	Class A	Domingo Veloso St., Baybay City, Leyte
Processors	Specialty Pulp Manufacturing, Inc.	Class A	Hilapnitan, Baybay City, Leyte
	Pulp Specialties Phil., Inc.	Class A	Tinag-an, Albuera, Leyte
	Jocelyn Sinamay Buyer	Class D	Punong Bato, Leyte
	Cherry Sinamay Industry	Class D	Caridad, Matalom, Leyte
	Aurora Sinamay Industry	Class D	Libertad, Matalom, Leyte
	Hantag Farmers Multi-Purpose	Class D	Hantag, Maasin City, Southern

Coop, Inc.		Leyte
Prima G. Parong	Class D	Matalom, Leyte
Charito F. Pizon	Class D	Matalom, Leyte

Local abaca fiber processors are found in Leyte and Southern Leyte and are processed into fibercrafts (wine bags, placemats, home decors, utility/gift boxes, baskets, etc.), *sinamay* weaving, and twine making. *Sinamay* is traded to fibercraft processors in the Bicol region. There are 74 licensed local traders in Eastern Visayas and 18 are based in Northern Samar. In 2016, seventy percent (70%) of the regional production was supplied to GBEs. GBEs export abaca fibers and also supply processors outside of the region. The remaining 30% was consumed by pulp processors in the region. Around 70.80% of fiber consumption for pulp in 2016 went to SPMI while PSPI only accounts for 29.20%. SPMI is a sister company of Ching Bee Trading Corporation, considered the largest abaca trader and exporter in the Philippines.

5. ABACA IN NORTHERN SAMAR AND MONDRAGON IN CONTEXT

5.1 Production and Market

Northern Samar is the top abaca-producing province in Eastern Visayas and the 2nd largest producer of abaca fiber in the Philippines. In 2017 the total volume of abaca fiber production in the province is 7,235 MT with an average area of 12,040 ha. Abaca area and production in Northern Samar is stable in the last five years with an average of 7,408 MT and 12,033 ha., respectively. Twenty (20) out of the 24 municipalities of Northern Samar are producing abaca. The top producing municipalities are Las Navas, Silvino Lobos, and Mondragon, respectively. These top abaca-producing municipalities are situated within the buffer zone of the SINP.

There were 11,000 abaca farmers in Northern Samar in 2013 (3,000 in District I and 8,000 in District II). One thousand five hundred (1,500) of whom are in the municipality of Mondragon. Abaca farmers are considered the poorest of the poor. They are earning an average monthly income of PhP3,000 ($156.73) to PhP4,000 ($208.97). Fourteen (14) out of the 24 barangays in the municipality of Mondragon are producing abaca.

Abaca and coconut production is the top twin economic commodities in Mondragon. Abaca production in Mondragon fell by 51% between 2013 to 2016 from 1,800 ha. (2013) to 890 ha. (2016). The dropped in production is 50% from an estimated 810 MT in 2013 to 401 MT in 2016, respectively. Abaca fiber is the by-product that is being traded-in Northern Samar. The respondents reported that the current abaca fiber production in Mondragon being traded is 30 MT per week. This is equivalent to around 1,560 MT a year or 21% of the average abaca fiber production of Northern Samar in the last five years. CEFA members accounted for 4.33% of total abaca fiber production and 5.77% of total abaca plantation in Mondragon, Northern Samar. Out of the 67.50 MT average annual production of its members, CEFA can only buy 30 MT yearly with its current capitalization. Other products not sold to CEFA are being absorbed by other local traders in the municipality. In terms of number, CEFA members represent 15% only of the estimated total abaca farmers in Mondragon.

6. PARTICIPANTS IN THE SUB-SECTOR

6.1 Local Traders

The primary function is buying and consolidating abaca fibers from farmers and consolidators from different barangays and even from other municipalities, selling these fibers to Grading-Baling Establishments (GBEs), trader-exporter, and processors. Local traders buy abaca fibers “all-in”, and cover the transportation cost of abaca fibers from the farm (car lines or access roads/consolidation points) to their facilities. At their level, local traders usually do reclassification of fibers just like the barangay middlemen.

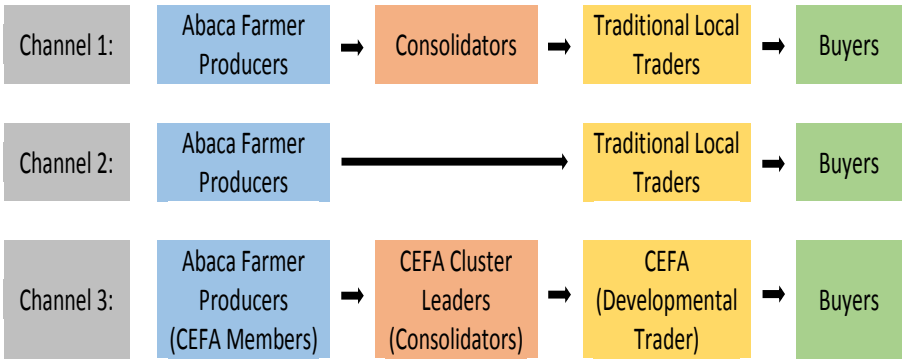
6.2 Buyers (GBEs, Trader-Exporter)

There are 19 abaca industry players in Northern Samar composed of one GBE—the S.C. Tan Export Corporation, and 18 local traders. There are no licensed buying stations, trader-exporter, and processors in the province but there are six licensed local traders in the municipality of Mondragon, Northern Samar. They account for 33% of the total local traders in the province**.** Ching Bee Trading Corporation (largest trader-exporter), SPMI (a GBE and processor), and PSPI (a processor).

SPMI and Ching Bee are based in Baybay City; PSPI is in Albuera, Leyte. They usually pick up abaca fibers from local traders or pay/reimburse transportation costs if the local traders deliver the products. Buyers pay up to 80% of the estimated value of each transaction with local traders. These buyers do not practice "all-in" buying. They classify abaca fibers based on the standard grading system, then they pay local traders the corresponding price of each grade of fiber.

6.3 Abaca Sub-sector Structure

From the GBEs, the fibers are either shipped to buyers abroad, or supplied to pulp and cordage processors in Leyte, Bicol, Cebu, and Lanao del Norte. The diagram below illustrates the three existing market channels of abaca fiber in Mondragon, Northern Samar.



7. DYNAMICS AND PROSPECTS OF SUB-SECTOR SUSTAINABLE ENTERPRISE DEVELOPMENT AND GROWTH

Adoption of Better Management of Abaca Farms and Sustainability Standards. An income increase ranging from 51% to 65% shall be derived if a typical farmer adopting a low capital input production shifts his farming system into the improved system or high capital input production. However, this shift necessitates the farmer to also increase 45% to 69% of his establishment costs. The huge expense increase that a farmer incurs may not be attractive for him to adopt the FIDA farming model because of a lack of capital. The average net income per ha/year will derive between PhP32,205.00 to PhP44,950.00. This is primarily attributed to the use of High-Yielding Virus-Resistant Variety that will produce 44% higher than the traditional variety (Table 3).

Table 3. Cost and Return for a One Hectare Abaca Farm

1. Harvest (Year 2)	
Harvesting Frequency at peak	4 times per year
Average yield per hectare	2,560-4,267 kg
Average price per kilogram (farmer's selling price on 2015	PhP45.00
2. Costs and Returns	
Average Gross Income/ha/year	PhP115,200-Php 192,000
Average establishment costs/ha/year	PhP82,995-Php 147,050
Average Net Income/ha/year	PhP32,205-Php 44,950

Adapted from "Abaca Sustainability Manual", 2018. Retrieved on September 29, 2018, from http://www.philfida.da.gov.ph/images/Publications/abacasustainabilitymanual/ASM.pdf.

Shifting from Manual/Hand Stripping to Spindle Stripping or Decorticating Machine. Manual stripping is the customary technology used by farmers for the extraction of abaca fiber. The fiber derived from manual (hand stripping) is of lower grade usually "G", "H", and "I" (good grades), "JK" (fair grade), and Y (residual grade). The manner of fiber extraction matters most in terms of achieving quality fiber grades, price, and production costs. A substantial increase in farmers' income ranging from 39% to 75% will be derived from when a farmer uses spindle stripping and/or decorticating machines, respectively.

8. Conclusion

Scale up the abaca sub-sector during the next three years, along the line of improving the quality and quantity of abaca plants, improving abaca production and management, expanding the BDFEs, promoting Community-Based Forest Management, organizing marketing clusters, encouraging abaca farmers' membership in a cooperative, improve harvesting and observe protocols, improve technology and facilities, build capacity in classification and upgrade to certification status, improve transport and handling, warehousing facilities and consolidation systems, identify interventions from government agencies (national and local government), improve financial capacity, a form of organization/legal status and organization of CEFA (cooperative formation).

What still needs to consider and plan for is to go up higher in the value chain, cultivation and production of raw materials, classification, and grading of raw materials, grading and baling (consolidation), and semi-processing and processing, full manufacturing, assembly, and customization. Finally, seize opportunities from local and international markets for specific product lines and volumes demanded (pulp/paper, cordage or ropes, fiber craft, others). This also includes specific demand by high-end manufacturers, local processors, and export markets such as tea bags, coffee pods/filers, currency paper, wraps, adhesive tapes, medical masks, lens cleaner, tobacco paper, vacuum filers, wet wipes, stencil papers, to name a few.

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