Characterizing the profile and functions of abaca industry stakeholders: The case of the Philippines

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Abstract

This article focuses on profiling the abaca stakeholders in Eastern Visayas and elucidates their various functions in the industry. Primary information was gathered from a random sample of abaca farmers and other stakeholders through a researchers' developed survey questionnaire. The data were analyzed through descriptive measures and presented in statistical tables and graphs. Results showed that the majority of abaca farmers are in their prime working years (25 to 54 years old), are married females, are elementary graduates, and are owners of small abaca farms with an average area of 1.88 hectares. The small traders are mostly married females in their prime working years and are college degree holders. The Local Government Unit (LGU) personnel are mostly municipal agriculturists, males, married, and college graduates. The majority of the Philippine Fiber Industry Development Authority (PhilFIDA) personnel are married males who are of prime age and college degree holders. Half of the enablers were male and married, who finished graduate studies and either belonged to prime or mature working age. Moreover, findings revealed that several players in the abaca value chain have important roles and functions to play along the supply chain to make the industry vibrant. As they do their respective roles and functions, they also have needs, expectations, and concerns that should be addressed for them to function effectively in the system. Hence, the study recommends that an in-depth training needs assessment should be conducted to determine their real needs as the basis for designing training programs.

Keywords: abaca industry, value chain, demographic profile, roles and functions, stakeholders

JEL Classification: M10, M11, M31, Q13, Q18.

1. Introduction

In the Philippines, agriculture remains dominant as a source of income for many poor Filipinos and it is considered as primary engine of the country's economy. Apparently, agricultural production is an important sector because it provides livelihood and food supply, especially in rural areas, and the gross domestic product (GDP) of the country is influenced in this area (Casinillo, 2022a; Pleños, 2022a). In fact, about 40 to 45 percent of the total national income and 75 to 80 percent of the country's exports come from agricultural operations (Cagasan & Dogello, 2021). Apparently, agriculture was the biggest employer of the economy globally (Ballesteros & Ancheta, 2021). Its share of employment had been consistently declining until 2019. With the COVID-19 pandemic, there was a reversal in trend as workers left urban centers and found work in agriculture. In mid-2020, approximately one-fourth of the workforce in the Philippines was in the agricultural sector, particularly in farming. However, the sector as a whole produced only about nine percent of the country's gross domestic product, thus output per worker remains low compared with industry and services (Briones, 2021; Cagasan & Dogello, 2021). Based on these circumstances experienced by the sector, Briones (2021) recommends policies such as government resources should focus on providing public goods (i.e. research and development) that effectively boost long-term productivity. The recommendations entail the synchronization of research and development activities with the wide-ranging and fast-changing requirements of enterprises in the agribusiness value chain (Unal et al., 2020; Vilei, 2011).

In Eastern Visayas, Philippines, abaca is one of the major sources of livelihood, especially for smallholder farmers. Abaca fiber is one of the major sources of income in the Philippines, and Region VIII or Eastern Visayas region is the widest supplier in the country (Pleños, 2022a). The province income yield from abaca is approximately PHP 20,000 (USD 358.35) per hectare in one cropping season (Celestino et al., 2016). In fact, the country the Philippines is the largest commercial producer of abaca fiber across the globe with a market share of approximately 85.18% with Ecuador trailing behind with an average of 14.59% market share (Pleños, 2022b; Quilatan, 2017). Region VIII known as Eastern Visayas contributes 17.14% of the total abaca production in the country, hence, abaca is a dominant position and important industry in the country (Pleños, 2022a). The extension service delivery system for the abaca industry is pluralistic. National government agencies (NGAs), state universities and colleges (SUCs), civil society organizations (CSOs), and other institutions provide various support services to abaca industry players along the value chain (Abamo & Aragon, 2007). The efforts of these service providers need to be unified and rationalized so that separate efforts can be strongly linked to strengthening complementation while

minimizing wasteful duplication, limited resources are pooled for heavier impact, and actual capability-building needs of each player in the value chain, especially of the producers, are appropriately met by extension services. To achieve these objectives, an in-depth study on extension service delivery systems for the abaca industry was done. With a pluralistic extension service delivery, it is imperative for the Philippine Fiber Industry Development Authority (PhilFIDA) to periodically assess the effectiveness of services brought to various stakeholders to ensure their efficacy in helping strengthen the abaca industry (Celestino et al., 2016; Calica et al., 2024). PhilFIDA staff and personnel must be equipped with the capability to carry out this function to promote the desired growth and development of the fiber industry in the country.

Moreover, the functions of every stakeholder play a crucial role in boosting agricultural productivity, increasing food security, improving rural livelihoods and income, and promoting agriculture as an engine of economic sustainable growth (Pleños, 2022a; Calica et al., 2024). In that case, to further support the abaca players, one must know their profile and various functions to formulate sustainable solutions to economic constraints in the industry. Hence, this article was then realized. The specific goals of this study are the following: (1) to summarize the economic and demographic profile of abaca stakeholders using descriptive statistics; and (2) to characterize the different functions of the abaca players. The results of this study can hopefully provide a clear picture of the profile and functions among stakeholders and the roles and needs of the players in the industry. In addition, the article may serve to provide solutions to the constraints on the extension delivery system for the industry and address the weaknesses in these areas both at the operational and policy levels. Furthermore, this study may be used as a baseline for agricultural extension research across the globe and contributes to the abaca production system literature.

2. Literature review

2.1. Abaca industry

The abaca production in the Philippines is considered moderate which needs more improvement through optimal processes and agricultural extension (Casinillo & Yap, 2024). Major problems identified by the stakeholders according to priority were the following: lack of information on abaca disease management and rehabilitation; the limited or scarce disease-free, high-yielding abaca seedlings; inefficient abaca production method and fiber processes; poor flow and lack of quality extension services due to limited field technicians; and lack of convergence and collaboration among government agencies involved in the abaca industry which is associated to limited communication between stakeholders (Akpan & Dhakal, 2022; Pleños,

2022a). Sad to note, some key players did not consider abaca as a priority crop (Abamo & Aragon, 2007). Analysis of the interaction among stakeholders in the value chain disclosed that there is an absence or low to moderate interaction among players in the industry which indicates the need for a system of coordination, collaboration, and leveraging to make the industry alive (Ballesteros & Ancheta, 2021).

A general assessment of PhilFIDA's delivery of extension programs revealed that there was adequate and effective implementation based on the 2018-2020 performance. However, there were some salient deliverables that the agency failed to achieve effectively due to a lack of field staff and other support inputs including collaboration and linkage (Calica et al., 2024). The problems identified by stakeholders earlier were associated with the inadequacy and ineffectiveness of PhilFIDA in attaining their responsibilities for the provision of disease-free planting materials and proper information dissemination of abaca disease management and rehabilitation (Abamo & Aragon, 2007; Celestino et al., 2016). There were some national policies and regulations implemented that affected the whole extension delivery systems of the country including the abaca industry. These government laws were enacted with the noble purpose of improving the delivery of social services including agriculture extension reaching out to the different localities and communities (Casinillo, 2022b). However, there were some policy concerns identified that need to be addressed to make extension delivery more effective, particularly for the abaca industry.

2.2. Agricultural extension

Agricultural extension plays a great role in technology dissemination and transfer to improve the productivity and income of farmers (Maryani et al., 2017; Casinillo, 2022b). Being mainly an agriculture-based economy, majority of the population living in rural areas still depending their livelihoods on the land and seas who are farmers and fisher folk, but they remain impoverished. To address problems and issues that beset our communities at the local level, our country the Philippines has embarked on an ambitious decentralization program to strengthen democratic processes and enhance economic growth (Kok & Klerkx, 2023). The national government devolved major responsibilities and revenues to local governments. Decentralization, however, goes beyond the transfer of responsibilities and resources to local governments (Valenzona et al., 2020). It requires reforming governance and empowering the community to participate in advocacy and decision-making. These areas are the current challenges to local governments since power structures remain traditional and the relationship with the central government is still paternalistic (Malapit et al., 2020; Lubos, 2022).

Decentralization in terms of agriculture programs has become ambiguous, with the Department of Agriculture (DA) still playing a major role, along with several other players from the central government (Briones, 2021). Capacity building needs more attention and devolution does not appear to have reduced instability arising from partisan politics. Most importantly, farm productivity and income do not seem to have improved. However, this outcome cannot solely be attributed to failures in the delivery of agricultural extension. The continued emphasis on food security, the uncertain tenure of many farmers and consequent inhibitions on their ability to borrow and capitalize on any improved productivity, and the state of infrastructure and communication would all constrain the effectiveness of even the best-delivered public extension (Ballesteros & Ancheta, 2021). In the past years, the devolution of agricultural extension did not yield the desired result, due mainly to funding constraints, particularly in helping to significantly improve the livelihoods of smallholders (Maryani et al., 2017). Many municipal LGUs did not appoint qualified extension workers and assigned tasks unrelated to agriculture and fisheries. Moreover, municipalities are too small to have economies of scale and have difficulties in planning and implementing big extension programs (Lubos, 2022).

2.3. Extension delivery system in the Philippines

Despite the crucial role of agricultural extension services in achieving sustainable growth for the sector, it remained ineffective and received modest support from the government (Ani and Correa, 2016; Casinillo & Yap, 2024). The relationship between the level of funding support for agricultural extension and the issues in establishing and maintaining an effective agricultural extension service can be rooted back to the lack of realistic policy or unstable policy framework that lays out the goals of an extension system (Ani and Correa, 2016). Expectations from the devolved Philippine agricultural extension service were initially high. Prior to devolution, extension services were criticized for being inefficient, irrelevant, ineffective, and top-down (Ocenar & Brillantes, 2004). When agricultural extension services were devolved to LGUs, it was expected that a demand-driven service that is more responsive to farmers' needs would emerge. Studies of the impact of devolution have shown that the bedding down of the devolved system suffered in a number of respects against the initial high expectations (Casinillo & Seriño, 2022).

The devolution of extension services resulted in chaotic financial aspects, a lack of extension service guidelines for LGUs to use such as staffing and composition, extension workers' needed competencies, and planning and implementation were reported to be based almost entirely on national programs (Ani & Correa, 2016; Maryani et al., 2017). With regard to extension linkages with research, there is an

over-concentration of efforts on a single commodity which is rice, and farm or home individual visits appear to be the most common extension modality. Accordingly, the extension staff served very few farmers per visit in a barangay. There appears to be little use of mass media by LGUs and other modalities. Although nowadays there are already other more creative modes of extension system delivery, however, it still remained ineffective of realistic policy or unstable policy frameworks that lay out the goals of an extension system (Ani and Correa, 2016; Lubos, 2022; Casinillo & Yap, 2024).

3. Theoretical basis

It is worth noting that the importance of systems of innovation lies in the apprehension they offer to the process that involves the production activity, diffusion process, and application of innovative knowledge (Okour et al., 2021; Pinho et al., 2021). In that case, understanding the profile of abaca players and their functions in the economic activity will give an understanding of the systems of innovation that influence the economic process and develop social activity (Gupta, 2020; Pleños, 2022a). In the context of agricultural economics, an innovation system indicates the network of different players, institutions, and organizations that focus on delivering agricultural technologies and innovations that include policies and market activities that influence behavior and performance (Abamo & Aragon, 2007; Ismail et al., 2022). Figure 1 presents the innovation system which is a process that takes place through a mixture of players within the innovation activities. Through their activity exchanges, with different functions, innovation takes place. The figure below depicts that functions and needs are crucial parts of an agricultural innovation system as well as the policy environment and rules of each player (Qamar, 2012; Kok & Klerkx, 2023).

Figure 1 below illustrates how a policy framework and consumer demand influence each other with the various stakeholders diffuse and interact with the innovations. The Agriculture Innovation System (AIS) approach depicts the role of the institutional context to orient the innovation process, the necessity to understand and foster social networks, the complex interactions among different actors, the feedback loops taking place in an unpredictable innovation process, and the importance of social and individual learning processes (Qamar, 2012). Also, the approach highlights several key aspects of the process of innovation. First, innovations are not just technical but include socioeconomic processes and organizational innovations. Second, innovations do not originate only with research but can come from any player and various functions within the production system. Hence, in this study, the conceptual framework focuses on characterizing the various profiles of abaca industry stakeholders and elucidating their various functions in the system process of the economy. The study is governed by

Figure 1 below to formulate policies and regulations in improving the abaca industry through innovation, research, and extension based on the profile and functions of different stakeholders. Additionally, the study aims to use and spread innovations and supports and is thus concerned with knowledge, attitudes, and practices of users of technologies suitable for each stakeholder.

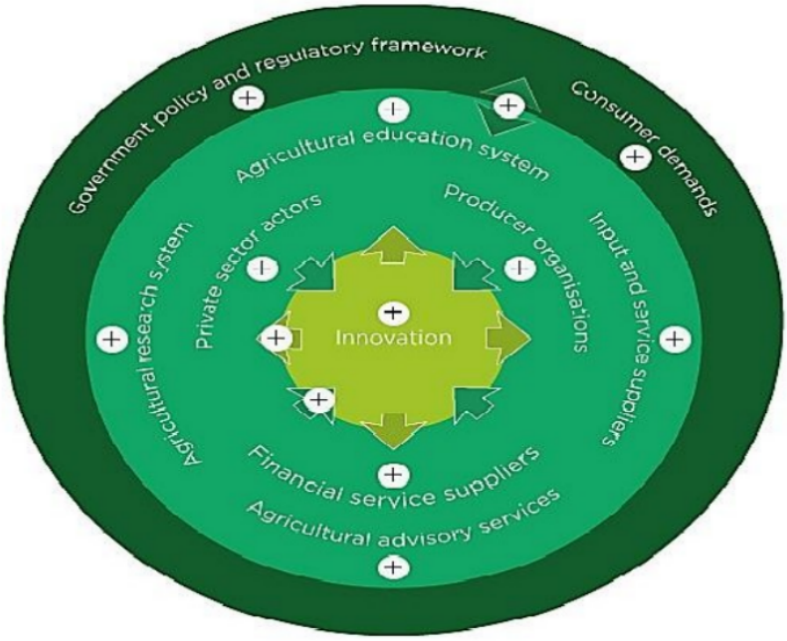

Figure 1. Agriculture Innovation System (AIS) framework.
Source: Qamar (2012).

4. Research method

4.1. Research design

The article characterized and described the economic and demographic profile of the abaca industry stakeholders. In addition, the study elucidated the different functions and roles of each abaca player. Hence, the study employed a descriptive research design in which its goal is to present an accurate and systematic description of the population (abaca players) of interest that involves quantitative and qualitative surveys. The main objective of the descriptive research design is to present a comprehensive and clear picture of the abaca industry in Eastern Visayas and provide patterns and trends that might be used in research and extension for the sustainable development of stakeholders.

4.2. Research locale, respondents, and ethics

The research locale of this study is Region VIII or Eastern Visayas region in the country Philippines. The Region has a wide abaca farm and is considered the biggest supplier in the country (Pleños, 2022a). In this study, the five provinces namely (1) Northern

Samar, (2) Eastern Samar, (3) Biliran, (4) Leyte, and (5) Southern Leyte were surveyed. The target respondents of the research survey are the following: (a) abaca farmers; (b) traders, (c) small-scale processors; (d) local government unit (LGU) personnel; (e) Philippine Fiber Industry Development Authority (PhilFIDA) personnel; and (f) state colleges and universities (SUCs), and non-government organizations (NGOs) personnel. For the abaca farmers, the overall sample size was computed using Slovin's formula with an appropriate margin of error while sample sizes by municipality were obtained by proportionate sampling. The computed sample size was 312 out of 1403 abaca farmer population but the actual number of farmers interviewed was 349. Municipalities from each province were selected based on where abaca plantations are abundantly grown. These respondents were distributed as follows: 210 from the nine municipalities of Northern Samar, 21 from the three municipalities of Eastern Samar, 46 from the four municipalities of Biliran, 45 from the seven municipalities of Leyte, and 27 from the three city/municipalities of Southern Leyte.

Purposive sampling was used to obtain the sample size of traders and LGU personnel and the sampling frame was obtained from the list of registered abaca traders from the records of PhilFIDA Regional Office. Complete enumeration was employed to capture the responses of PhilFIDA field workers. A total of 24 traders, 26 LGU personnel composed of municipal agriculturists, abaca focal persons, and agricultural technologists, 12 PhilFIDA field personnel, four (4) from the SUCs particularly NARC, and four (4) small-scale processors were interviewed. This survey study followed an ethical procedure to protect human rights and to ensure scientific integrity in the process. In that case, the researchers have secured a consent letter to the higher authorities in the different provinces involved in the survey. Before the survey was conducted, the research enumerator informed the respondents that their participation was voluntary and that their answers to the question survey would be protected and confidential.

4.3. Research instrument and data collection

In this survey study, a researchers' developed survey questionnaire was used. The questionnaire was constructed through gathered information from literature about the abaca industry and socio-economic profile (Abamo & Aragon, 2007; Celestino et al., 2016; Casinillo, 2022a; Pleños, 2022a; Pleños, 2022b; Matildo, 2023). The survey instrument has two parts namely:

(1) socio-demographic profile and

(2) functions in the abaca value chain.

As for the socio-demographic profile, all respondents were asked about the following:

(i) age in years;

(ii) sex;
(iii) civil status;
(iv) educational attainment; and location/area of assignment.

The abaca farmers were also asked about their tenurial status in farming. The survey instrument likewise included some qualitative sections which provided an avenue for the respondents to further explain their views on certain issues, such as functions in the abaca industry, problems met, and reasons for the occurrence. Hence, the second section allows the description of the stakeholders' roles and functions, problems met in the performance of their functions, and the process and support needed in accomplishing the corresponding functions.

4.4. Data analysis and presentation

The gathered data were then encoded to Microsoft Excel by assigning appropriate coding. After encoding, the data were subjected to clearing, wherein missing and extreme responses were excluded from the analysis. The data were formatted to statistical software called the Statistical Program for Social Sciences (SPSS) for data management. Descriptive statistics such as means, ranges, frequencies, and percentages were computed and presented in statistical tables. For the qualitative response, graphical presentations were constructed to easily understand the various functions and roles of each abaca stakeholder. Moreover, appropriate interpretations and conclusions were formulated accordingly.

5. Results and discussion

5.1. Profile of abaca stakeholders

5.1.1. Abaca farmers

Table 1 depicted that a total of 349 abaca farmers from five provinces of Eastern Visayas, Philippines participated in the survey study, with 60.17% farmers in Northern Samar, 13.18% farmers in Biliran province, 12.89% farmers in Leyte province, 7.74% farmers in Southern Leyte, and 6.02% farmers in Eastern Samar province. Most of the abaca farmers are small farmholders and are located in mountain barangays which are hardly reached by transportation. In that case, there is a need to consolidate their produce and have them processed (stripped and dried) in a communal processing area (common service facility or hub) to cater to a cluster or group of farmers (Salmorin & Gepty, 2023). The majority (58.45%) of these abaca farmers are in their prime working age, belonging to the age group 25-54. Some belong to the mature working age of 55-64 (27.79%) and few are elderlies who are 65 years old or older (13.75%). The mean age of the farmer stakeholders is 51 and ranges from 25 to 90 years old. The majority

of the farmer respondents are females (72.78%), married (81.95%), and finished elementary education level (51.29%). Few of these farmers have reached high school (29.8%) and very few finished College (16.62%) and graduate studies (2.29%). This result is consistent with the findings of Casinillo and Seriño (2022) that most of the farmers have not finished a bachelor's degree.

5.1.2. Local traders/GBE

It is presented in Table 1 that twenty-one (21) local traders and three (3) grading and baling establishment (GBE) representatives participated in the research survey study. Thirteen (13) of them were traders from Leyte Province (54.17%), eight (8) from Southern Leyte (33.33%), and three (3) from Biliran Province (12.50%). Trader respondents were equally split between male (50%) and female (50%). Twelve (50%) of them were in their prime working age (25-54 years of age), nine (37.50%) were of mature working age (55-64), and a few of them (12.50%) were 65 years old and above. The mean age of traders is close to 54 years old and ranges from 32 to 75 years old. The majority of them are married (87.50%), with two widows (8.33%) and one single civil status (4.16%). In terms of educational attainment, the majority of them are college degree holders (62.50%), five of them finished secondary education (20.83%), two of the traders finished graduate studies (8.33%) and the remaining two traders (8.33%) who only had elementary education were very efficient in the abaca business. Apparently, there are three GBEs in Leyte namely: (1) Specialty Pulp Manufacturing Incorporated (SPMI), (2) Ching Bee Trading Corporation both located in Hilapnitan, Baybay City, Leyte, Philippines, and (3) Pulp Specialties Philippines Incorporated (PSPI) in Albuera, Leyte. SPMI & PSPI are also processors of specialty pulp for export to countries such as China, the US, Japan, and some regions of Europe. However, during the COVID-19 pandemic, the export market was somehow affected due to some travel restrictions. Another drawback on the export market is the change made by Banko Sentral ng Pilipinas (BSP) from employing abaca fiber to a plastic-like material or polymer in the production of peso bank notes (Razon et al., 2022).

5.1.3. Small-scale processors

Moreover, Table 1 portrayed that four (4) small-scale abaca processors participated in the survey study. All were married and operated in the province of Leyte only. Two (2) of them were males who only finished their secondary education, while one finished tertiary and the other one only finished elementary education. In terms of age, two were in their prime working age of 25-54 years old, one was of mature working age of 55-64 and one was elderly. Their mean age is 59 ranging from 51 to 70 years old. In the study of Salmorin and Gepty (2023), it is portrayed that prime working age and experience are necessary for productive and sufficient agricultural activities.

Table 1. Demographic profile of abaca farmers, traders, and small-scale processors

Profile	Category	Farmers (n=349)	Traders/GBE (n=24)	Small scale processors (n=4)
Age in years	25-54 (prime working age)	204 (58.45%)	12 (50.00%)	2 (50.00%)
	55-64 (mature working age)	97 (27.79%)	9 (37.50%)	1 (25.00%)
	65 and above (elderly)	48 (13.75%)	3 (12.50%)	1 (25.00%)
	Mean (range)	51 (25-90)	54 (32-75)	59 (51-70)
Sex	Male	95 (27.22%)	12 (50.00%)	2 (50.00%)
	Female	254 (72.78%)	12 (50.00%)	2 (50.00%)
Civil Status	Single	28 (7.45%)	1 (4.16%)	-
	Married	286 (81.95%)	21 (87.50%)	4 (100.00%)
	Live-in	10 (2.87%)	-	-
	Widow/er	24 (6.88%)	2 (8.33%)	-
	Separated	3 (0.86%)	-	-
Educational Attainment	Elementary	179 (51.29%)	2 (8.33%)	1 (25.00%)
	Secondary	104 (29.8%)	5 (20.83%)	2 (50.00%)
	Tertiary	58 (16.62%)	15 (62.50%)	1 (25.00%)
	Graduate studies	8 (2.29%)	2 (8.33%)	-
Location/Area of assignment	Northern Samar	210 (60.17%)	-	-
	Eastern Samar	21 (6.02%)	-	-
	Biliran	46 (13.18%)	3 (12.50%)	-
	Leyte	45 (12.89%)	13 (54.17%)	4 (100.00%)
	Southern Leyte	27 (7.74%)	8 (33.33%)	-

Source: Authors' computation (2024).

5.1.4. LGU personnel

As can be gleaned in Table 2, the local government unit (LGU) personnel who responded to the survey study were composed of 19 municipal agriculturists (73.08%) and seven agricultural technologists (26.92%) of whom the majority (53.85%) belonged to the mature working age of 55-64 years and are mostly males (69.23%). Their mean age is close to 51 years old and ranges from 26 to 64 years old. The majority (80.77%) of them were married and were able to finish their graduate studies (80.77%). Eight (30.77%) were assigned in Northern Samar, seven (26.92%) were in Leyte and the rest were in Southern Leyte, Biliran, and Eastern Samar. The function of LGUs in the agricultural sector is vital for they support the farmers through extension programs and establishing financial assistance (Lubos, 2022).

5.1.5. PhilFIDA personnel

Moreover, as shown in Table 2, there were 12 PhilFIDA personnel composed of six Provincial Fiber Development Officers (PFDOs) and six Field Development Officers (FDOs) who responded to the study. Two-thirds of them were males (66.67%) while a third were females (33.33%). In terms of age, three-fourths (75%) were in the prime working age of 25-54, while one-fourth (25%) were in the mature working age of 55-64. The mean age is 43 with a range of 26-62 years old. Almost all of them were married (91.67%) and only one was single (8.33%). In terms of educational attainment, almost all were college degree holders (91.67%) who took up Bachelor of Science in Agriculture in various major fields such as Horticulture, Agronomy, and Plant Breeding. Only 8.33% of the PhilFIDA personnel finished a graduate study.

PhilFIDA's inadequate staff mostly contributed to problems of the abaca industry in the region. This accounts for the number of abaca farmers with small-sized scattered farms in remote locations, inadequacy of field staff limits the monitoring and reaching out of abaca farmers with new and improved practices and other needed assistance (Douthwaite & Hoffecker, 2017). Hence, a need to hire additional staff to provide the necessary support to LGUs and farmer associations in addressing the problems beset by the industry (Abamo & Aragon, 2007; Valenzona et al., 2020; Calica et al., 2024).

5.1.6. SUCs personnel

Of the four academics (SUC personnel) interviewed (Table 2), two were females and two were males. All were married and finished graduate studies. All of them reside in the province of Leyte, Philippines. Two were in their prime working age of 25-54 years old and the other two belonged to the mature working age of 55-64. The mean age was close to 52 years old and ranged from 37 to 61 years old. The importance of SUC in the abaca industry is through research which provides new knowledge and innovations to improve its productivity and solve agricultural science problems (Parac et al., 2021).

Table 2. Demographic profile of LGU, PhilFIDA and SUCs personnel

Profile	Category	LGU personnel (n=26)	PhilFIDA personnel (n=12)	SUCs personnel (n=4)
Age	25-54 (prime working age)	12 (46.15%)	9 (75.00%)	2 (50.00%)
	55-64 (mature working age)	14 (53.85%)	3 (25.00%)	2 (50.00%)
	65 and above (elderly)	-	-	-
	Mean (range)	51 (26-64)	43 (26-62)	52 (37-61)
Sex	Male	18 (69.23%)	8 (66.67%)	-
	Female	8 (30.77%)	4 (33.33%)	4 (100%)
Civil Status	Single	4 (15.38%)	1 (8.33%)	-
	Married	21 (80.77%)	11 (91.67%)	4 (100%)
	Live-in	-	-	-
	Widow/er	1 (3.85%)	-	-
	Separated	-	-	-
Educational Attainment	Elementary	-	-	-
	Secondary	-	-	-
	Tertiary	5 (19.23%)	11 (91.67%)	-
	Graduate studies	21 (80.77%)	1 (8.33%)	4 (100%)
Location/Area of assignment	Northern Samar	8 (30.77%)	3 (25.00%)	-
	Eastern Samar	3 (11.54%)	2 (16.67%)	-
	Biliran	4 (15.38%)	2 (16.67%)	-
	Leyte	7 (26.92%)	2 (16.67%)	4 (100%)
	Southern Leyte	4 (15.38%)	3 (25.00%)	-

Source: Authors' computation (2024).

5.1.7. Tenurial status and farm size of abaca farmers

Of the 349 abaca farmers, 85.1% of them owned their farms as shown in Figure 2. About 12.32% are tenants while 2.01% of them are stewards of the farm, and only 0.57% rented lands for their abaca farming. The mean farm size is close to 1.88 hectares

(ha) with the smallest of 0.02 ha and the biggest of 30 ha. Apparently, Region VIII, or Eastern Visayas is the leading abaca producer in the Philippines (Celestino et al., 2016).

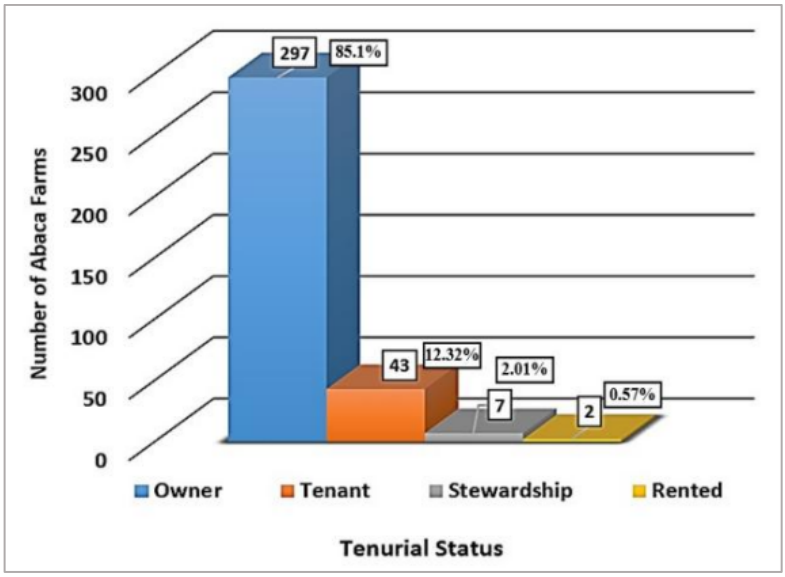

Figure 2. Tenurial status of abaca farmers

5.2. Functions of abaca stakeholders

5.2.1. Farmers as primary producers of abaca

Figure 3 shows the farmers as producers, the processes involved as well as the support they need in the abaca production (Pleños, 2022a). On the production aspect, farmers identified three processes. First is the land preparation and production, second, is the post-harvest and the third and last is the marketing process (Armecin et al., 2011). Land preparation and production involves clearing, digging, planting, cultural management, tumbling, and tuxying. Support identified by the farmers at this stage includes farm inputs such as planting materials and fertilizers (27%), financial support (26%), consultation services (22%), training on abaca production (15%), and farm tools and machinery (10%). The post-harvest process involves fiber extraction, drying, sorting, and bundling. For this stage, 51% said they needed financial support, about 30% claimed they needed training on post-harvest technologies, and 19% needed farm tools and machinery. On the marketing process, all farmer respondents mentioned their need for marketing support (Lacuna-Richman, 2002; Abamo & Aragon, 2007; Calica et al., 2024).

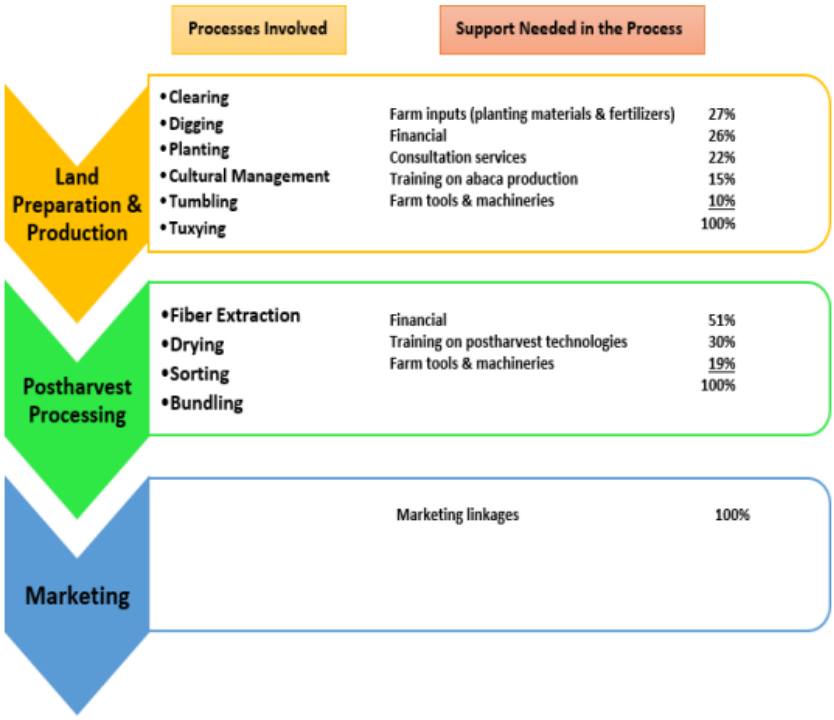

Figure 3. Functions of abaca farmers

5.2.2. Traders' function as abaca buyers

Abaca traders function as a source of price information as shown in Figure 4. They are also involved in the inspection, weighing, and in bundling of abaca fibers based on their grade or classification. Lastly, they also act as sources of financial support or as credit providers.

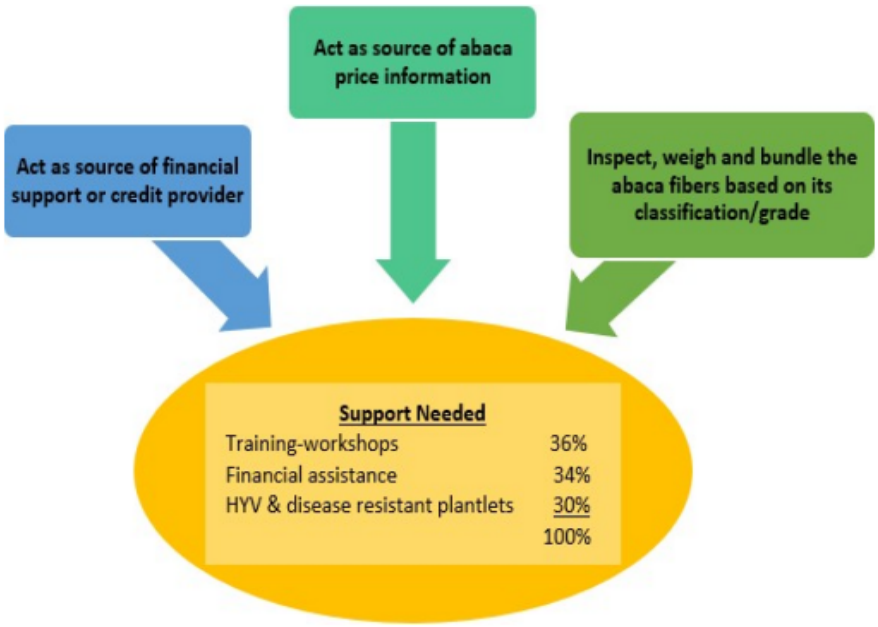

Figure 4. Functions of abaca traders

In all these, more than a third (36%) of them revealed that they need training workshops to hone their competence in trading/marketing, 34% need financial assistance so they can fully support the farmers, and about 30% need high-yielding variety and disease-resistant plantlets that they can distribute to farmers. Interestingly, some traders provided planting materials to farmers and thus be assured of fiber supply. It is also noteworthy to mention that in Eastern Samar there were only very few traders because abaca production has diminished over time (Abamo & Aragon, 2007; Pleños, 2022b).

5.2.3. Small-scale processors function as abaca producers/buyers

Abaca farmers in general directly sell fibers from harvested plants to local traders without sorting as to the fibers' quality. Local traders sell the fibers to processors that take care of checking the quality of fibers, connecting fiber strands or *tag*-making, weaving, measuring/weighing the *tagak* and *sinamay*, folding, sorting, and working through the issuance of transportation/delivery permits.

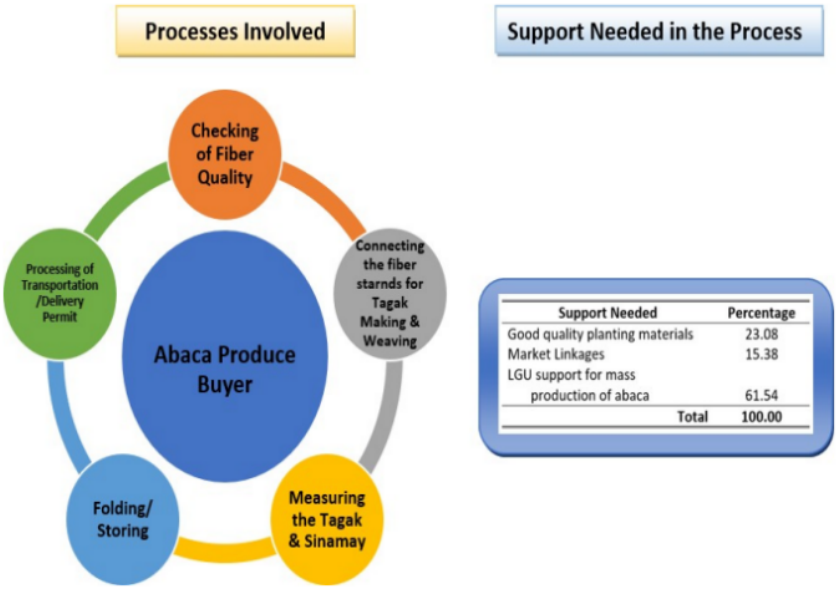

Figure 5. Functions of small-scale processors

In all these processes, almost two-thirds of the processors (61.54%) revealed that they need support from the LGUs for the farmers' mass production of abaca (See Figure 5). Some of the processors (23.08%) said good quality abaca planting materials are needed. Few processors (15.38%) need support to expand market opportunities. Malapit et al. (2020) depicted that small-scale processors are vital in the value chain analysis in the abaca industry because of their functions as quality assurance.

5.2.4. LGUs' function as facilitators in abaca production

Figure 6 shows the LGUs' functions as facilitators in the local abaca production and the processes involved in performing this function through the abaca focal person (AFP)

Almost half (46%) of the AFPs interviewed said they need farm inputs, and about 28% need financial support and 26% need technical support. In the identification of local abaca farmer-beneficiaries, all LGU AFP revealed they needed financial support for fuel and additional allowance for traveling/transportation expenses for field visits. For the process of providing technical assistance, 84% asserted that they need financial support, especially for their field activities, and 16% need training in abaca production and fiber management (Armecin et al., 2011; Quilatan, 2017; Tapado, 2022).

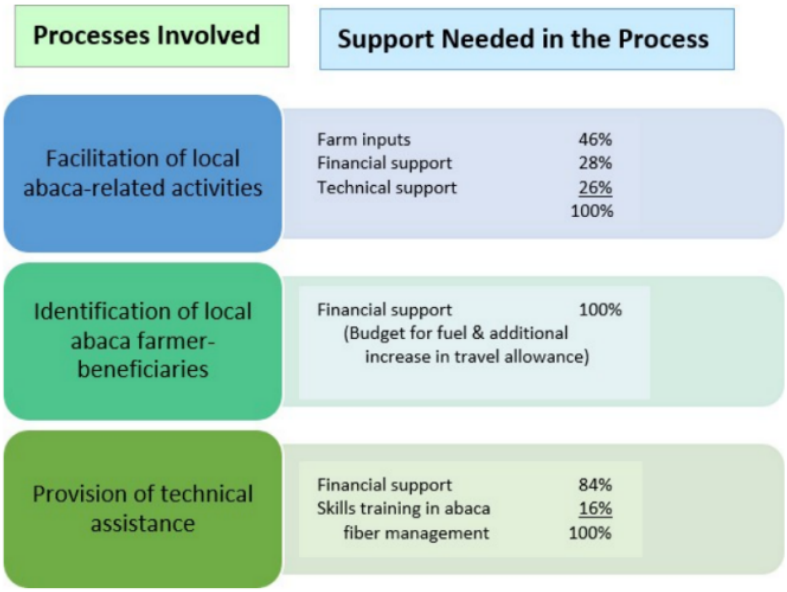

Figure 6. Functions of LGUs in the abaca industry

5.2.5. PhilFIDA personnel's functions

PhilFIDA personnel perform a threefold function in the abaca industry: provider of technical assistance, monitoring established abaca plantation projects, and coordination of various abaca industry stakeholders (See Figure 7). In providing technical assistance, processes include farm visitation and organization of farmers' field schools. In these processes, a little over two-thirds (70%) of the PhilFIDA personnel need farm inputs from the government, 18% said they need additional funds for their meals and snacks and about 12% claimed they need bigger travel allowance. Monitoring activities include geotagging of abaca farms and regular monitoring of project status. In activities, the majority (52%) of the PhilFIDA staff revealed they need farm input to provide farmers with farm development and rehabilitation, about a fourth (26%) of them need additional travel allowance, and about a fifth (22%) need support on labor subsidy to maintain the project.

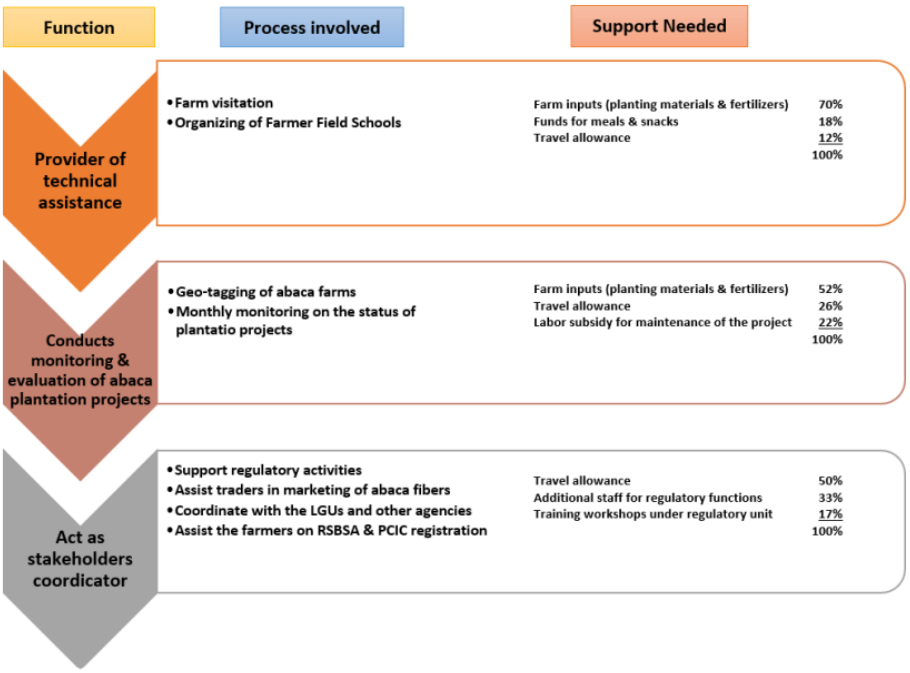

Figure 7. Functions of PhilFIDA in the abaca industry

As stakeholder coordinators, they are involved in regulatory activities, assist traders in marketing, coordinate LGUs with other agencies, and assist farmers with RSBSA & PCIC registration. In all these processes, half of the PhilFIDA staff clamored for additional travel allowance, since a third (33%) asserted they need additional staff for regulatory functions, and few (17%) need to undergo training in regulatory policy enforcement. In fact, the functions and roles of PhilFIDA cannot be overemphasized, which they are responsible for promoting the growth and development of the abaca fiber in the country Philippines (Douthwaite & Hoffecker, 2017; Parac et al., 2021; Tapado, 2022).

5.2.6. SUCs, NGOs research and extension functions

In Figure 8, it is presented that the SUCs and NGOs' extension functions include organizing training, field visitations, farm demonstrations, plantation rehabilitation, and developing extension project proposals. About a third (33.33%) of them revealed that they need more funds to support their training activities; about a fifth (22.22%) claimed that they need additional funds to support both their field visitations and farm demonstration activities. Few (11.11%) need more funds for abaca rehabilitation activities and in extension project proposal making. In the study by Tolentino et al. (2010), it is stated that SUCs and NGOs are very important stakeholders in the abaca industry since they are responsible for generating innovative ideas that suit the improvement of the production and marketing aspects.

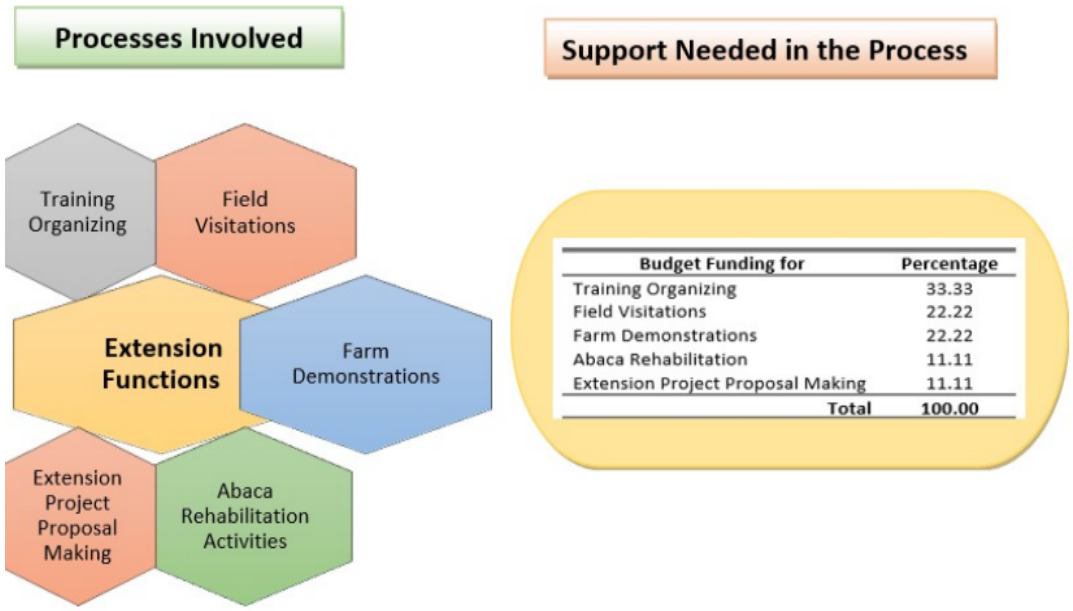

Figure 8. Functions of extensions in the abaca industry

Figure 9 depicts that research is a crucial endeavor in abaca production due to its functions that involve the following: (1) planning and organizing; (2) disease mapping; (3) laboratory experiments; (4) technology development; and (5) research project for innovation and sustainability of the industry. These functions are necessary to improve agricultural production through new technology and innovation (Lacuna-Richman, 2002; Lalusin & Villavicencio, 2015; Nuñez, 2013; DTI, 2017; Kernecker et al., 2020; Parac et al., 2021).

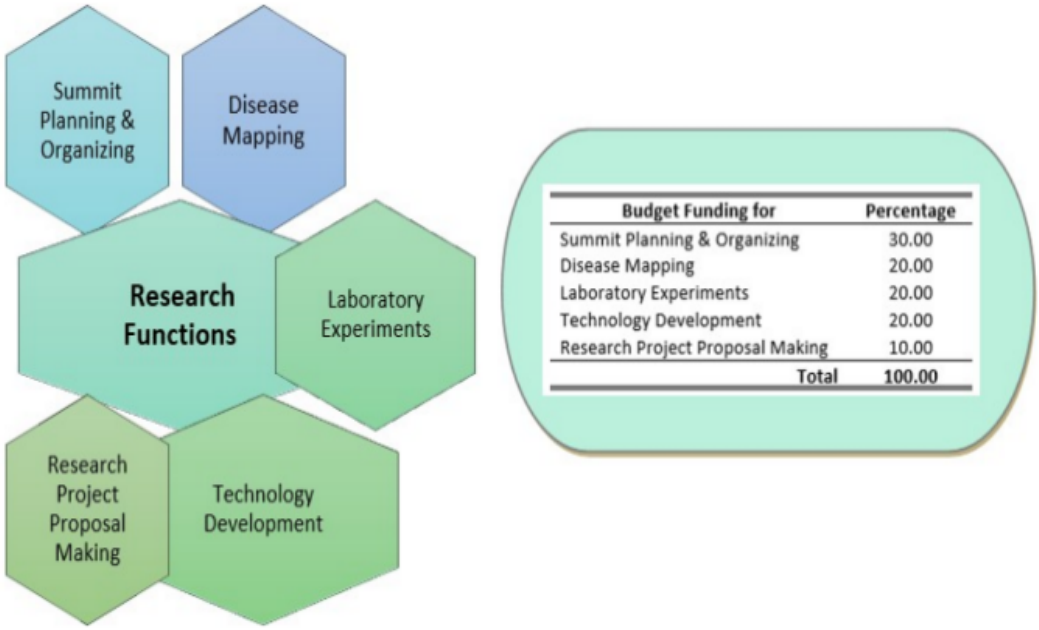

Figure 9. Functions of research in the abaca industry

To effectively perform their research functions, 30% of the enablers articulated that they need funds for planning as well as organizing the abaca summit in the region (See Figure 8). About 20% of the enablers said they need funds for disease mapping, lab experiments, and abaca technology development, respectively. Furthermore, about ten (10) percent need funds for research proposal making. In fact, doing laboratory research is vital in solving pests and disease problems that negatively affect the production activities in abaca (Parac et al., 2021).

6. Conclusion, economic implications, and recommendations

Conclusively, the need for institutional strategies like the adoption of the innovation system approach where stakeholders play active roles in addressing issues and concerns of the industry is imperative. The existence of the Abaca coalition to serve as a vehicle in making the innovation system approach work has to build on strong institutional capacities and policies that can strengthen the bond of commitment and belongingness among the stakeholders involved. PhilFIDA, being the lead agency of the industry must take the lead role in putting this system in place but needs staff with a formidable ability to communicate, organize, collaborate, and even orchestrate so that the coalition becomes the avenue of support from the different stakeholders especially the farmers who are the producers. Stakeholders involved along the value chain need to be capacitated based on their respective needs. Based on the results of the study, each player in the abaca industry has important roles to play who shared also their needs and concerns.

Policies and regulations must be implemented well enough to avoid some drawbacks for the effective delivery of extension services. In particular, the devolution of extension functions to the local government units must not create some ambiguity in the process. The role of LGUs must serve as the frontline in extension delivery. In addition, PhilFIDA regulations must not only focus more on quality control and inspection of fibers, but also on support and easing up the challenging tasks of extension like disease management and rehabilitation. It is recommended that an in-depth training needs assessment should be conducted to determine their real needs as the basis of designing training programs. PhilFIDA or Agricultural Training Institute (ATI) which is the training arm of the Department of Agriculture (DA), can conduct a training program catering to the needs of the abaca industry not just for farmers but to other stakeholders as well. This would include a comprehensive strengthening of the capacity of abaca players in the region to develop a productive and profitable abaca industry. The low productivity due to pest and disease damage is also worsened by the farmers' dying interest in abaca.

Changing the mindset and attitude of farmers toward the production of quality abaca fibers can be alleviated through capacity building which could be done by a series of trainings with regular follow-up field visitations and monitoring. Moreover, PhilFIDA's inadequate staff mostly contributed to problems of the abaca industry in the region. This accounts for the number of abaca farmers with small-sized scattered farms in remote locations, inadequacy of field staff limits the monitoring and reaching out of abaca farmers with new and improved practices and other needed assistance. Hence, it is suggested that the need to hire additional staff provides the necessary support to LGUs and farmer associations in addressing the problems beset by the industry. As for future studies, it is recommended that economic variables like cost of production and other expenses be investigated to further enhance the current results. Moreover, incorporating the resilience and satisfaction variables of stakeholders is a great assistance to evaluate further the sufficiency of the value chain in the abaca industry.

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