

Impact Assessment of CBFM-CARP Project on Knowledge, Skills, Values and Attitudes of Beneficiaries at Barangay Tugop, San Fernando, Bukidnon

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ABSTRACT

This research study conducts an impact assessment of the Community-Based Forest Management-Comprehensive Agrarian Reform Program (CBFM-CARP) project on Knowledge, Skills, Values and Attitude of beneficiaries at Barangay Tugop, San Fernando, Bukidnon. Specifically, it aims to 1) determine the profile of the respondents which concerns with its age, gender, marital status, educational attainment, religious affiliation, ethnicity, language spoken, type of household, source/s of income, and monthly income; 2) Impact assessment on the CBFM-CARP project focusing on three (3) areas namely: knowledge, skills, and values and attitude; and 3) The challenges encountered in the planning, implementation, and evaluation phases of the project. The study used a descriptive research, primarily utilizing a survey questionnaire as its main tool. It was pre-tested with a Cronbach's alpha of 0.948 before the data gathering through personal interview. A total of fifty (50) respondents of the CBFM-CARP project were included in the study using stratified random sampling. Frequency, percentages, and t-test were used as statistical tools.

INTRODUCTION

Community-Based Forest Management (CBFM) is an important program initiated by the Department of Environment and Natural Resources (DENR) in the Philippines. This initiative was a response to severe deforestation, which had led to one of the highest forest loss rates in the Asia-Pacific region around the 1990's (FAO 2006). To address this issue, the Philippine government took significant steps, issuing Executive Order 263 (E.O. 263) in July 1995. The goal was to encourage sustainable development of the country's forest resources by empowering local communities to act as caretakers. This policy gave them the responsibility for rehabilitating, protecting, and conserving the forests.

In 2007, the Community-Based Forest Management-Comprehensive Agrarian Reform Project (CBFM-CARP) was introduced to build on this foundation. The program has two main goals: to protect the environment and to alleviate poverty in local communities. It provides resources and support to the selected beneficiaries, especially those with a Community-Based Forest Management Agreement (CBFMA), members of a registered People's Organization under the CBFM Program, and those who have affirmed Community Resource Management Framework (CRMF). However, a thorough assessment of the impact of CBFM-CARP has not yet been conducted. This study aims to assess the impact of the CBFM-CARP Project towards the beneficiaries at Barangay Tugop, San Fernando, Bukidnon.

Objectives

The study it aims to; 1) Determine the profile of the respondents which concerns with its age, gender, marital status, educational attainment, religious affiliation, ethnicity, language spoken, type of household, source/s of income, and monthly income; 2) Impact assessment on the CBFM-CARP project focusing on three (3) areas namely: knowledge, skills, and values and attitudes; and 3) The challenges encountered in the planning, implementation, and evaluation phases of the project.

Limitations and Possible Biase/S

Limitations

The study is limited to beneficiaries of the CBFM-CARP project in Barangay Tugop and may not reflect the experiences of beneficiaries in other areas. The sample size of 50 respondents may also limit the generalizability of the findings. Additionally, the study does not include direct environmental or economic impact assessments, focusing solely on the socio-behavioral outcomes (knowledge, skills, values, and attitude) and project-related challenges.

Possible Biase/s

Data were collected primarily through self-reported responses, which may be subject to biases such as social desirability or recall error.

METHODOLOGY

Research Design

This study will employ a descriptive research design to outline the respondent's profile. It also considers the respondents' assessment of the impact of the CBFM-CARP project, focusing on their knowledge, skills, and values and attitude, along with environmental impacts and overall project evaluation. Data analysis involved the use of percentages, frequency counts, and t-tests to examine the profiles of the respondents. Additionally, a 5-point Likert Scale was utilized to determine the impact of the CBFM-CARP project which involves the respondents' knowledge, skills, values and attitude along with the environmental impacts as a result of the training, seminars and other related activities for the CBFM-CARP beneficiaries facilitated by CENRO-Valencia personnel.

Locale of the Study This study was conducted at Barangay Tugop, located in San Fernando, Bukidnon. The municipality of San Fernando is situated in the southeasternmost portion of the landlocked of the Province of Bukidnon, which is one of the five provinces in Region X of Northern Mindanao. Barangay Tugop is one of the twenty-four (24) barangays within the municipality of San Fernando and encompasses an area of 2,071.67 hectares, representing 2.52% of the total land area of San Fernando, Bukidnon. As per the 2020 Census, Barangay Tugop has a population of 1,804, accounting for 2.86% of San Fernando's overall population (PhilAtlas, 2025).

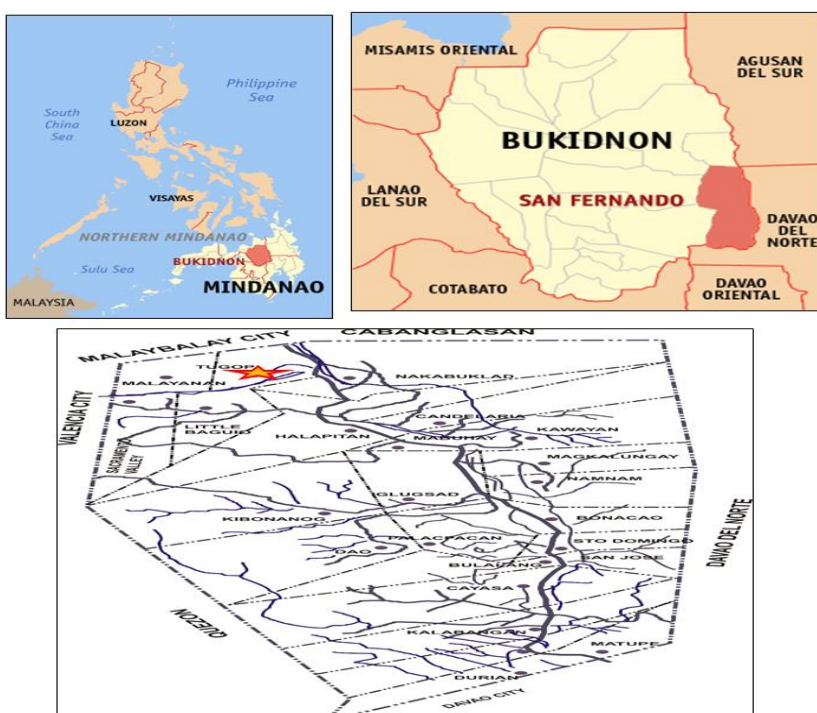


Figure 1. Map of the locale of the study

Respondents and Sampling Procedure

The study's respondents were the beneficiaries of the CBFM-CARP Project in Barangay Tugop, San Fernando, Bukidnon. They are the ideal people to provide insights into their experiences and the changes brought about by the project. This study used stratified random sampling method for selecting the participants.

Data Gathering Techniques

A semi-structured questionnaire was employed to collect primary data via guided interviews and questions. This questionnaire was designed in alignment with the study's objectives. Initially composed in English, it was subsequently translated into the local dialect of the respondents during the interview. Some items in the questionnaire were partially close-ended to collect raw data from the respondents. Concurrently, open-ended questions were employed during the focus group discussion (FGD). The purpose of these discussions is to gather data that represents the group's opinion on the topic and to ascertain the triangulation of information.

Research Instrument

The primary tool used in this study is a survey questionnaire developed by the researcher. The questionnaire underwent pre-testing prior to data collection and was evaluated for validity and reliability using Cronbach's alpha. Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability (UCLA, 2024). The questionnaire has a Cronbach's alpha of 0.948 and consists of four (4) parts. Part I focuses on the respondents' profiles. Part II presents the impact of the CBFM-CARP project in the community. Part III outlines the challenges encountered in the planning, implementation and evaluation phases of the project. Finally, Part IV is the overall assessment of the project.

RESULTS AND DISCUSSION

Table 1 presents the profile of the fifty (50) respondents. These respondents are all beneficiaries of the CBFM-CARP project from Barangay Tugop San Fernando, Bukidnon. The data indicates that thirty-eight percent (38%) of the respondents fall within the age range of 51 to 60 years old. The average age is 51, which suggest that the respondents belong to an older demographic. This data corroborates the 2022 census conducted by the Philippine Statistics Authority, which shows that farmers aged 50 and above account for almost half of the total population, representing 49.3% (PSA, 2022).

Table 1. Profile of the respondents

AGE		FREQUENCY	PERCENTAGE
	21-30	2	4
	31-40	9	18
	41-50	9	18
	51-60	19	38
	60- above	11	22
	TOTAL	50	100
	Mean Age	51	
GENDER			
	Male	38	76
	Female	14	28
	TOTAL	50	100
MARITAL STATUS			
	Single	3	6
	Married	36	72
	Widowed	6	12
	Separated	5	10
	TOTAL	50	100

EDUCATIONAL ATTAINMENT			
	Elementary level	19	38
	Elementary graduate	7	14
	High School level	9	18
	High School graduate	4	8
	College level	7	14
	College graduate	4	8
	TOTAL	50	100
RELIGIOUS AFFILIATION			
	Roman Catholic	30	60
	Seventh Day Adventist	13	26
	Baptist	4	8
	Iglesia ni Cristo	2	4
	Born Again Christian	1	2
	TOTAL	50	100
ETHNICITY			
	Cebuano	24	48
	Ilonggo	4	8
	Boholano	3	6
	Tigwahanon	3	6
	Matigsalug	16	32
	Others	0	0
LANGUAGE SPOKEN			
	Bisaya	24	48
	Ilonggo	4	8
	Boholano	3	6
	Others	19	38
TYPE OF HOUSEHOLD			
	Single Family	40	80
	Extended Family	10	20
SOURCES OF INCOME			
	Farming	32	64
	Business	9	18
	Salary	9	18
	Others		
MONTHLY INCOME			
	1,000-10,000	36	72
	10,001-30,000	10	20
	30,001-above	4	8

Furthermore, the data indicates that seventy-six percent (76%) of the respondents are male, while twenty-eight percent (28%) are female. Additionally, seventy-two percent (72%) of the respondents are married, suggesting that married individuals are more likely to work on farms compared to their unmarried counterparts, as they have families to support. A significant portion of the respondents, specifically thirty-eight percent (38%), attain an elementary level of education. Sixty percent (60%) of the respondents identify as Roman Catholic, which aligns with the fact that almost 79% of Filipinos identify as Roman Catholic (PSA, 2023). The majority of respondents are Cebuano, making up forty-eight percent (48%), and they predominantly speak Bisaya. This is

further validated by the fact that Bisaya is the most commonly used native language in Mindanao (PSA, 2023). Also, out of the fifty respondents, forty of them, live in a single-family household. The primary source of income for most respondents is farming, representing sixty-four percent (64%), while the remaining respondents depend on business ventures and their salary. A significant majority, comprising seventy-two percent (72%), report a monthly income between 1,000 and 10,000 pesos. Additionally, twenty percent (20%) of respondents earn between 10,001 and 30,000 pesos, and the smallest group, eight percent (8%), has a monthly income exceeding 30,000 pesos.

Impact Assessment of Respondents of the CBFM-CARP Project on Knowledge, Skills, Values and Attitude in Barangay Tugop, San Fernando, Bukidnon.

The impact of the CBFM-CARP project implemented by CENRO-Valencia is assessed through three main domains: knowledge (cognitive), skills (psychomotor), and values and attitude (affective). The findings are categorized accordingly: Table 2.a. presents the knowledge acquired by the respondents; Table 2.b. highlights skills acquired by the respondents; Table 2.c. shows about the values and attitude acquired by the respondents. Knowledge is measured in terms of how well respondents understand the objectives and components of the CBFM-CARP project and how this translates to their community participation. Skills are reflected in their application of techniques acquired through training, seminars, and project-related activities. Values and attitudes are observed in the level of commitment, cooperation displayed by the respondents.

Table 2.a. Knowledge acquired by the respondents

INDICATOR	BEFORE		AFTER	
	Mean	Descriptive Value	Mean	Descriptive Value
I understand the objectives and principles of the CBFM-CARP project.	3.38	Undecided	4.40	Agree
I am knowledgeable about the environmental policies implemented by DENR.	3.44	Undecided	4.62	Strongly Agree
I have adequate knowledge of sustainable forest management.	3.40	Undecided	4.50	Agree
I am knowledgeable about forest protection and sustainable resource use.	3.42	Undecided	4.52	Strongly Agree
I have a knowledge about Community Resource Management Framework (CRMF).	3.39	Undecided	4.69	Strongly Agree
Weighted Mean	3.41	Undecided	4.55	Strongly Agree
<i>Legend:</i>				
1.00 - 1.50 - Strongly Disagree				
1.51 - 2.50 - Disagree				
2.51 - 3.50 - Undecided				
3.51 - 4.50 - Agree				
4.51 - 5.00 - Strongly Agree				

Table 2.a presents a comparative analysis of the respondents' self-assessed knowledge before and after their involvement in the CBFM-CARP project. The data clearly demonstrate a significant improvement in their understanding. Prior to the project's implementation, the respondents rated their knowledge at a weighted mean of 3.41%. Following the interventions and training sessions provided through the project, this figure rose sharply to 4.55%, indicating a strong consensus among participants that the project had a meaningful impact on their learning and skills development.

This substantial increase reflects the effectiveness of the project's capacity-building efforts. Respondents reported enhanced their understanding the objectives and principles of CBFM-CARP project. It also shows that they are knowledgeable about environmental policies implemented by DENR, sustainable forest management, and forest protection. Additionally, they also have the knowledge with regards to Community

Resource Management Framework (CRMF), which is crucial for planning and managing natural resources within their communities.

Table 2.b. Skills acquired by the respondents

INDICATOR	BEFORE		AFTER	
	Mean	Descriptive Value	Mean	Descriptive Value
I have the skills related to agroforestry and land rehabilitation.	3.42	Undecided	4.58	Strongly Agree
I have the skills related to forest conservation and livelihood.	3.37	Undecided	4.72	Strongly Agree
I have the skills in conducting activities related to forest protection.	3.42	Undecided	4.51	Strongly Agree
I have the skills educating others about sustainable resource use.	3.41	Undecided	4.59	Strongly Agree
I have the skills to contribute in community-based initiatives.	3.48	Undecided	4.75	Strongly Agree
Weighted Mean	3.42	Undecided	4.63	Strongly Agree
<i>Legend:</i>				
1.00 - 1.50 - Strongly Disagree				
1.51 - 2.50 - Disagree				
2.51 - 3.50 - Undecided				
3.51 - 4.50 - Agree				
4.51 - 5.00 - Strongly Agree				

Table 2.b presents a before-and-after comparison of the respondents' self-assessed skills in relation to the CBFM-CARP project, focusing on various skill indicators relevant to environmental and community-based activities. Prior to the project's intervention and training sessions, the respondents demonstrated uncertainty about their skill levels, as reflected in a weighted mean of 3.42%. This suggests that many were either unsure of their capabilities or lacked confidence in their ability to contribute effectively to environmental and community development. However, following the intervention and trainings, there was a marked improvement in their self-assessed competencies, with the weighted mean rising significantly to 4.63%. This sharp increase indicates that respondents strongly agreed they had acquired and developed essential skills as a result of the project's capacity-building efforts.

Specifically, respondents reported that they improved their skill in key areas such as agroforestry, land rehabilitation, forest conservation, Forest protection, and livelihood. In addition to these skills, they also acknowledged gaining the skills to educate others on sustainable resource use and to actively participate in community-based initiatives.

Table 2.c. Values and attitude acquired by the respondents

INDICATOR	BEFORE		AFTER	
	Mean	Descriptive Value	Mean	Descriptive Value
I believe the CBFM-CARP project is beneficial to the community.	3.48	Undecided	4.63	Strongly Agree
I support environmental protection and forest conservation.	3.42	Undecided	4.53	Strongly Agree
I value our community's shared responsibility in managing forest lands.	3.47	Undecided	4.40	Agree
I prioritize community development and collaboration.	3.39	Undecided	4.38	Agree
I believe our forest should be preserved for future generations.	3.50	Undecided	4.64	Strongly Agree

Weighted Mean	3.45	Undecided	4.52	Strongly Agree
<i>Legend:</i>				
1.00 - 1.50 - Strongly Disagree				
1.51 - 2.50 - Disagree				
2.51 - 3.50 - Undecided				
3.51 - 4.50 - Agree				
4.51 - 5.00 - Strongly Agree				

Table 2.c indicates that the program had a substantial and noteworthy impact on the respondents' values and attitude. Before the intervention of the project, it shows that the respondents are undecided, reflecting uncertainty or lack of commitment to the stated values, with a weighted mean of 3.45%. After the projects' intervention, it can be seen that there is a significant change of their values and attitude, with a weighted mean of 4.52%. The respondents strongly agreed that the CBFM-CARP project is beneficial to the community and does support the environmental protection as well as conserve the forest. Moreover, it shows that the respondents valued their responsibility in the community specially in managing the forest land. They also emphasize the importance of development and collaboration within the community and hold a firm belief in the necessity of preserving forests for future generations.

Table 3. T-test result on the assessment of the CBFM-CARP project in terms of knowledge, skills, and values and attitudes of the respondents

INDICATOR	MEAN	SD	T	P-VALUES
Knowledge_ Before	3.41	0.02	-72.24	0.001
Knowledge_ After	4.55	0.11		
Skills_ Before	3.42	0.04	-76.63	0.001
Skills_ After	4.63	0.10		
Values and Attitude_ Before	3.45	0.05	-71.52	0.001
Values and Attitude_ After	4.52	0.12		

The result shows that *Knowledge_Before* (M=3.41; sd=0.02) and *Knowledge_After* (M=4.55; sd=0.11), this indicates that the CBFM-CARP project of CENRO-Valencia resulted in the improvement in knowledge of the respondents, $t(50) = -72.24$, $p=0.001$.

The result shows that *Skills_Before* (M=3.42; sd=0.04) and *Skills_After* (M=4.63; sd=0.10), this indicates that the CBFM-CARP project of CENRO-Valencia improve and enhance the skills of the respondents, $t(50) = -76.63$, $p=0.001$.

The result shows that *ValuesandAttitudes_Before* (M=3.45; sd=0.05) and *ValuesandAttitude_After* (M=4.52; sd=0.12), this indicates that the CBFM-CARP project of CENRO-Valencia shows improvement in the values and attitude of the respondents, $t(50) = -71.52$, $p=0.001$.

Table 4. The challenges encountered in the planning, implementation, and evaluation phases of the project

CHALLENGES	FREQUENCY (Answered YES)	PERCENTAGE
A. Planning Phase		
Lack of coordination from barangay and local government.	7	14
Lack of communication of between organizational leaders and focal person of the project.	4	8
Insufficient consultation from the focal person and the organizational leaders.	5	10
Limited engagement from project coordinators.	4	8
Inadequate involvement of beneficiaries due to lack of consultation from project coordinators.	5	10

B. Implementation Phase		
Insufficient funds to support the project implementation.	0	0
Limited technical assistance from project coordinators.	5	10
Lack of commitment and involvement from some beneficiaries.	10	20
Limited involvement of organizational leaders in project activities.	5	10
Insufficient guidance from organizational leaders.	4	8
C. Evaluation Phase		
Irregularity in the conduct of monitoring activities by monitoring and evaluation team.	0	0
Time constraints during the monitoring and evaluation.	3	6
Some beneficiaries are unavailable during the evaluation activity.	4	8
Delayed released of monitoring and evaluation results, affecting timely decision making.	2	4
Difficulty in tracking long term impacts due to short project cycle.	2	4

The data presented in Table 5 outlines the challenges encountered during the planning, implementation, and evaluation phases of the CBFM-CARP Project in Barangay Tugop, San Fernando, Bukidnon.

In the planning phase, the most commonly reported problem was the lack of coordination from the barangay and local government, as indicated by 14% of respondents. Other notable concerns included insufficient consultation and poor communication among project stakeholders and inadequate involvement of beneficiaries, with 10% of respondents acknowledging these issues. These suggest that the planning process lacked inclusivity and thorough engagement from stakeholders, which are essential for building strong project foundations. Planning represents an understanding of projected milestones that can be reached or established in the journey towards improvement (Dalcher, 2016).

The implementation phase, the most significant concern was lack of commitment and involvement from some beneficiaries, cited by 20% of respondents. Additionally, 10% of respondents reported limited technical assistance from project coordinators. The limited involvement accounted 10% and insufficient guidance (8%) from organizational leaders further point to weak leadership during this phase. The high percentage of insufficient commitment and involvement from some beneficiaries, greatly hindering the effectiveness and sustainability of the projects' implementation. Thus, active involvement of the community is equally essential. According to Rijal (2023), community has numerous advantages, it includes legitimization of decision, broadening perspectives, enhances policy effectiveness, promotion of innovation, reduction of conflict, and reinforcement of community capacity.

In the evaluation phase, the significant challenge identified is the lack of commitment and involvement from some beneficiaries, reported by 8% of the respondents. This issue underscores the critical role of beneficiaries in providing valuable feedback and validating project outcomes Time constraints were also a problem, reported by 6% of respondents, largely due to the unavailability of beneficiaries. These issues made it difficult to gather accurate and representative data. In addition, 4% of respondents reported delays in releasing monitoring and evaluation results, which hindered timely decision-making. Another 4% experienced difficulty tracking long-term project impacts due to a short project cycle. These problems reduce the effectiveness of the evaluation process and limit the ability to assess the project's long-term value. The absence of beneficiaries during evaluation weakens the reliability of the results and may lead to important feedback being missed. According to the Penn State College of Agricultural Sciences, involving beneficiaries is crucial because their input helps bring about environmental and behavioral changes that benefit the community. Without their active participation, the project's impact and sustainability are at risk.

Table 5. Respondent's program evaluation of the project

STATEMENTS	MEAN	DESCRIPTIVE VALUE
The training and activities addressed our needs.	4.76	Strongly Agree
I gained knowledge in the conducted activities and trainings.	4.54	Strongly Agree
The CBFM-CARP has achieved its goals in our community.	4.48	Agree
The project has brought positive changes to both the environment and our livelihood.	4.63	Strongly Agree
The project was implemented efficiently and fairly.	4.58	Strongly Agree
The benefits of the project were distributed equitably among the community members.	4.52	Strongly Agree
The project has contributed to better cooperation among community members.	4.62	Agree
I believe that project will have a long-term impact in our community.	4.43	Agree
The project has enhanced our community's capacity to manage natural resources.	4.59	Strongly Agree
The project has helped raise awareness about sustainable resource management in our community.	4.74	Strongly Agree
Weighted Mean	4.59	Strongly Agree
<i>Legend:</i>		
1.00 - 1.50 - <i>Strongly Disagree</i>		
1.51 - 2.50 - <i>Disagree</i>		
2.51 - 3.50 - <i>Undecided</i>		
3.51 - 4.50 - <i>Agree</i>		
4.51 - 5.00 - <i>Strongly Agree</i>		

The respondents strongly agree that the trainings of CBFM-CARP project addressed their needs and they have gained knowledge in the activities and training they participated. They agree that the project achieve its goals in the community and it contributed to improve cooperation among community members and it does have a long-term impact in the community. It also shows that the respondents strongly agree that the project was implemented efficiently, fair to all, and was well distributed among the members of the community. Moreover, they also acknowledge that the project brought a positive change in the environment and to their livelihood. Likewise, it enhanced the community's capacity to manage its natural resources and helps them became aware with regards to sustainable resources management.

CONCLUSION

Based on the results, the following were derived:

Majority of the respondents belong in the old demographic (51-60 years old), males and were married, with most of them are in elementary level, they are Roman Catholics, Cebuanos and speaks Bisaya, with single-family household, farming as their primary source of income and earned as much as 1,000-10,000 pesos monthly.

The implementation of the CBFM-CARP project led to significant improvements in the respondents' knowledge, skills, values, and attitudes. Initially uncertain or moderately confident, participants showed marked increases in their understanding of environmental management, practical skills in resource conservation, and commitment to community and environmental responsibilities. The project effectively empowered individuals, fostered environmental stewardship, and strengthened their role in sustainable development.

CBFM-CARP Project in Barangay Tugop, San Fernando, Bukidnon faced significant challenges throughout its planning, implementation, and evaluation phases. The recurring issues—such as lack of coordination, insufficient stakeholder involvement, weak leadership, and minimal beneficiary participation—highlight critical gaps in project management and community engagement. These limitations undermine not only the effectiveness of each project phase but also the overall sustainability and impact of the initiative. It is evident

that the success of community-based projects like CBFM-CARP depends heavily on strong collaboration among local government units, project leaders, and especially the active and continuous involvement of the beneficiaries. Addressing these challenges is essential to improving future project outcomes and ensuring that such programs achieve their intended developmental and environmental goals.

RECOMMENDATION(S)

Based on the aforementioned conclusions, the following are now recommended:

That CENRO-Valencia will conduct comparable CBFM-CARP project in other barangays to increase extension service, which will be later on, be a source for a comparative impact study assessment;

To strengthen stakeholder coordination and engagement through structured and inclusive planning sessions, consistent community consultations, and transparent communication. Active involvement of beneficiaries should be prioritized throughout the project cycle by establishing clear roles, offering capacity-building programs, and ensuring regular feedback mechanisms. Additionally, enhancing leadership accountability and providing adequate technical support during implementation, as well as improving monitoring and evaluation timelines, will contribute to the project's effectiveness, community ownership, and long-term sustainability.

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