



**VSU EXTENSION PROJECT
ANNUAL ACCOMPLISHMENT REPORT**

CY 2023

I. Basic Information

1. Program/Project Title: **Strengthening Rural-Based Organizations: Focus on Baybay Dairy Cooperative (BDC)**
Program/Project Leader: Gina Delima
2. Project Component (s): Hadassah Bongat
Staff Involved:
3. Implementing Unit: Institute for Strategic Research and Development Studies
4. Cooperating Agencies: Philippine Carabao Center (PCC), VSU
5. Program/Project Sites: Baybay Dairy Cooperative Nook at PCC Grounds, VSU, Baybay City, Leyte
6. Duration
 - a. Date Started: 2018
 - b. Expected date of completion: on-going
7. Financial report for the year under review
 - a. Total approved budget: Php90,000
 - b. Actual released budget: Php90,000
 - c. External support or counterpart funds from cooperating agencies: n/a
 - d. Actual expenditures: Php88,000

II. Technical Report (not more than 25 pages including the tables and charts)

A. Executive Summary (1 to 2 pages only)

As BDC continues to grow, it plans to embark on more business activities relevant to its main business line which is milk processing. In 2022, they requested a feasibility study for a water refilling station and bakery. Through the support of the Department of Business and Management (DBM) faculty and students, the FS was undertaken and the results were presented to the Board of Directors and key staff on March 2023.

Additionally, the project also initiated an impact evaluation study in collaboration with the MS in Development Sociology students of VSU. The first phase (qualitative) of the impact study was conducted in April to May 2023 and the results were presented in June 2023. The second phase (quantitative) was completed in December 2023.

The Coop also requested the assistance of ISRDS in the preparation of their proposal to Baybay City LGU so that they will be given a lot for a new business processing site.

These were the highlights of the accomplishments of the project in 2023.

B. Rationale

The implementation of activities to strengthen its human and social capital has been crucial to the continual improvement of the overall business management and institutional capacity of the Baybay Dairy Cooperative (BDC). The Project is aimed at contributing to the attainment of sustainable development, particularly to respond to two areas of the seventeen (17) Sustainable Development Goals (SDGs) which will focus on poverty alleviation and food security. Initial gains in the past year of implementation were modest and that shall be continued to create an impact on the cooperative for its economic growth and development.

Objectives:

- To capacitate the Baybay Dairy Cooperative in development planning, implementation, and overall business operation to sustain viability of the organization; and
- To capacitate BDC to be able to plan for natural hazard-induced disasters.

C. Logical Framework

Target/Planned 2023	Input	Activities	Output	Outcome	Impact (if ever applicable)
Monitoring and assistance in the implementation of Business Continuity Planning (BCP)	Technical assistance	Consultation meetings Linking with relevant agencies like the Baybay City DRRMO	BCP plan 75% implemented by the end of 2023.	The cooperative implements the activities identified in their BCP.	Reduced losses due to disaster or shocks.
Conduct a Feasibility Study	Expertise /Knowledge of the conduct of an FS Persons who will conduct the FS	Coordination with DBM Conduct of Market study Presentation of the result to BDC	1 FS completed	The cooperative is guided in their business market planning.	Provide input to the management in decision-making
Conduct an evaluation study	Expertise /Knowledge of the conduct of an Evaluation Study Persons who will conduct of an Evaluation Study	Conduct of an Evaluation study Presentation of the result to BDC	1 Evaluation study completed		
Support other technical assistance requested by the BDC board.	Technical assistance	Meetings/ Workshops/ linkages	Assisted activities	Enhanced planning and implementation of the cooperative	

D. Methodologies Employed

Consultations with BDC officers and staff were conducted to plan for the preparation and conduct of Feasibility Study and Impact Evaluation.

Letters were sent to the BDC through its Manager for every activity that they will be involved in.

The results of the FS and impact study were presented through a seminar and a meeting to the BOD and key staff of the Coop.

E. Results/Accomplishments

The main accomplishment of the study:

1. Feasibility Study for the Bakery and Water Distilling Station. The FS for the bakery informed BDC that it would need a large amount of investments and would take four years to reach the break-even. The BOD decided to forego the plan at the moment because of the unattractive data.

The following are the general overview of the FS:

- The processing area of the coop is not ideal (small) for the current operation and to meet the projected demand of fresh milk and chocomilk.
- The water refilling station will reduce the cost of buying water supply from outside supplier.
- The bakery would need Php400,000 to start operating and would take 4 years to recover the investments.

The coop received a water distilling machine from a big Cooperative as a grant.

2. Impact Evaluation Study – presented to BDC on June 2023
3. Assisted BDC in the preparation of a proposal to Baybay LGU for land acquisition (grant).

F. Problems Met and Recommendations

The students who conducted the FS were not able to provide a copy of the FS.

G. Plans and Target for the next year (if continuing program/projects)

In the next calendar year, the project will focus on enhancing the capacity of the BDC managers in human resource management and financial management aspects of the business. There was a high turnover of staff and a mismanagement of the finances. This extension project would like to help the Coop address these two problems.

Annex. Photos



Figure 1. Mr. Bryan Gapasin, a faculty member of DBM, provided a brief background about the Feasibility Studies to the Board Members of BDC and its key staff



Figure 2. A BS in Agribusiness student presented the result of their feasibility study of the water-distilling processing facility



Figure 3. Mr. Bryan Gapasin, presented the projected income statement of the Carabun Bakery

Annex 2: Copy of the Evaluation Report of the students:

Impact Evaluation of the Baybay Dairy Cooperative

presented to:

GINA DELIMA, MSc
Graduate School Professor
Visayas State University
Visca, Baybay City

In partial fulfillment of the requirements in the course

DSOC 247- SOCIAL PROGRAM PLANNING, MONITORING, AND EVALUATION

Presented by:

Caroline A. Amante
Krieslyn Kiel Mardo
MS-DS Students

June 2023

1. INTRODUCTION

1.1. Context

The Baybay Dairy Cooperative Program aims to promote dairy farming and empower local dairy farmers in Baybay, addressing challenges such as low milk productivity, limited market access, and a lack of organized support systems. The program aims to establish a cooperative model, provide training and technical assistance, and facilitate market linkages to improve the livelihoods of dairy farmers and contribute to the sustainable development of the local dairy industry. Baybay, a rural agricultural area known for its favorable climate, has historically struggled with low milk production, fragmented farming practices, and limited access to resources and markets.

The program operates on the principle of cooperation and collaboration among small-scale dairy farmers, aiming to establish a strong cooperative structure that enables them to work collectively, share resources, and negotiate better market opportunities. Farmers receive training on modern dairy farming practices, animal health management, and milk quality control. They are also assisted in accessing credit and financial services to invest in infrastructure and equipment.

The program supports the establishment or enhancement of milk collection centers, processing facilities, and packaging infrastructure, ensuring efficient milk processing and value addition. Collaborations with local businesses, retailers, and institutional buyers secure regular sales of milk and dairy products, providing farmers with a steady income.

The Baybay Dairy Cooperative Program contributes to the development of a sustainable dairy industry, generating employment opportunities, income growth, and business development in the dairy sector. Increased availability of locally produced milk and dairy products contributes to improved food security and nutrition in the community. By evaluating program effectiveness, efficiency, and impact, stakeholders can gain insights into its achievements, identify areas for improvement, and ensure long-term sustainability.

1.2 Overview of the Evaluation Subject

The objective of this study is to evaluate the efficacy, efficiency, and impact of the program in attaining its intended goals. Program stakeholders can identify strengths, shortcomings, and opportunities for improvement by conducting a complete assessment, which informs future decision-making and ensures the program's long-term sustainability.

The primary aim of the assessment is to examine the influence of the Baybay Dairy Cooperative on the sustenance of carabao farmers who are engaged in the cooperative. The stated objectives are as follows:

1. Assess the economic impact of the cooperative on carabao farmers, including their income and financial stability.

2. Determine the social impact of the cooperative on carabao farmers, including social support and community development opportunities.
3. Identify the challenges and barriers faced by carabao farmers in participating in and benefiting from the Baybay Dairy Cooperative.

The assessment and evaluation of the Baybay Dairy Cooperative Program are very crucial elements in determining the program's accomplishments, recognizing opportunities for enhancement, and also securing its sustained viability. Through the implementation of a careful assessment methodology and the active participation of diverse stakeholders, the evaluation delivers significant perspectives that would guide strategic decisions and enhance the broad development of the local dairy sector.

2. EVALUATION APPROACH AND METHODOLOGY

2.1 Conceptual Framework and Methodology

2.1.1. Conceptual Framework

The conceptual framework of the present study is based on Ferrer and Bernardo's (2020) Outcome Harvesting Framework. Activities, inputs, outputs, and outcomes are the components of the framework.

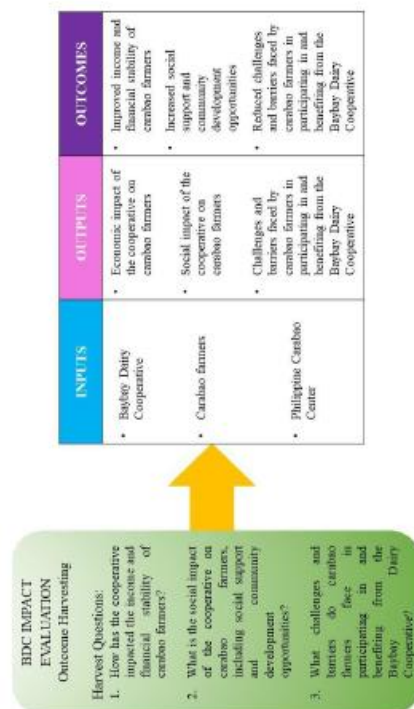


Figure 1. Conceptual Framework

The following Outcome Harvesting Steps will be implemented in this study:

1. *Identify the outcomes:* Increased economic and social well-being for carabao producers will be the outcomes of the study, which have been defined by the researchers.
2. *Determine the indicators:* The researchers have determined the indicators that will be used to assess the study's outcomes. Indicators of

increased economic well-being may include, for instance, increased income, enhanced financial stability, and decreased destitution. Indicators of enhanced social well-being may include an increase in social support, enhanced community development, and a decrease in social isolation.

3. *Collect data:* The researchers have acquired information regarding the indicators of the study's outcomes. This information will be gathered through FGDs and interviews with critical informants.
4. *Analyze the data:* The researchers will assess the impact of the Baybay Dairy Cooperative on carabao producers by analyzing the data.
5. *Disseminate the findings:* The researchers will disseminate the study's findings to policymakers, interested parties, and the broader public.

Using the Outcome Harvesting Framework, researchers will be able to assess the impact of the Baybay Dairy Cooperative on carabao producers in a methodical and exhaustive manner. The framework will also assist the researchers in identifying the challenges and obstacles that carabao farmers confront in order to participate in the cooperative and reap its benefits.

2.1.2 Methodology

METHOD	DATA	PARTICIPANTS
Focus group discussions (FGDs)	<ul style="list-style-type: none"> Income of farmers challenges faced by farmers social support from the cooperative community development opportunities provided by the cooperative 	<ul style="list-style-type: none"> Male and female carabao farmer members Staff/personnel of Baybay Dairy Cooperative Board of Directors (BOD) members

Key informant interview	✓ History of the cooperative	✓ Philippine Carabao Center (PCC)
	✓ Challenges faced in establishing the cooperative	
	✓ Social support from the government	
	✓ Community development opportunities provided by the government	

Table 1. Data and Collection methods

The methodology for gathering qualitative data involves conducting focus group discussions (FGDs) with a total of 24 participants. The participants of the Focus Group Discussion (FGD) will be categorized into four distinct groups, namely: male carabao farmer members, female carabao farmer members, staff or personnel of Baybay Dairy Cooperative, and members of the Board of Directors (BOD).

The focus group discussions (FGDs) were carried out in Bisaya, the vernacular language of the locality, and was recorded via audio recording. The audio recordings have undergone transcription and afterwards was analysed through the application of thematic analysis. The focus group discussions (FGDs) will cover three key areas: the influence of Baybay Dairy Cooperative on carabao farmers' sustenance, the cooperative's social impact on carabao farmers, including social support and community development opportunities, and the obstacles encountered by carabao farmers.

The study have also utilized a Key Informant Interview to gather qualitative data on the cooperative's social impact on carabao producers, encompassing aspects such as social support and prospects for community development. The interview was carried out with the Philippine Carabao Center (PCC), that is credited with the establishment of the cooperative. This will in turn facilitate the gathering of information by the researchers from an informed source concerning relevant data, especially on the the social impact of the cooperative.

2.2. Limitations and risks

- a) The present study is subject to certain limitations:

The generalizability of the results to the entire population of carabao producers who are affiliated with the Baybay Dairy Cooperative may be limited due to the usage of a sample in the study. Moreover, the research is dependent on self-reported information, which may present a potential for bias.

- b) The potential risks linked to the study are outlined below:
There exists a potential limitation in the collection of sufficient information to properly address the research inquiries. It's possible that not all of the challenges and barriers that cooperative members who do dairy farming face can be identified by the study. It is also possible that the study may lack the capacity to comprehensively assess the overall influence of the Baybay Dairy Cooperative on the carabao farmers.

2.3. Quality assurance

- a) The following measures will be taken to ensure the quality of the study:
This research will employ a rigorous methodology. Second, the data will be methodically collected and analyzed. Lastly, the study's findings will be disseminated to relevant stakeholders.

3. RESULTS AND DISCUSSIONS

3.1 Outcomes of the BDC associated to the Dairy Farmers

Immediate Outcomes	Intermediate Outcomes	Ultimate Outcomes
<ul style="list-style-type: none">Increased income for farmers	<ul style="list-style-type: none">Increased investment in dairy production	<ul style="list-style-type: none">Increased production of dairy products in the region
<ul style="list-style-type: none">Improved financial stability	<ul style="list-style-type: none">Improved animal health and reproduction practices	<ul style="list-style-type: none">Improved livelihoods of carabao farmers
<ul style="list-style-type: none">Improved social support & community relations	<ul style="list-style-type: none">Increased access to quality feed	<ul style="list-style-type: none">Increased economic activity in the region

Table 2. Summary of Outcomes

3.1.1 Immediate Outcomes

- a) Increased income for farmers
Since joining the cooperative, the farmers' income from milk production has increased, as stated by the farmers themselves, who are members of the cooperative. Additionally, farmers are given a portion of the income made by the cooperative from the sale of dairy products. Because of this,

farmers have seen a rise in their income as well as increased financial security. According to the farmers,

"You have a lot of income from carabao milking; if you have many carabaos, focus on taking care of them so that their conditions are good."
(Male Farmer 1)

"If I compare the income of driving habal-habal and milking, I will really focus on milking."

(Male Farmer 2)

Numerous farmers have reported that they were able to afford their children's education because they were able to provide for themselves through milk sales. In addition to selling raw milk to the cooperative, some producers, particularly the women farmers, have reported purchasing the BDC's final products and reselling them to their neighbors, schools, and other markets.

b) Improved financial stability for farmers

Credit is made available to members of the cooperative as well. Farmers are able to acquire feed and other supplies owing more readily to the interest-free loan that is provided to them by the cooperative. According to a BDC staff,

"We have a strategic plan for what they need in terms of resiliency, for example, drought. The cooperative subsidizes and credits without interest; for example, we don't loan them cash but the materials they need. For example, biological feeds, injections, and medicine needs of the carabao can be credited, but they will not be added to what they take."

- BDC Staff

The cooperative, through providing loans and other financial services to the farmers, has helped carabao farmers enhance their financial stability. Some farmers had invested in the cooperative in order to make their money grow. Instead of putting their money in a bank, where it will barely grow in a year, some members invested in the cooperative and contributed to the CBU. According to the producers, they can earn money even if they do not contribute to the CBU; their income will be limited to milk, but they can also earn 1 peso per liter of milk sold to the BDC.

c) Increased social support and community relations

By participating in trainings and seminars, as well as having access to a platform for information and idea sharing. The farmers, in turn, get the opportunity to gain knowledge on how to enhance the quality of their milk and how to more efficiently raise their carabaos. Farmers have noted attending Food safety training and seminars on good manufacturing practices. When asked how the seminars have helped, they answered,

"It can help a lot because we entered milking without prior knowledge, at the same time there are mandatory trainings that are free of charge and that's how we knew how to operate the cooperative."

- Female Farmer

The cooperative conducts general assembly's regularly where the farmers and other stakeholders can discuss and exchange information and ideas about the cooperative. This has contributed to an increased sense of community among farmers as well as an improved social position for farmers.

3.1.2 Intermediate Outcomes

a) Increased investment in dairy production by farmers.

Because of the multiple connections that the cooperative has established with various government organizations, such as DTI, DOST, and DepEd, amongst others, there are now more channels through which they may sell their products, which has led to an increase in the demand for milk. Farmers who are members of the cooperative are now more willing to put in effort and invest so they can supply more milk to the cooperative.

b) Improved animal health and reproduction practices by farmers.

Through the BDC, the farmers are now able to increase their animal population, enhanced their feeding procedures, and taken additional measures to enhance animal well-being and reproductive capacity. According to the regional director of the Philippine Carabao Center (PCC),

"There are also a few barangays that have recognized the importance of dairy production, such that the barangay government is providing help to the farmers in terms of facilitating milk collection by better improving the milk collection and feeding of the residents in the area. And those who are raising dairy carabaos also looked into equipment for them to assist them in being able to do milking at a lower cost. There is a communal milking parlor. In terms of relationships, people are appreciating that milk production is an enterprise through the efforts of the cooperative in producing and promoting dairy carabao production, and because of this, the local governments as well as other members of the community are contributing to making the lives of the dairy carabao farmers easier."

- Francisco Gabunada, Jr.

This has resulted in an improvement in the quality of the milk that is produced by farmers, which has in turn led to an increase in the demand for the items that they sell.

c) Increased access to quality feed for farmers.

Due to the fact that farmers now have easier access to financing from the cooperative, it is now much simpler for them to get feed of a high standard. The cooperative lends out not money but resources that the farmers might employ in their farming endeavors. When asked how does the credit lent by the BDC helps them according to the female farmers,

"Yes, it helps because we borrow from the coop if we don't have money."
(Female Farmer 1)

"In milk too, and in carabao feeds too."
(Female Farmer 2)

Furthermore, according to Prof. Gabunada, adequate feeding is both crucial to the animal and to the environment. He emphasizes the importance of adequate feeding for animals, as it reduces greenhouse gas production. Ruminants, in particular, contribute significantly to greenhouse gas production through fermentation. By providing good quality feed, fermentation losses are reduced, resulting in less greenhouse gas production. Proper feeding reduces environmental damage and greenhouse gas emissions.

3.1.3 Ultimate Outcomes

- a) Increased production of dairy products in the region.
The increased production of dairy products in the region has led to increased economic activity. Additionally, the farmers reported selling milk to neighboring towns in the region. According to Mr. Gabunada,

"And if you talk about the milk feeding program it has also reached other municipalities within the province of Leyte so uh and then another impact in terms of that and Baybay is Baybay us because of the Cooperative Baybay has already made a mark in terms of being known as one of the major milk producers in eastern Visayas so we have a few entrepreneurs from other places who use milk in their in their enterprise who come to Baybay just to buy milk in large, relatively large quantities. So, because of this Baybay has also made a name as one of the milk producers in major milk producers in Eastern Visayas."

- Francisco Gabunada, Jr.

In addition, once they begin lactating, their membership in the BDC will ensure that they have no difficulty marketing their milk. Due to the fact that a cooperative is willing to receive their milk. In addition to their milk delivery, they receive additional incentives. It should also be noted that the PCC was instrumental in the formation of the cooperative and expanding its network. The PCC organized and connected the majority of these other government agencies. They offered the existing processing facility to the Baybay Dairy Farmers Association (BDFA), now BDC, for a minimal rental fee, and subsequently provided the carabao-based enterprise development unit. In addition to providing technical assistance in terms of milking animal production and cooperative development efforts so that the BDC can grow, they were also able to link the BDC with the Food and Drug Authority (BFAD) and assist in obtaining an operating license.

- b) Improved livelihoods of carabao farmers.

The improved livelihoods of carabao farmers have also had a positive impact on their families and communities. Farmers have been able to send their children to school, improve their homes, and invest in their businesses. According to a BOD member who also contributes milk to the cooperative,

"For me, milking really helps to send my children to school, even in the big universities, because even on holidays I can milk, so I really have income every day, whether it's Sunday or Christmas. You milk every day as long as your carabao also gives birth, and then we can just take care of it. As long as others can see that milking can really help in the daily life of the farmer, as long as the farmer really needs it because he is hardworking, because if he is not hardworking, he will not be able to survive, and he will not be able to reap the buffalo's harvest. You just have to take care of your carabao, and it will definitely return your income, especially if you have many carabaos."
(BOD Member)

An officer from PCC stated that a strong tie within the family can also be witnessed with the members of the cooperative. And so, the majority of the carabao farmers' families participate in the milking process. It is expected that members of the family will be willing to assist one another with their respective chores; for example, some will collect the milk, others will feed the carabao, and the older children will also pitch in. Additionally, the wife would assist in feeding the carabao. Therefore, the strengthening of familial ties is evident.

- c) Increased economic activity in the region.
This has resulted in the creation of jobs and opportunities for people in the region, as well as a benefit to the local economy. They had also collaborated with government agencies, such as the Department of Trade and Industry, to determine if there are trade fairs at which they can sell more of their products.

Carabao farmers in the area have been able to improve their standard of living as a result of the Baybay Dairy Cooperative's efforts, as a whole. The farmers' cooperative has been instrumental in the rise in agricultural revenue, the improvement of the farmers' financial stability, as well as the provision of opportunities for social assistance and community development. These results have contributed to an increase in the production of dairy products in the region, as well as an increase in economic activity and an improvement in the carabao farmers' standard of living.

3.2 Challenges And Barriers Faced By Carabao Farmers

The analysis of data gathered from the focus group discussions and key informant interviews reveals several factors that impede the carabao farmers' ability to derive benefits from the Baybay Dairy Cooperative.

1. *Members' inactive participation.* The lack of involvement from certain members poses an obstacle in sustaining a consistent milk supply within the cooperative.
2. *Inadequate numbers of lactating carabaos.* The limited quantity of lactating carabaos supplied by farmers results in lesser milk production to satisfy the demand of the cooperative.
3. *Occasional low milk quality.* On certain days, the kind of milk generated by dairy farmers falls below the minimum requirement for cooperative processing. This of course may arise from various factors, including ineffective animal husbandry techniques or milk contamination.
4. *Financial difficulties.* The financial circumstances faced by the cooperative in the past few years have impeded its capacity to offer loans and other forms of assistance to its members.
5. *Natural calamities.* The occurrence of natural calamities, such as typhoons that are common in the region, has the potential to hamper the operation of the cooperative. This can result in damage to equipment and facilities as well as a reduction in milk production.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1. Overall Assessment/Conclusions

4.1.1 Regarding Relevance

The Baybay Dairy Cooperative plays a pivotal role in supporting carabao farmers in the Philippines by providing them with credit facilities, training programs, and marketing assistance, thereby strengthening their productivity and income levels. Along with this, the organization provides social support services such as community feeding and cleanup initiatives, which help improve the social standing of farmers and their respective communities. The cooperative facilitates a platform for the exchange of information and concepts, offering of credit and financial services, fair compensation for milk, and potential clients for community development. In general, the Baybay Dairy Cooperative has significantly improved the economic and social welfare of carabao farmers in the region.

4.1.2 Regarding Coherence

The Baybay Dairy Cooperative is in accordance with the agricultural policies of the government, which aim to advance the dairy sector in the Philippines. These regulations are also in line with the cooperative's operations, and the government is dedicated to assisting the dairy industry. Altogether, the cooperative works with other institutions, such as the Departments of Agriculture, Trade and Industry, and Science

and Technology, to provide farmers with the resources they need to operate successfully. Lastly, the cooperative's activities match with the government's objective to supporting the dairy industry and building a thriving dairy farming sector in the Philippines.

4.1.3 Regarding Effectiveness

By enhancing farmers' income, financial security, and social support, the Baybay Dairy Cooperative has achieved its goals. Notwithstanding, it is imperative to tackle obstacles in a timely manner such as insufficient credit accessibility and inadequate training. Factors such as community development, quality of life, and dairy sector growth have also been fostered by the cooperative. In general, the efficacy of the Baybay Dairy Cooperative in attaining its objectives has been demonstrated.

4.1.4 Regarding Efficiency

The Baybay Dairy Cooperative is a resourceful cooperative that provides farmers with the necessary training, credit access, and reasonable milk prices. The cooperative is also effective in reducing expenses, particularly those that are related to feeding. The cooperative encourages community development through financial sustainability and humanitarian initiatives. The cooperative attempts to limit expenses in production and guarantee that farmers obtain the essential services required, thereby boosting the collective success of the cooperative and its members.

4.1.5 Regarding Impact

The Baybay Dairy Cooperative has brought about noteworthy transformations in the well-being of farmers and their families, leading to a rise in their earnings, economic security, and social support. Through this cooperative has improved quality of life and fostered a sense of community for its members. Moreover, the cooperative has helped improve the nutritional status of the community especially the children, and generated employment opportunities for many people, thereby raising the overall societal standing of farmers and their immediate communities. In general, the Baybay Dairy Cooperative has exerted a favorable influence on the livelihoods of farmers and their respective societies.

4.1.6 Regarding Sustainability

The Baybay Dairy Cooperative, which helps dairy carabao farmers in the , is efficient and sustainable. The cooperative exhibits effective financial management, a dedicated board of directors, and favorable partnerships with governmental and non-governmental entities built

throughout the years, thereby demonstrating a sound governance and transparency of its operations. The cooperative's long-term sustainability is essential for ensuring its continued relevance, effectiveness, efficiency, and impact on the livelihoods of the carabao farmers and their families.

The Baybay Dairy Cooperative is a significant contributor to the dairy farming industry in Region 8, offering farmers access to resources and support that could enhance their productivity and financial gains. The dairy cooperative may serve as a prototype for other cooperatives in the nation due to its relevance, coherence, effectiveness, efficiency, impact, and sustainability. The cooperative's ability to improve farmers' livelihoods is supported by the OECD Evaluation Criteria. However, there are obstacles to overcome, such as simplifying the decision-making process, implementing a financial sustainability strategy, increasing membership, and developing new products and services to suit member and consumer needs. In general, the Baybay Dairy Cooperative exhibits a very promising prospects for attaining triumph and durability as a dairy cooperative, thereby securing the enduring viability of its constituents and the local economy of the region.

4.2 Recommendations

In order to address the following challenges that were observed during the data gathering part of this study, the cooperative could take the following steps:

- *Encourage more active participation on the part of the members.* The cooperative may do this by providing more training and education to the farmer members, as well as by offering occasional incentives for active participation.
- *Helping farmers increase the number of lactating carabaos they own.* The BDC could help farmers by giving them more choices on credit access and other financial aid, as well as by providing training on sustainable animal husbandry practices.
- *Improving the quality of milk produced by the farmers.* The cooperative could do this by providing training on milk production and employing quality control, as well as by providing access to improved breeding stock.
- *Strengthening the financial standing of the cooperative.* The cooperative could do this by increasing membership, improving its collection and management of funds, and seeking additional sources of funding from the appropriate government or non-government agencies.

- *Making contingency plans for natural disasters.* The cooperative could do this by having a more rigorous plan in place to protect its equipment and facilities from damage during these times, as well as a plan to resume milk production as quickly as possible after having experienced the said disaster.

By addressing these challenges, the Baybay Dairy Cooperative can improve its ability to provide benefits to its members and as well as to the local community of Baybay City, Leyte.

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Annex 3. Impact Study Phase 2. Only the First Page and Conclusion Part are attached. If required, the faculty can submit a copy of the study.

Impact of Dairy Cooperatives in Smallholder Dairy Production Systems: The Case of the Baybay Dairy Cooperative

Abstract

This study investigated the impact of dairy cooperative membership in smallholder dairy production systems in Baybay City. Analyzing data from the survey, this study employed the Mann-Whitney U test and correlation analysis after tests for normality. The study reveals significant positive correlations between cooperative membership and household income, access to credit, milk consumption, and technology improvement. However, the evidence of increased employment remains inconclusive. Recommendations include promoting cooperative participation, targeted interventions for employment, continuous monitoring, and knowledge dissemination. The study's findings contribute to understanding cooperative impacts on rural economies, emphasizing the need for nuanced strategies for comprehensive development.

1. Introduction and Background

In 2019, global milk production surged to an astounding \$52 million tons, signifying a 1.4% increase compared to the preceding year, 2018, as reported by the Food and Agriculture Organization (FAO) in 2022. In many developing countries, milk production predominantly emanates from small-scale farmers, and this activity is crucial in sustaining household incomes, improving food security, and enhancing nutritional well-being. Most of this production is constituted by cow's milk, followed closely by buffalo milk. Notably, Asia has emerged as a pivotal player in the global milk production landscape, contributing approximately 30% of the world's total output, as highlighted by Burke *et al.* (2018). In Asia, cattle's contribution to milk production is 40%, and buffaloes and goats contribute the majority.

Together with this global trend, the dairy industry across Southeast Asian countries has witnessed a persistent growth trajectory. However, this growth may fall short of meeting the increasing demand stemming from the rapidly expanding population (Oliveros, 2019). According to Hernandez *et al.* (2022), at the outset of 2019, the United States Department of Agriculture

Conclusion

The findings of this study provide compelling evidence that dairy cooperative membership significantly contributes to the improvement of various socio-economic indicators among carabao farmers in Baybay City. The study revealed a positive impact on household income, access to credit and financial services, increased milk consumption, and improved access to technology. These outcomes align with existing literature, particularly the works of Amante and Mardo (2022), Bayan (2018), Ofori *et al.* (2019), and Chagviza *et al.* (2016), affirming the positive effects of cooperative membership on the economic well-being of farmers.

However, the study did not find sufficient statistical evidence to support the claim that dairy cooperative membership leads to a significant increase in employment in the area. While subjective evidence from key informant interviews and focus group discussions suggested increased economic activity, the statistical analysis did not confirm a significant relationship between cooperative membership and employment generation.

Recommendations

Enhanced Promotion of Cooperative Membership: Encourage and promote the participation of carabao farmers in dairy cooperatives, emphasizing the potential benefits of increased income, access to credit, and technology.

Targeted Interventions for Employment Generation: Given the inconclusive evidence on employment, further research and interventions are warranted to explore strategies for enhancing employment opportunities within dairy cooperatives. This could involve tailored programs and policies to stimulate economic activity and job creation.

Continuous Monitoring and Evaluation: Establish mechanisms for ongoing monitoring and evaluation of cooperative initiatives to assess their sustained impact on socio-economic variables. This could inform adaptive strategies and ensure the long-term effectiveness of cooperative interventions.

In conclusion, while the study highlights the positive impact of dairy cooperative membership on several socio-economic aspects, it also highlights the need for nuanced approaches in addressing employment-related challenges. Continued research and collaborative efforts are crucial for the holistic development of carabao farming communities in Baybay City.