

Impact Assessment of the Capture Fisheries Development Program on Fisherfolks in Apayao Province

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Abstract

This study assessed the impact of the Capture Fisheries Development Program (CFDP) on fisherfolk in Apayao Province. Findings from fifty male respondents revealed that the CFDP significantly improved economic livelihoods by eliminating very low-income earnings and increasing representation in higher income brackets, with 86% reporting improved economic status and sustained employment in fisheries. Environmentally, 70% observed increased fish populations attributed to CFDP's sustainable practices, with high satisfaction (48 out of 50) reported regarding provided with fishing equipment, technical assistance, and training. However, challenges like environmental issues, insufficient financial support, and limited gear/training were noted. The study concludes that the CFDP positively impacted economic, environmental, and social well-being, recommending enhanced environmental management, increased financial support, expanded training, improved equipment provision, and stronger policy and institutional support for further program success.

I. INTRODUCTION

The Capture Fisheries Development Program has been a pivotal initiative from the Special Area for Agricultural Development aimed at enhancing the socio-economic conditions of fisherfolk, promoting sustainable fishing practices, and ensuring the conservation of aquatic resources. In regions like Apayao Province, where inland fishing is a primary livelihood, the effectiveness and impact of such programs are critical for program and project formulation. This study seeks to assess the tangible benefits and challenges experienced by the local fisherfolk as a result of the Capture Fisheries Development Program. The Capture Fisheries Development Program represents a crucial initiative aimed at enhancing the sustainability and productivity of fisheries, thereby improving the livelihoods of fisherfolk communities. This research seeks to explore the multifaceted impacts of such programs on fisherfolk, examining both the socio-economic benefits and environmental implications.[1]

The World Trade Organization (WTO) is in a unique position to move global fisheries towards sustainability. The current Doha Trade Round of Negotiations offers an important opportunity to improve the future prospects of fish as a main source of animal protein for one-fifth of the world's population. Countries are wrestling with the issue of government fishing subsidies, which keep too many commercial fishing boats in operation and drive the unsustainable exploitation of the world's depleted fish populations. Removal of subsidies is challenging as it cannot be resolved without international

cooperation because unilateral action has trade implications, and may not work because fish and fishing vessels do not respect national exclusive economic zones. This is why the WTO, which has in place mechanisms to enforce its agreements, is the only institution that can tackle the global problem of overfishing subsidies. [2]

A study conducted in Nigeria investigated the socioeconomic conditions of fisherfolk to assess the potential for aquaculture development in Anaku community, Ayamelum Local Government Area, Anambra State. The research utilized eighty structured questionnaires to gather data from fisherfolk, which were analyzed using descriptive statistics, simple percentages, and Chi square tests. The findings indicated a significant relationship ($P < 0.05$) between the socioeconomic characteristics of respondents and their involvement in fishing activities. Most respondents (82.5%) were male engaged in fishing, while 17.5% were female involved in fish processing and trading, primarily aged between 24-40 years (40.00%). A large majority (86.25%) of respondents were married, with family sizes typically ranging from 5-8 persons (51.25%). All respondents relied on natural water bodies for fishing, and 58.75% depended solely on fishing for income, using predominantly local fishing equipment (50%). The majority of fisherfolk had no formal education (55.00%), while 45.00% had some level of education. Although more fisherfolk (56.25%) considered fishing their primary occupation compared to crop farming, the study found that a monthly income of N50,000 was most common (41.25%). Consequently, the study suggests significant potential for aquaculture development in the Anaku fishing community and recommends governmental support to fully exploit fisheries resources in Anaku.[3]

Apayao Province, known for its rich aquatic biodiversity, has a significant portion of its population reliant on capture fisheries for their livelihood. The Capture Fisheries Development Program was introduced to address various issues faced by the fishing community, including low productivity, inadequate fishing gear, lack of access to markets, and environmental degradation. The program encompasses a range of interventions, from providing modern fishing equipment to capacity-building and environmental conservation efforts.

The registered fisherfolks engaged in capture fisheries in the province 2,174 as per the fisherfolk registration system data base as of March 2024. [6]

Apayao being one the landlocked provinces in the cordillera region. We are at least lucky that we have major fishing grounds rivers, lakes, creeks, SWIP's and dams aside from the fish pond areas of fisherfolks engaged in backyard fish farming of *tilapia*, *hito*, *carp* and *ulang*.

The Bureau of Fisheries and Aquatic Resources (BFAR), under the Department of Agriculture's Special Area for Agricultural Development (SAAD), provides support to marginalized and vulnerable fisherfolk in the province. This assistance includes implementing strategic fisheries development and extension programs aimed at sustaining livelihood opportunities. The SAAD Program, part of the Department of Agriculture's efforts to reduce poverty and activate local agricultural production, specifically targets marginalized Filipino farmers and fisherfolk. It focuses on enhancing the lives of vulnerable fisherfolk through livelihood initiatives, aiming to uplift economic conditions in marginalized communities by creating opportunities in agriculture and fisheries. Phase 1 of SAAD, launched in 2016 under former DA Secretary Emmanuel F. Piñol, targets the ten poorest provinces annually, identified based on poverty incidence data from the Philippine Statistics Authority (PSA) in 2012 and 2015, with additional focus on conflict-affected areas under E.O. 70 series to End Local Communist and Armed Conflict (ELCAC) in 2019.[7] [8]

Through the Special Area for Agricultural Development, BFAR is focused on the delivery of economic opportunities through its livelihood component. The Capture Fisheries Development Program is composed of provision of fishing gear and paraphernalia, provision of fishing boat and provision of capacity building activities for skills development.

The identification of potential beneficiaries of the SAAD program was based on the fisherfolk registration (FishR) system of Bureau of Fisheries and Aquatic Resources. In terms of beneficiary selection BFAR focuses on the fisherfolks in the marginalized sector those who are engaged in capture fishing as one of their livelihood. They underwent through validation and social preparation activities for proper implementation of the capture fisheries development program. The beneficiaries were provided with appropriate capacity building trainings. The program implementation was spearheaded by the BFAR- Provincial Fishery Office in coordination with the Local government units.

The projects implemented were provision of Fishing Gear/ Paraphernalia to those fisherfolks who actively engage in capture fishing activity to suppress the illegal fishing activities being practiced and to sustain legal fishing as livelihood of fisherfolks that uplifts income opportunities. As part of the provision of fishing gears, capacity building activity was conducted, training on gill net making and construction was initiated to assist the fisherfolk beneficiaries in the repair and maintenance of the fishing gears distributed.

Despite the substantial investment and efforts made under the Capture Fisheries Development Program, there is a need for a comprehensive impact assessment to evaluate its success and identify areas for improvement. Understanding the socio-economic and environmental impacts of the program on the fisherfolk of Apayao Province will provide valuable insights into its effectiveness and sustainability. This study aims to fill this gap by systematically examining the outcomes of the program from the perspective of the local fishing community.

Statement of the Problems

This study focuses on the impact assessment of the capture fisheries development program on fisherfolks in Apayao province. It seeks to determine the following:

1. What is the Demographic Profile of the respondents in terms of:
 - Age
 - Gender
 - Educational attainment
 - Years of experience in Fishing
2. How has the capture fisheries development program on fisherfolks affected the income levels, employment opportunities, and overall economic status of fisherfolk in Apayao Province?
3. What are the environmental impact of the CFDP, particularly in terms of the changes in local fish populations during the implementation of the program, and sustainability of fishery resources after the program in Apayao Province?
4. What is the impact of CFDP in Program Participation and Satisfaction in terms of programs resources and supports provided in Apayao Province?
5. What are the challenges faced by the respondents, and opportunities during the implementation of program?
6. How effective is the CFDP in terms of Policy and Institutional, and Support Capacity Building and Skill Development?

7. What interventions to be crafted in enhancing fisherfolks' income stability, resource access, market access, and resilience that could help fisherfolks beneficiaries within the Apayao Provinces?

Conceptual Framework

This conceptual framework outlines the pathways through which capture fisheries development programs can impact fisherfolk in the Apayao Province. It considers inputs, processes, outputs, and outcomes, emphasizing economic, social, and environmental dimensions of program effectiveness. Continuous monitoring and stakeholder engagement are crucial for ensuring sustainable outcomes and long-term benefits for the community.

Provision of fishing gears, training on fishing gears making. This study will identify the data on the provision of the BFAR of fishing gears, and training on fishing gears making to identify the specific tools and trainings provided to the respondents. A study by Youn et al. (2022) found that the provision of modern fishing gears significantly improved the catch efficiency of small-scale fishers in Southeast Asia.[10] The study emphasized that access to advanced fishing technology can lead to higher productivity and better income for fisherfolk. Research by FAO (2023) highlights that training fisherfolk in making and repairing their own fishing gears empowers them with essential skills that reduce dependency on external suppliers. [11] This skill development can lead to cost savings and increased self-sufficiency within fishing communities.

Policy and institution. This study will also review of policy and institutions applied in the implementation of the program. A study by Agnew et al. (2022) emphasized the importance of well-crafted fisheries policies that promote sustainable fishing practices. [12] The study found that policies focusing on resource management, conservation, and community engagement are crucial for the long-term viability of fisheries. Research by Symes and Hoefnagel (2021) identified challenges in implementing fisheries policies, such as lack of enforcement, insufficient funding, and low stakeholder engagement. The authors suggested that successful implementation requires collaboration between government agencies, local institutions, and fishing communities . [13]

The Philippine Fisheries Code of 1998 (RA 8550) is a key piece of legislation aimed at sustainable fisheries management. Studies have shown that this law has provided a comprehensive framework for the conservation and management of fishery resources, though its implementation has faced challenges due to limited resources and enforcement issues (BFAR, 2022). [14] Also, the Bureau of Fisheries and Aquatic Resources (BFAR) plays a crucial role in providing technical and financial support to fisherfolk. A study by Muallil et al. (2021) found that BFAR's programs, such as the provision of fishing gear and community-based resource management, have significantly improved the livelihoods of fisherfolk in various regions. [15]

Profile of the Fisherfolk Beneficiaries. Age, Gender, Education Level, and Experiences: These demographic and socio-economic factors can moderate the impact of the development program on the dependent variables (Kawarazuka&Béné, 2020). [16]

The implementation of the program. The implementation of the Capture Fisheries Development Program (CFDP) in the Philippines involves a multi-faceted approach, including policy formulation, institutional support, capacity building, and community engagement. FAO (2023) reports that training programs on sustainable fishing practices and gear maintenance have empowered fisherfolk with the necessary skills to improve their livelihoods and practice sustainable fishing. [11]

Studies by Pomeroy et al. (2021) indicate that continuous workshops and technical assistance provided by BFAR and NGOs have enhanced the knowledge and skills of fisherfolk, leading to better resource management and increased fish catch.[17]

Monitoring and evaluation. Regular monitoring and impact assessment are crucial. Studies by Smith et al. (2022) emphasized the need for continuous evaluation of program outcomes to ensure effectiveness and make necessary adjustments. [18] Feedback mechanism will also be applied, Implementing feedback mechanisms, as suggested by Cinner et al. (2022), helps in gathering insights from fisherfolk and stakeholders, leading to the continuous improvement of the program.[19]

Enhanced fishing techniques. The implementation of enhanced fishing techniques within the Capture Fisheries Development Program (CFDP) in the Philippines aims to improve the efficiency, sustainability, and productivity of fisherfolk. This involves the introduction of modern fishing technologies, sustainable practices, and training to ensure optimal resource use and environmental conservation.

Improved access to market access and income. Establishment of Fisherfolk Cooperatives. A study by Muallil et al. (2021) highlighted the success of fisherfolk cooperatives in improving market access. Cooperatives help fisherfolk collectively bargain for better prices and access larger markets.[15]

Development of Fish Landing and Processing Facilities. Research by Armada et al. (2022) demonstrated that the establishment of fish landing and processing facilities has significantly reduced post-harvest losses and improved the quality of fish products, leading to better market prices.

Increased Level of satisfaction of the fisherfolk beneficiaries: Program Participation and Satisfaction, This research will gather Participation Rate where Engagement levels of fisherfolk in the program can be influenced by perceived benefits and accessibility (Pretty & Ward, 2019). [20] And, Satisfaction Level can be measured by how well the program meets the needs and expectations of the fisherfolk (Chambers, 2020).[21]

Identification of Challenges along the program: The Challenges and Opportunities. The research study will identified challenges especially the Common challenges include resource constraints, lack of training, and environmental issues (Béné et al., 2021). [22] Opportunities for Improvement: Identifying areas where the program can be enhanced based on feedback and performance (Cochrane & Garcia, 2021). According to Jentoft and Chuenpagdee (2021), while the provision of fishing gears can enhance fishing activities, it also poses challenges such as the need for maintenance and the potential for overfishing if not managed properly. The authors suggest integrating gear provision with sustainable fishing practices training to mitigate negative impacts .[23] [24]

IMMEDIATE OUTCOMES

Socio-Economic Impact, the Income Levels indicates that fisheries development programs can enhance fisherfolk income through improved fishing techniques and better market access (FAO, 2015). [25] Employment Opportunities show that such programs can create direct and indirect employment opportunities (Allison & Ellis, 2010) [26] .And the economic condition where the improved income and employment opportunities generally lead to a higher standard of living (Béné, 2020).[27]

Environmental Impact, the research will determine the changes in local fish populations during the implementation of the program , and sustainability of fishery resources after the program where Fish Stock Sustainability cited as Sustainable fishing practices promoted by development programs can lead

to healthier fish stocks (Pauly & Zeller, 2019). Ecosystem Health , its overall ecosystem health can be positively impacted by sustainable fishing practices (Berkes et al., 2021). [28] [29]

RESEARCH PARADIGM

INPUT	PROCESS	OUTPUT
<p>Demographic Profile of the Respondents Assessment in Socio-Economic, Environmental Impact, Program Participation and Satisfaction, and Challenges and Opportunities</p> <p>Effectiveness of capacity building and skill development. And;</p> <p>Provision of fishing gears, training on fishing gears making.</p>	<p>Coordination with Bureau of Fisheries and Aquatic Resources (BFAR) for the list of beneficiaries.</p> <p>Interview and Survey Questionnaire</p> <p>Field Visits</p>	<p>Impact assessment of capture fisheries development program to the fisherfolks in the apayao province</p>

Figure 1.0. Input-Process- Output. *This figure shows the input- process- output of the Impact assessment of capture fisheries development program to the fisherfolks in the Apayao Province*

II. METHODOLOGY

This chapter provides a detailed discussion of the study's locale, the procedures used for data collection, the selected respondents, and the methods of statistical analysis.

Research Design

This research study was a descriptive assessment that utilized a mixed-method approach, combining qualitative and quantitative techniques to evaluate the impact of the Capture Fisheries Development Program on fisherfolk in Apayao. The study employed a survey questionnaire to collect data, which was divided into several sections: demographic profile of the respondents, socio-economic impact, environmental impact, program participation and satisfaction, challenges and opportunities, capacity building and skill development, and policy and institutional support.

Locale of the study

The study was conducted in the lower part of Apayao province, specifically in the municipalities of Luna, Pudtol, Sta. Marcela, and Flora. Apayao province was one of the beneficiaries of the DA-SAAD fisheries program.

Respondents of the Study

The respondents of this study were the fisherfolk beneficiaries of the fishery programs implemented in Lower Apayao during the funding years 2017–2019. They had selected through purposive sampling and had benefited from the program.

Data Gathering Procedure

The researcher prepared a letter of approval for the BFAR. Upon the approval, the researcher requested list of beneficiaries. Coordinated with the fishery program funding institutions the Department of Agriculture - Bureau of Fisheries and Aquatic Resources through the provincial Fishery Office and the Local Government Units for the baseline data gathering, which includes the list of fisherfolk beneficiaries of the capture fishery program.

Then, the researcher presented the communication letter to the respondents during the actual field visit to the project beneficiaries and followed by the administration of the survey questionnaire and interview with the respondents. The results of the study was tallied and tabulated and became the bases of the analysis and interpretation of the data.

The researchers made sure to abide with data privacy act and clarify to the participants that the data that coming out from the interviews and survey were only be used for the purpose of the research. The data gathered was analyzed and tabulated.

STATISTICAL TREATMENT AND ANALYSIS

Frequency count, and percentage was utilized to determine the number of responses. A 5 point Likert Scale calculation was applied in rating the effectiveness and measuring level of satisfaction of the respondents.

The survey questionnaire contains of enumerating “others” responses which was treated through thematic analysis.

Mean Value	Estimation Degree
1.00 - 1.80	Very Low
1.81- 2.60	Low
2.61 - 3.40	Average
3.41 - 4.20	High
4.21 - 5.00	Very High

Table 1. A 5 point Likert Scale

Expected Outcomes

This research is expected to generate valuable insights into the livelihood impact of capture fishery development projects to assess the effectiveness of projects in enhancing fisherfolks' income stability,

resource access, market access, and resilience that could help in the poverty alleviation and food security project design and implementation: Identify factors contributing to project success and areas for improvement, ensuring future projects are more effective. Policy recommendations: Provide concrete recommendations for policymakers and project implementers to maximize the positive impact of fishery interventions on fisherfolks' livelihoods that could continue.

III. RESULTS AND DISCUSSION

Profile	Frequency	Percentage
A.AGE (yrs)		
18 – 25	1	2%
26 - 35	5	10%
36 - 45	12	24%
46 - 55	13	26%
56 and above	19	38%
B.GENDER		
Male	50	100%
C. EDUCATIONAL ATTAINMENT		
Elementary Graduate	15	30%
High School Graduate	31	62%
College Graduate	4	8%
D. YEARS OF EXPERIENCE IN FISHING		
1 – 5	1	2%
6 – 10	3	6%
11 – 15	10	20%
16 – 20	19	38%
More than 20 years	17	34%

Table 2. Frequency Distribution of Respondents' Demographic Profile

This chapter presents the gathered and analyzed data on the impact assessment of the capture fisheries development program on fisherfolks in Apayao province.

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

Profile of the Respondents

The table presents the demographic distribution of 50 surveyed respondents across four key categories: Age, Gender, Educational Attainment, and Years of Experience in Fishing. It details both frequency and percentage within each category.

A. Age Distribution

The data highlights the fishing industry's reliance on older individuals, with 38% of respondents aged 56 and above and 26% between 46 and 55 years old. This indicates an experienced workforce but raises concerns about the lack of younger participants, who comprise only 2%. If this trend persists, the industry may face a gradual decline unless initiatives are introduced to encourage youth involvement.

B. Gender

A stark gender imbalance is evident, as all respondents identify as male. This suggests that fishing in Apayao is traditionally male-dominated, potentially due to cultural norms, physical demands, or barriers to female participation.

C. Educational Attainment

Education levels among fisherfolk influence their engagement with the industry. A significant majority (62%) are high school graduates, while 30% completed elementary school, and only 8% hold a college degree. Limited higher education access may hinder the adoption of advanced fishing techniques, financial literacy, and alternative livelihood exploration. Targeted education and training programs could improve productivity and economic resilience.

D. Years of Experience in Fishing

The industry is predominantly composed of seasoned fishers, with 38% having 16 to 20 years of experience and 34% exceeding 20 years. While this wealth of traditional knowledge is invaluable, it also highlights a strong reliance on conventional methods rather than modern innovations.

However, the dwindling number of new entrants is a cause for concern, signaling a potential decline in the industry. Encouraging younger generations to take part in fishing is crucial to ensuring sustainability, fostering innovation, and maintaining the sector's economic viability. Initiatives such as skill development programs, mentorship opportunities, and technological integration could attract and empower younger individuals, helping them view fishing as a viable and dynamic profession.

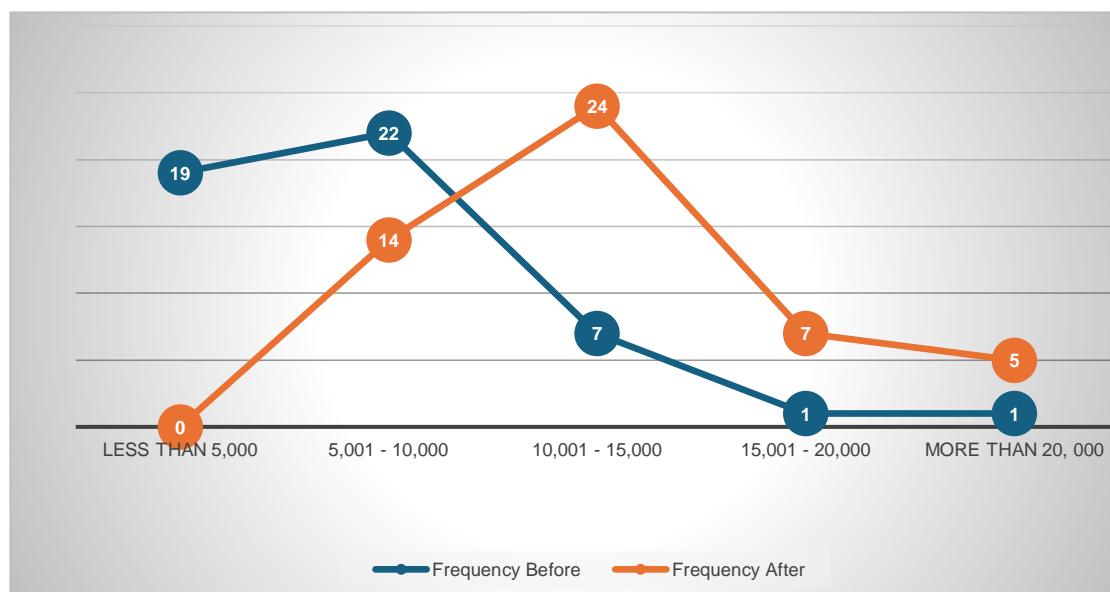


Figure 3a. Comparison Between the Monthly Income of the Fisherfolks Before and After the Capture Fisheries Development Program

The graph illustrates a comparison of the frequency distribution of fisherfolk monthly income before (blue line) and after (orange line) the Capture Fisheries Development Program. The horizontal axis represents income brackets. The vertical axis shows the number of fisherfolk in each bracket.

The Capture Fisheries Development Program has significantly improved the financial well-being of fisherfolk in Apayao Province by lifting individuals out of the lowest income bracket and facilitating upward income mobility. Before the program, 19 fisherfolk earned less than ₱5,000 per month, but after implementation, this number dropped to zero. Additionally, the number of individuals earning ₱5,001–₱10,000 increased from 14 to 24, while those in higher income brackets saw substantial growth. Employment also surged from 13 to 50, indicating that the program not only created more job opportunities but also enhanced productivity, likely due to improved fishing techniques, access to markets, and better equipment. These developments have led to greater financial stability among fisherfolk, allowing them to invest in their livelihoods and improve their quality of life.

Beyond immediate income gains, the program emphasizes long-term sustainability through environmentally friendly fishing practices, skill development, and access to modern equipment. By promoting fishing gear repair and construction training, fisherfolk are empowered to engage in additional income-generating activities, such as fishing gear making and selling. The program's holistic approach combining employment opportunities, improved earnings, and sustainable practices has transformed the economic landscape of Apayao's fishing community. The consistent upward trend in income distribution across various brackets demonstrates that the program has successfully strengthened financial resilience, ensuring a more stable and prosperous future for local fisherfolk.

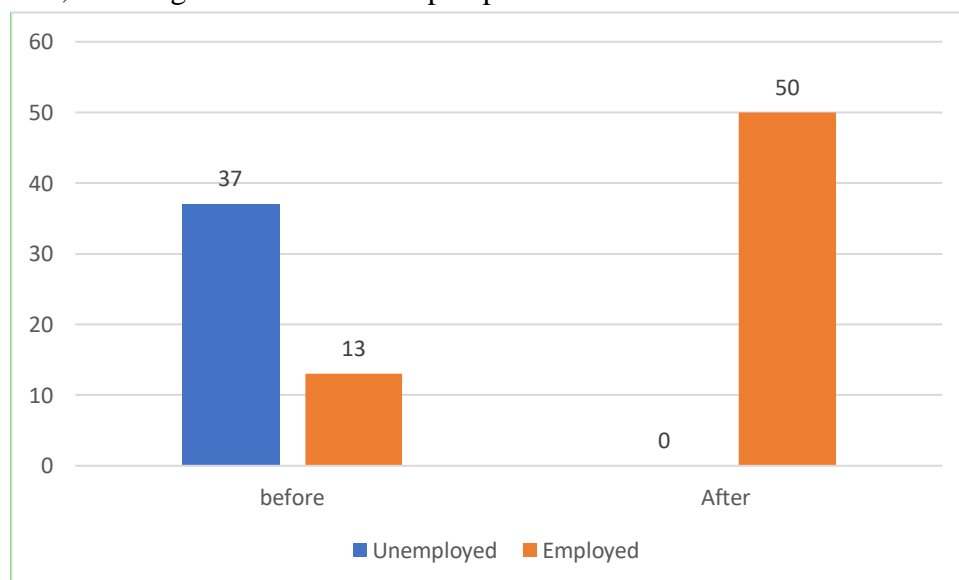


Fig 3b. Comparison on the Employment Opportunities of Fisherfolks Before and After the Capture Fisheries Development Program

The bar chart presents a compelling comparison of employment opportunities among fisherfolk before and after the Capture Fisheries Development Program, showcasing its remarkable impact.

Initially, 37 fisherfolk were unemployed, while only 13 had jobs. Following the program's implementation, unemployment was completely eliminated, with the number of employed fisherfolk rising to 50 a nearly fourfold increase. This dramatic shift highlights the program's success in creating substantial job opportunities in the fisheries sector, absorbing previously unemployed individuals into the workforce, and fostering economic resilience within the community.

Beyond reducing unemployment, the program has directly influenced income levels and overall economic stability. With more individuals engaged in productive work, households now have a stable source of income, allowing for better financial security and improved quality of life. The integration of various program components such as environmentally friendly fishing gear, skills development training in boat and fishing gear repair, and market access has further strengthened the economic foundation of the fisherfolk. Moreover, the surge in employment contributes to regional economic growth, as increased productivity and economic activity in the fisheries sector drive overall progress. When analyzed alongside rising income trends, the data strongly supports the conclusion that the Capture Fisheries Development Program has been a highly successful intervention, effectively transforming employment prospects and enhancing economic well-being among fisherfolk in Apayao Province.

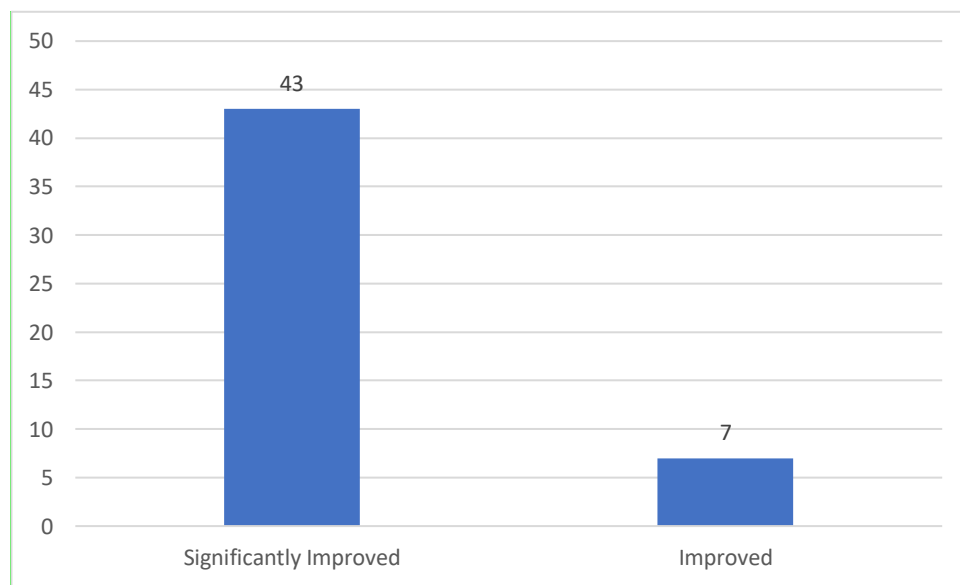


Fig 3 c. The Overall Impact of the Capture Fisheries Development Program on the Economic Status of the Fisherfolks

The Capture Fisheries Development Program has profoundly transformed the economic status of fisherfolk in Apayao Province, with 86% of respondents reporting a significant improvement and the remaining 14% acknowledging general improvements in their financial well-being. This positive shift aligns with previous findings showing increased employment opportunities and higher income levels, demonstrating that the program effectively created sustainable livelihoods. By facilitating job creation, introducing modern fishing techniques, and providing essential resources such as fishing equipment and training, the program empowered fisherfolk to secure stable earnings and reduce financial hardship. The economic uplift has allowed households to better meet their needs, invest in their livelihoods, and strengthen their resilience against economic uncertainties.

Beyond financial stability, the program has fostered broader economic empowerment by improving access to food, housing, education, and healthcare, thus enhancing the overall quality of life. Sustainable fishing practices and skill-building initiatives have further ensured long-term viability, enabling fisherfolk to adapt to industry advancements while maintaining economic security. The increase in employment also contributes to the region's economic growth by driving productivity within the fisheries sector. Taken together, the data overwhelmingly supports the conclusion that the Capture Fisheries Development Program has been a highly successful intervention, significantly improving employment prospects, boosting income levels, and ensuring lasting prosperity for the fisherfolk of Apayao Province.

Table 3 . Environmental Impact of the CFDP along Different Areas

Different Areas	Frequency	Percentage
1. Changes in Local Fish During the Implementation of CFDP		
Significantly Increased	35	70
Increased	15	30
2.Sustainability of fishery resources after the program		
Excellent	35	70
Good	15	30

The Capture Fisheries Development Program had a significant positive impact on local fish populations in Apayao Province, as reported by fisherfolk. A remarkable 100% of respondents observed an increase in fish populations, with 70%

describing it as significant. This improvement can be attributed to various conservation and management strategies implemented through the program, such as the strict enforcement of Fishery Laws (RA 10654), regulations on fishing gear, closed seasons for species like *Ludong*, and the establishment of protected areas and fish sanctuaries. Additionally, stocking native fish species in rivers, lakes, dams, and reservoirs has helped replenish fish populations, while sustainable aquaculture initiatives have reduced pressure on wild stocks.

Beyond its immediate environmental impact, the program has also contributed to the long-term sustainability of fishery resources. The respondents expressed optimism regarding its lasting effects, with 70% rating sustainability as excellent and 30% as good. This confidence is likely rooted in capacity-building initiatives, such as training sessions and Information Education Communication (IEC) campaigns that have strengthened fisherfolk's commitment to sustainable fishing practices. Increased environmental awareness and stewardship have fostered more responsible fishing behavior, ensuring the continued health of inland fishery resources. Government-led monitoring and management systems, in collaboration with local authorities, have further reinforced these efforts.

Ultimately, the Capture Fisheries Development Program has proven to be an effective environmental intervention, with lasting benefits for both fish populations and the fishing community. Strict compliance with fishery laws, habitat restoration projects, and conservation-focused activities such

as cleanup drives and tree planting along Apayao and Marag Rivers have contributed to a healthier aquatic ecosystem. While the data reflects fisherfolk perceptions, the consistency in their feedback suggests that the program has successfully enhanced fish populations, promoted sustainability, and instilled a culture of responsible resource management. These initiatives will likely continue to shape a thriving and environmentally sustainable fisheries sector in the province.



Fig. 4 Number of Participants in the CFDP and the Level of the Satisfaction

The Capture Fisheries Development Program (CFDP) in Apayao Province has been widely well-received by its participants, with the overwhelming majority expressing high levels of satisfaction. According to the data, 48 out of 50 respondents rated their experience as "Very Satisfied," while only two reported being "Satisfied." This strong positive response highlights the program's effectiveness in addressing the needs of fisherfolk and providing meaningful support. The success of the CFDP can be attributed to its comprehensive approach, which integrates essential resources such as fishing equipment, technical support, and capacity-building initiatives to enhance skills and livelihoods.

A key factor contributing to participant satisfaction is the accessibility of necessary tools and training that empower fisherfolk to improve their productivity and income. The provision of fishing equipment has enabled more efficient and sustainable fishing practices, reducing operational challenges and increasing catch yield. Meanwhile, training and capacity-building efforts have strengthened fisherfolk's ability to manage their fishing enterprises, navigate market opportunities, and implement modern techniques. Technical support has further ensured that participants receive guidance in troubleshooting industry-specific challenges, allowing them to sustain and grow their livelihoods. These combined resources have significantly contributed to both individual and community-wide improvements in the fisheries sector.

Overall, the CFDP's positive reception is a testament to its well-structured approach in supporting fisherfolk through skill development, resource allocation, and technical assistance. The strong satisfaction ratings reinforce its success in transforming the economic conditions of the

participants while promoting sustainable fishing practices. To further maximize the program's impact, future iterations could explore expanding access to additional fishing technologies and diversifying livelihood opportunities within the fishing sector. By continually refining and enhancing its offerings, the CFDP can continue to strengthen the resilience and sustainability of Apayao's fishing industry.

Table 4. Challenges Encountered by the Participants during the Implementation of Capture Fisheries Development Program

Challenges	Frequency	Rank
Lack of Proper equipment	4	3.5
Inadequate Training	4	3.5
Insufficient Financial Support	46	2
Environmental Issues	47	1

The challenges encountered during the implementation of the Capture Fisheries Development Program (CFDP) reveal critical areas that need attention to ensure its long-term success and sustainability. Based on the data, environmental issues emerged as the most significant challenge, with 47 participants identifying it as their primary concern. This suggests that factors such as climate change, declining fish stocks, water pollution, and habitat degradation might be affecting fishing operations, limiting productivity, and posing risks to livelihoods. Addressing these environmental concerns through sustainable fishing practices, conservation efforts, and policy interventions will be essential to safeguard marine resources and maintain the viability of the fisheries sector.

The second most pressing issue reported was insufficient financial support, with 46 participants ranking it as a major challenge. This indicates that despite the program's positive impact on employment and income, many fisherfolk still struggle with the financial resources needed for investment in better equipment, maintenance of fishing tools, and operational expenses. Limited access to funding or credit opportunities may hinder their ability to maximize the benefits of the program, making it crucial to explore mechanisms such as financial assistance programs, subsidies, or cooperative funding models that support fisherfolk in expanding and sustaining their activities.

Lack of proper equipment and inadequate training were ranked equally, though they were reported by fewer participants (4 each). While these issues may not be as widespread as environmental and financial challenges, they still highlight important gaps in resource allocation and capacity-building efforts. Ensuring that all fisherfolk have access to modern fishing tools, technology, and comprehensive training programs will be vital in optimizing productivity and improving skills. Investing in technical education, knowledge-sharing initiatives, and continuous support can help overcome these challenges, enabling fisherfolk to fully utilize the opportunities provided by CFDP and enhance their economic resilience in the long run.

Table 5. Identified Opportunities by the Participants in Improving the CFDP

Opportunities	Frequency	Rank
Better Equipment	10	4

More Training Sessions	26	3
Increased Financial Support	40	2
Enhanced Environmental Management	46	1

The Capture Fisheries Development Program (CFDP) in Apayao Province has proven to be highly effective in its capacity-building and skills development initiatives, as reflected in the overwhelmingly positive participant ratings. With 74% of respondents rating the training sessions as "Very Effective" and the remaining 26% as "Effective," the program has demonstrated its ability to equip fisherfolk with essential knowledge and technical skills. The absence of negative ratings further affirms the relevance and quality of the training, suggesting that the program has successfully addressed the specific learning needs of its participants. This strong approval highlights the importance of targeted education in empowering fisherfolk to enhance their productivity, adopt sustainable fishing practices, and navigate industry challenges.

The effectiveness of the CFDP's training component can be attributed to a combination of well-structured learning modules, expert facilitation, and policy support that prioritizes skill development. By aligning training content with the actual needs of fisherfolk, the program ensures that participants gain practical knowledge applicable to their fishing operations. Additionally, institutional backing plays a crucial role in maintaining the program's efficiency, with adequate resources, technical support, and engagement strategies enhancing its overall impact. The focus on capacity-building has likely contributed to improvements in other areas of the program, including economic stability, employment opportunities, and environmental management.

Ultimately, the CFDP's success in skill development strengthens its broader objectives of fostering a resilient and sustainable fishing community. By equipping fisherfolk with relevant skills, the program not only enhances individual livelihoods but also contributes to long-term industry growth. Moving forward, expanding training opportunities, integrating advanced techniques, and ensuring continuous program improvement could further reinforce the CFDP's positive influence. The high satisfaction ratings reflect the program's ability to empower participants, enabling them to make informed decisions that benefit both their economic well-being and the overall sustainability of Apayao Province's fisheries sector.

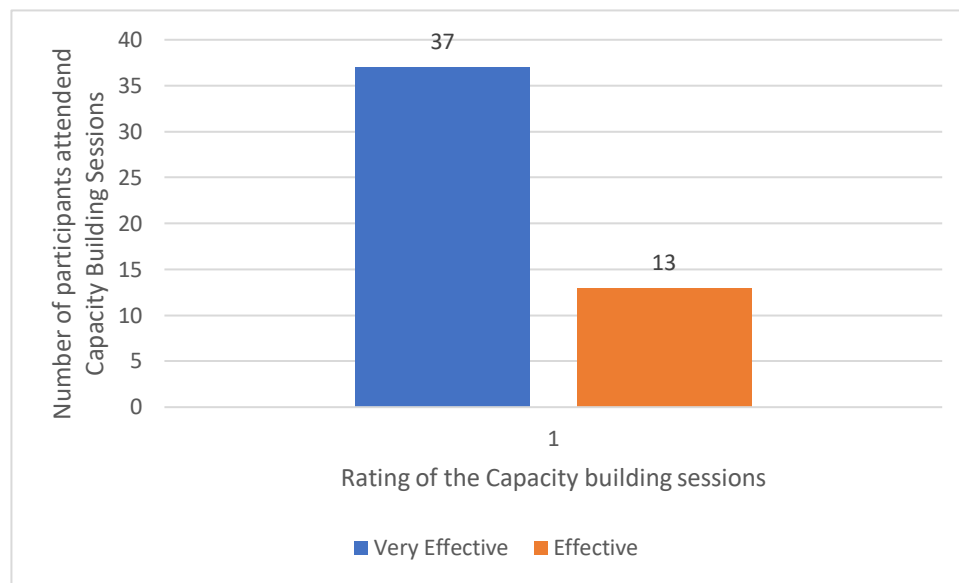


Fig. 5. Rating of the Participants in CFDP along Capacity Building and Skills Development

The Capture Fisheries Development Program (CFDP) has demonstrated exceptional effectiveness in its capacity building and skill development initiatives, as evidenced by the overwhelmingly positive feedback from participants. A significant majority (74%) rated the training sessions as "Very Effective," while the remaining 26% considered them "Effective", reinforcing the program's strong impact on improving fisherfolk's knowledge and technical skills. Importantly, no respondents reported dissatisfaction, indicating that the training was well-designed, relevant, and successfully implemented. These results suggest that the CFDP has played a crucial role in equipping fisherfolk with practical skills essential for sustainable fishing practices, resource management, and economic resilience. The program's success can be attributed to its alignment with the needs of the fisherfolk, ensuring that training sessions address real-world challenges and provide tangible solutions.

Moreover, the program's effectiveness is closely linked to policy and institutional support, which has fostered an environment conducive to learning and development. The strong effectiveness ratings indicate that the training initiatives were backed by a robust policy framework prioritizing skill enhancement and sustainable fisheries management. By integrating capacity-building efforts with institutional governance, the CFDP has not only strengthened individual expertise but also contributed to broader community development. The resulting improvements in income generation, employment rates, and environmental conservation highlight the far-reaching benefits of these training programs. In conclusion, the CFDP's strategic approach to skill-building has significantly elevated the capabilities of fisherfolk, reinforcing their ability to adapt, innovate, and sustain their livelihoods—ultimately ensuring long-term progress for the fishing communities in Apayao Province.

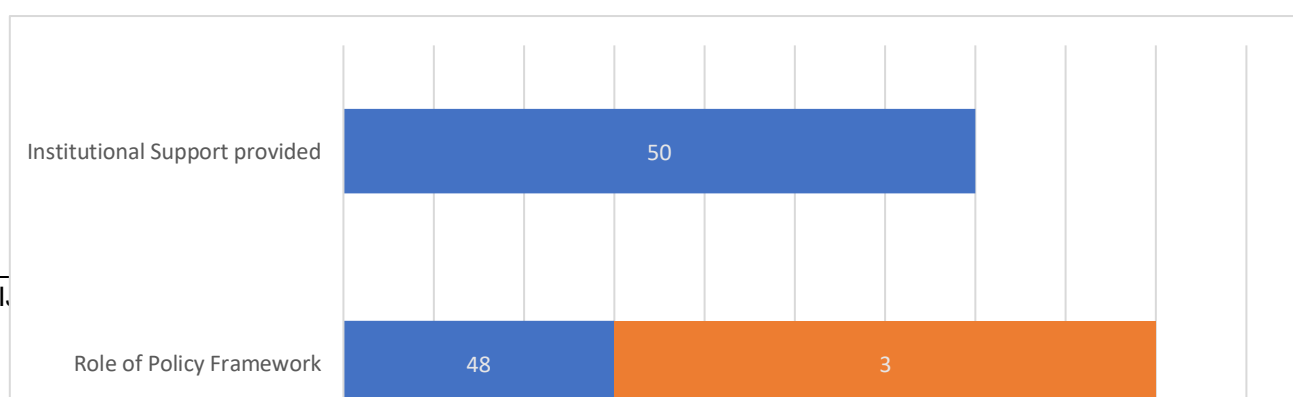


Fig. Rating of the Participants in CFDP along Policy and Institutional Support

The Capture Fisheries Development Program (CFDP) in Apayao Province has garnered high praise from participants, particularly in terms of policy and institutional support. The data reveals unanimous approval of the institutional support provided, with all 50 respondents rating it as "Excellent," demonstrating strong satisfaction with the program's administrative structures and assistance mechanisms. Similarly, the role of the policy framework received an overwhelmingly positive response, with 48 participants deeming it "Excellent" and the remaining three rating it as "Good." These findings suggest that the program's policies are well-designed, effectively implemented, and aligned with the needs of the fisherfolk, creating an environment conducive to sustainable fisheries development.

A well-structured institutional support system plays a crucial role in ensuring the successful execution of various program components, including capacity-building initiatives, resource allocation, and technical training. The high ratings indicate that the fisherfolk feel supported by the program's governing bodies, which likely provide clear guidance, streamlined processes, and responsive assistance. Furthermore, the strength of the policy framework reinforces the program's overall effectiveness by establishing clear goals, regulations, and priorities that support economic stability and environmental sustainability. This alignment between policy direction and institutional execution has likely contributed to the program's ability to enhance employment opportunities, income levels, and resource management strategies.

Ultimately, the CFDP's strong policy and institutional framework not only ensures operational efficiency but also fosters trust and confidence among the fisherfolk. The overwhelmingly positive ratings suggest that the program is well-governed, responsive to the needs of the participants, and structured to promote long-term success. By maintaining and continuously improving these foundational elements, the CFDP can further strengthen its impact on the fishing community, ensuring sustainable development and lasting benefits for the fisherfolk of Apayao Province.

Targeted interventions are crucial for enhancing the livelihoods of fisherfolk in Apayao Province by addressing four key areas. **Income stability** can be improved through diversified livelihoods like expanded "asar" and aquaculture, alongside strategic gear provision and micro-loans. **Resource access** requires sustainable fisheries management, community involvement, stock enhancement, and provision of suitable boats and equipment. Enhancing **market access** involves supporting post-harvest handling, establishing market connections, and promoting value-added processing. Finally, **resilience** can be strengthened through comprehensive skills training, financial literacy, disaster preparedness, and support

for fisherfolk organizations. These interconnected efforts, tailored to the local context, aim for a more sustainable and prosperous future for Apayao's fisherfolk.

IV. CONCLUSION AND RECOMMENDATION

Summary of Findings

The study assessed the impacts of the Capture Fisheries Development Program (CFDP) on fisherfolk in Apayao Province, focusing on demographics, economic outcomes, environmental effects, program satisfaction, and challenges. Fifty male respondents, primarily aged 56 and above with significant fishing experience (over 15 years), participated in the study. Most had at least a high school education, with many completing only elementary schooling.

Economically, the CFDP improved livelihoods, eliminating low-income earnings (less than ₱5,000/month) and increasing the number of respondents in higher income brackets (₱10,001 to ₱20,000+). All 50 respondents reported employment in the fisheries sector post-program, with 86% indicating improved economic status. Environmentally, 70% observed a notable increase in local fish populations, attributed to CFDP's sustainable practices like fish sanctuaries and species restocking. Seventy percent rated the sustainability of fishery resources as excellent.

Satisfaction with the CFDP was high, with 48 out of 50 participants satisfied, especially with provided fishing equipment, technical assistance, and training. Challenges included environmental issues like floods, inadequate financial support, and insufficient fishing gear or training. Recommendations included better environmental management, increased financial support, more training, and enhanced fishing equipment.

Overall, the CFDP had a positive impact on the fisherfolk's economic, environmental, and social well-being, though areas for further improvement were identified, particularly in environmental management and financial support.

Conclusions

Based on the results of the study,

1. The Capture Fisheries Development Program (CFDP) significantly improved the economic status of fisherfolk in Apayao, as shown by increased monthly incomes and the elimination of earners below ₱5,000. The rise in higher income brackets and full employment indicate effective livelihood support and poverty reduction.
2. The CFDP positively impacted local fish populations, with 70% of respondents reporting a significant increase in catch and an equal percentage rating sustainability as excellent. This reflects the success of conservation measures like fish sanctuaries, restocking, and enforcement of sustainable fishing laws.
3. A vast majority (96%) of participants were satisfied with the program, particularly its provision of equipment, training, and technical support. Additionally, 86% reported a significant improvement in their overall economic status due to the program.
4. Capacity building under the CFDP was highly effective, with 74% rating it "Very Effective" and the remaining 26% as "Effective." Institutional and policy support also received strong approval,

with all respondents rating institutional support as “Excellent,” and most rating the policy framework similarly.

5. Despite its successes, the CFDP faced challenges, notably environmental disruptions (e.g., flooding) and limited financial support for fishing gear. Other concerns included inadequate training and lack of fishing boats.
6. Participants identified key areas for improvement: enhanced environmental management, increased financial support, more training sessions, and better equipment. These suggestions provide strategic directions for future program development.
7. Overall, the CFDP had a significant positive socio-economic and environmental impact on Apayao’s fisherfolk. Its integrated approach—combining economic aid, ecological conservation, skill-building, and institutional support—proved effective. Addressing remaining challenges will further ensure its sustainability and long-term success.

Recommendations

1. **Enhanced Environmental Management** – Strengthen conservation initiatives by expanding fish sanctuaries, implementing stricter regulations on sustainable fishing, and introducing more localized environmental monitoring programs to mitigate issues like flooding.
2. **Increased Financial Support** – Provide additional funding and financial assistance to fisherfolk, ensuring that they have adequate resources to sustain and expand their fishing operations. Consider subsidies or microfinance programs tailored to their needs.
3. **Expanded Capacity Building and Training** – Develop more comprehensive training programs focusing on modern and sustainable fishing techniques, disaster preparedness, and resource management to further improve fisherfolk skills.
4. **Improved Provision of Fishing Equipment** – Ensure equitable distribution of fishing gear and supplies, enhancing accessibility for all program beneficiaries to maximize their productivity and efficiency.
5. **Policy and Institutional Support** – Strengthen collaboration between government agencies, local government units, and fisherfolk associations to facilitate better program implementation, policy reinforcement, and long-term sustainability.

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