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OCEAN FOR LIFE AND THE MISSION TO INCREASE INCOME FOR TARGET COMMUNITIES AROUND THE GULF OF THAILAND: ANALYSIS OF PERFORMANCE AND RECOMMENDATIONS

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Abstract

The "Ocean for Life" project by PTT Exploration and Production Public Company Limited (PTTEP) aims to conserve and restore marine ecosystems while supporting economic growth and improving the quality of life in coastal communities. To achieve this, PTTEP has implemented a marine aquaculture learning center and a seafood product development project in 17 provinces around the Gulf of Thailand. The goal is to boost the income of participating communities. To ensure the project's effectiveness and standards, PTTEP commissioned Thammasat University's Research and Consulting Center to study and evaluate the income of the target communities. The study found that the ongoing marine learning center project significantly increased marine life, leading to higher fish catches and helping to preserve local fishing jobs and reduce migration. However, the value of the catch did not increase proportionally with the amount caught. Key factors affecting income include boat operating expenses and maintenance costs, which vary by boat size and type. Although the seafood product development project increased the quantity and variety of processed seafood, it did not significantly boost income for members compared to the learning center project. This is due to the abundance of similar products in the market, limited distribution methods, and inconsistent pricing. The research center recommended improvements in research and project development to help "Ocean for Life" achieve its future objectives.

Keywords:

PTTEP, Strategy, Ocean for Life, Income, Gulf of Thailand

1. Introduction

PTT Exploration and Production Public Company Limited (PTTEP) has a mission to explore, develop, and produce petroleum to ensure energy security for Thailand. The company emphasizes conducting business alongside social and environmental responsibility under the framework of sustainable development. One of the key strategies to achieve this mission is the "Ocean for Life" initiative, which aims to conserve and restore marine ecosystems while supporting economic growth and improving the quality of life for coastal communities. This has led to the establishment of the Aquatic Economic Species Hatchery Learning Center and the Marine Product Development Project, operating in 17 provinces around the Gulf of Thailand. The goal is to increase the income of participating communities by 35% by 2025 and 50% by 2030, compared to the year before PTTEP initiated the project.

PTTEP aims to ensure that the projects achieve their objectives and are measured and evaluated in a concrete manner. Therefore, they have commissioned the Thammasat University Research and Consultancy Institute (which has extensive experience in conducting surveys and evaluations for government agencies and is proficient in data collection, analysis, and processing) to study and survey the income of target communities participating in the two key projects under the Ocean for Life initiative: 1) the Aquatic Economic Species Hatchery Learning Center; and 2) the Marine Product Development Project. This has resulted in a report on the study and survey of the income of target communities participating in the Ocean for Life social projects. The findings, analysis, and recommendations provided by the Thammasat University Research and Consultancy Institute will be valuable in shaping policy and directing the effective implementation of Ocean for Life in the future.

2. Objectives and Scope of Implementation

The study of the income of target communities participating in social initiatives under the Ocean for Life program assessed the income levels of these communities both before and after their involvement in the Aquatic Economic Species Hatchery Learning Center and Marine Product Development projects organized by PTTEP. In 2023, the project focused on target groups of local fishermen in the following eight provinces around the Gulf of Thailand: Surat Thani, Prachuap Khiri Khan, Chumphon, Rayong, Phetchaburi, Samut Songkhram, Chonburi, and Chanthaburi (in 2021, the project had already covered nine provinces). The survey data were then analyzed and

evaluated using a framework and tools based on widely accepted statistical and academic principles.

3. Preliminary Agreement

1) The Economic Aquaculture Learning Center Project is abbreviated as "Learning Center Project" in this article.

2) The Marine Product Development Project is abbreviated as "Development Project" in this article.

4. Review of Related Literature

The main concepts related to the preparation of this report are divided into three key areas: project evaluation, community income data collection and measurement, and consideration of indicator characteristics. The details are as follows.

4.1 Project Evaluation

Project evaluation is the process of reviewing and assessing the quality of a project based on criteria that define a good project. This process aims to identify strengths and areas for improvement, aiding in the review and enhancement of the project (Phichit Ritjarun, 2022, p.1). Project evaluation requires steps, criteria for both quantitative and qualitative assessment, target groups, timeframes, locations, and relevant contexts. It is not a personal (subjective) decision, but rather an objective judgment based on measurable criteria that align with the set objectives (Anurak Panyanuwat, n.d.).

Project evaluation has four main objectives: 1) To assess the progress of the project to determine whether it meets its objectives and targets or standards; 2) To improve certain aspects of the project that may be lacking and therefore unable to fully achieve its objectives; 3) To explore the best alternatives, thereby reducing the project's risks; 4) To support future projects, aiding in the decision-making process regarding whether to expand or improve the project (Supannika Ruangsri, 2021: 262-263).

Overall project evaluation can be guided by the following seven approaches:

1. **Context Evaluation (C):** This involves assessing the project's environment by studying the fundamental factors leading to the development of project goals. These factors include policies,

visions, issues, funding sources, and social, economic, and political volatility, as well as potential emerging problems that could hinder project implementation.

2. **Input Evaluation (I):** This assesses the feasibility of resources, the selection of appropriate project implementation methods, and the design of processes to maximize the project's potential. The goal is to meet the needs of stakeholders efficiently. This evaluation also looks into the effectiveness of the input components, which may include personnel, facilities, tools, equipment, and administrative capabilities. Each component can be further broken down, such as considering the gender, age, socioeconomic status, satisfaction, expectations, attitudes, potential, abilities, experience, knowledge, educational qualifications, residence, and group process characteristics of individuals.

3. **Process Evaluation (P):** This evaluates the project's operations to identify strengths, weaknesses, problems, and obstacles in project execution. It examines what hinders the project's success and which aspects need improvement. The insights gained from this evaluation help in guiding, supervising, controlling, and improving the project implementation process.

4. **Product Evaluation (P):** This is conducted after the project's completion to determine the outputs achieved. It answers questions such as what outputs were produced, whether they met the set objectives, how the needs have changed, and whether the project was worthwhile. This evaluation is crucial for assessing the project's success and guiding subsequent projects.

5. **Impact Evaluation (I):** This involves assessing both the positive and negative impacts on the target groups and the appropriateness of the benefits received. It may include various impact assessments, such as Social Impact Assessment (SIA), Ecological Impact Assessment (EIA), Political Impact Assessment (PIA), Technological Impact Assessment (TIA), Population Impact Assessment (PIA), Policy Impact Assessment (POIA), and Economic Impact Assessment (EIA) (Vocational Education Promotion and Development Center, n.d.).

6. **Effectiveness Evaluation (E):** This evaluates whether the project's objectives or goals were achieved and whether they comprehensively met the needs of the target groups.

7. **Sustainability Evaluation (S):** This assesses the project's longevity, continuity, and ability to maintain its success (Supannika Ruangsri, 2021: 266).

Criteria for project evaluation include:

- **Efficiency:** Measures such as the ratio of outputs to expenses, productivity per unit time, and productivity per workforce.
- **Effectiveness:** Measures including the level of goal achievement, adherence to standards, level of participation, and project risk.
- **Adequacy:** Measures such as the sufficiency of resources.
- **Satisfaction:** Measures including the level of satisfaction.
- **Equity:** Measures such as opportunities for disadvantaged groups, gender fairness, and fairness among different occupational groups.
- **Progress:** Measures such as outputs compared to overall goals, completed activities, resources used, and time spent.
- **Sustainability:** Measures including the project's economic viability, institutional performance, and potential for scaling up.
- **Externalities:** Measures including environmental impacts, economic impacts, and social and cultural impacts.

(Vocational Education Promotion and Development Center, n.d.)

4.2 Collection of Data on and Measurement of Community Income

Community Business Development or Technology Transfer in Communities aims to strengthen communities and is a key foundation for sustainable development. Community businesses are activities initiated by groups of local residents using locally available production factors. They support both the production and service sectors and align with the lifestyle of the community. The goal is for all members to participate in decision-making at every stage of the operation to meet the community's needs.

The economic health of a community reflects its potential and strength. To enhance economic stability, it is essential to start with data on income and expenditure. This information allows for the creation of effective financial management plans that reflect the community's reality and guides the optimal use of community resources.

Community Income Collection and Measurement is part of a research project studying technology transfer to communities to increase local spending and reduce external expenditures. This approach aims to generate income and boost the circulation of money within the community. Proper income collection and measurement help manage community finances more effectively and provide valuable data on welfare, children, and youth (Chayanin Prakhanusorn et al., n.d.).

Data Collection through Sample Surveys involves gathering statistical data from selected units of the population. This method provides aggregate data for regions such as provinces, areas, administrative districts, and countries. The data obtained is an estimate, and surveys require relatively low budgets, time, and personnel, allowing for annual or biennial execution. Surveys are a crucial and widely used method for collecting statistical data in both government and private sectors, covering areas like agriculture, industry, public health, transportation, education, and other economic and social information (Department of Economic Development in Thailand, n.d.).

When using sample surveys, it is necessary to determine a sampling design and an appropriate sample size to obtain a representative sample. The results from the calculated indicators will be reliable and statistically unbiased, aligning with target values and achieving set objectives (Office of the Permanent Secretary, Ministry of Agriculture and Cooperatives, 2011).

The process of surveying, collecting, and measuring community income can be divided into five steps: 1) Questionnaire Design: Normal Scale: Categorizes data into groups, and Ratio Scale: Provides a complete measurement of differences, used for questions requiring factual answers, such as costs, income, and expenses in occupations; 2) Interviews; 3) Qualitative Data Collection; 4) Quantitative Data Collection: Using descriptive statistics such as frequency distributions, means, percentages, and standard deviations; and 5) Defining and Creating the Population Framework: Clearly defining the population for study to match research objectives, which aids in selecting samples from the established population framework and facilitates data collection.

4.3 Consideration of the Attributes of Indicators

The collection and measurement of community income rely on Key Performance Indicators (KPIs), which are metrics or units used to measure the success of operations. These indicators should be numerical and reflect the key objectives of the operations to ensure clarity in monitoring, tracking, and evaluating performance. KPIs can be quantitative indicators, which measure countable or physical attributes, using units such as quantity, percentage, and duration. Quantitative indicators are suitable for measuring tangible outcomes.

The qualities of effective performance indicators include: 1) Specific (S): The indicator should be clear and focused on what is being measured to prevent misinterpretation and ensure

mutual understanding between project managers and stakeholders. 2) Measurable (M): It should be possible to measure the indicator accurately, allowing for comparisons with other indicators and statistical analysis of the data. 3) Attainable/Achievable (A): The indicator should be achievable, meaning it can realistically be accomplished. Therefore, it should not include performance measures that cannot be directly controlled to achieve results. 4) Realistic (R): The indicator must be realistic and appropriate for the organization without incurring excessive measurement costs. 5) Time Bound (T): The indicator should be measurable within a specified time frame. Additionally, details on the data to be collected at each time point should be appropriately defined, such as income before and after a project, to allow continuous and timely operations and to compare differences over time. The value of each indicator may derive from multiple variables, including stock (or inventory) variables, which should be clearly defined.

In cases where the ratio indicators are fractional, the numerator variable might come from one source, while the denominator variable might come from another. Some data may be secondary data, while other data might be primary data. Evaluators need to collect data either by surveying all instances or by sampling some instances from specific areas using various methods such as interviews, observations, or measurements with certain equipment. This can be conducted as standalone activities or integrated into an existing performance reporting system. Additionally, the sources and reference periods for the data must be clearly defined.

5. Results of the Study and Survey

The results of the study and survey on the income of target communities participating in the social projects under Ocean for Life are divided into two parts: quantitative and qualitative research findings. The key details of each part are as follows:

5.1 Results of the Quantitative Component

When analyzing the performance of the Economic Aquatic Animal Hatchery Learning Center project across all provinces, based on key indicators such as the quantity and value of aquatic animals, it was found that the volume of aquatic animals increased by an average of 3,300 kilograms per year, and the value of aquatic animals rose by approximately 66% compared to the baseline data (2020-2021). In contrast, the analysis of the Marine Product Development project showed a difference in both the quantity and value of the results compared to the Learning Center project. Specifically, the research clearly demonstrated that while there was an increase in the

development of products, including the quantity and types of marine animals processed, the value generated did not significantly boost the income of the members compared to the Learning Center project. Although the average income from participating in the Marine Product Development project increased by about 17%, it was still nearly three times lower than that of the members participating in the Learning Center project. Qualitative data, when combined with quantitative data, indicated that participants acknowledged the Marine Product Development project's ability to introduce new products to the market. However, a key issue affecting product sales was that the characteristics of the products were not significantly different from existing market goods, the distribution or marketing strategies were not diverse, and the pricing was inconsistent, leading to reduced sales opportunities for the products.

Table Showing an Overview of the Study Results

Marine Aquaculture Learning Center		**Output**	**Marine Product Development Project**		**Output**	
Indicator	Average increase in aquatic animal quantity (kilograms/year)	3,330.30	**Indicator**	Product quantity increased (products)	2.68	**Overall average of the 2 projects**
Indicator	Average increase in the value of aquatic animals (percentage)	66.83	**Indicator**	Average value of product sales increased (percentage)	12.95	
		Outcome			**Outcome**	**Outcome**
Indicator	Income from participating in the project increased (percentage)	61.69	**Indicator**	Income from participating in the project increased (percentage)	17.65	39.67

However, when considering the overall social dimension of the project, research clearly shows that the project helps increase the potential for generating income and can manage the expenses arising from economic conditions, even if not completely. Nevertheless, most participants report

that the results of participating in the project help them survive economic downturns and the impacts of the economic crisis.

In addition, the project has led to comprehensive improvements in the quality of life for its members, including the creation of knowledge related to conservation and aquaculture. This has resulted in increased income, job creation, and greater economic growth within the community. Importantly, project members have become role models for other community members, leading to the creation of conservation networks and serving as models for other community learning centers. This mechanism can be seen as a development of social capital strength in the area, including both internal social capital (cognitive social capital) such as community attitudes, trust, shared values, and reciprocity, and external social capital (structural social capital) such as the creation of cooperative networks among community members or the expansion of networks to other areas (Coleman, 1988). This social capital will provide economic benefits to the community and act as a mediator in accessing production factors or other community resources at lower costs, leveraging the strengthened social relationships or social structures developed by the PTTEP project.

An important outcome of the project is the reduction in the number of people abandoning their hometowns to seek employment elsewhere, which in the past affected the continuation of traditional occupations and led to the loss of family relationships. However, even with the return of local fishermen, challenges related to sustainability and the preservation of livelihoods still depend on the quantity and value of aquatic animals, as well as the production of various processed products that generate income for fishermen.

5.2 Results of the Qualitative Component

Data from interviews with community members in eight areas highlight a common problem in fishing: decreasing aquatic resources coupled with increasing costs of going out to sea. This results in fishing income being insufficient to support livelihoods. Additionally, fishing is a seasonal occupation that cannot generate income year-round due to monsoon conditions, making it predominantly a job for the elderly in the community. Fishermen need to find additional sources of income to sustain themselves. Promoting the systematic production and sale of processed products could be a potential avenue for generating income for local people.

The abundance of marine resources is crucial for increasing the quantity of aquatic animals. Therefore, raising awareness about the conservation of aquatic animals and marine resources among fishermen, fish-buying platforms, factories, and relevant stakeholders is

essential. Moreover, implementing regulations on fishing practices and equipment is an important issue that needs to be addressed and resolved seriously.

The development of processed products is linked to creating knowledge about product processing, adding value to products, and planning distribution. This is knowledge that the community seeks support from external organizations for. Additionally, the community has the idea of developing the area into a tourist destination by showcasing the community's way of life and the freshness of seafood as attractions for tourists. When tourists visit the community, it will increase the demand for aquatic animals, leading to higher prices. This, in turn, will generate income for fishermen and the community as a whole.

6. Analysis of the Results of the Study and Survey

The analysis of the study results is divided into two parts: the analysis of the performance of the Economic Aquatic Animal Hatchery Learning Center project and the analysis of the performance of the Marine Product Development project. This evaluates the economic success of PTTEP's projects and includes the following details:

6.1 Analysis of the Performance of the Economic Aquatic Animal Hatchery Learning Center Project

The analysis of the performance of the Learning Center project is divided into two aspects: 1) Quantity of aquatic animals; and 2) Value of aquatic animals.

6.1.1 Quantity of Aquatic Animals

Quantitative data combined with qualitative information show that a key factor influencing the increase in the quantity of aquatic animals is the continuous operation of the Learning Center project. The ongoing work in the original area over the past 3 years has led to a clear change: the quantity of aquatic animals has gradually increased. Interviews with project participants reveal that the increased quantity of aquatic animals has helped preserve local livelihoods, reduce migration, and foster family cohesion. Additionally, new occupations have emerged from creating the local fishing learning center, which expands knowledge and provides a better understanding of traditional lifestyles to the public.

However, the challenges faced by the Learning Center project, aside from illegal fishing, fishing outside designated times, or damaging aquatic breeding areas, include a more significant issue: the fluctuations in global climate conditions. This includes the El Niño phenomenon, which affects marine life, both in growth and reproduction. This aligns with research on the challenges

fishermen face due to changing environmental conditions. Kulapa Kuldeelok et al (2023) state that sudden changes in climate impact fishing planning, and most local fishermen are not able to adapt well to this issue.

6.1.2 Value of Aquatic Animals

Research shows that although some types of aquatic animals can be caught in larger quantities due to a significant increase in their numbers, the value of marine animals has not risen. This is because pricing is determined by the market price and controlled by government mechanisms. These factors are beyond the scope and support of the Learning Center project.

Additionally, there are issues related to the costs of going out to sea. Participants use different types of boats, and the type of boat affects fishing in terms of quantity, distance, and time. Costs incurred each time a boat is used, including maintenance of onboard equipment, vary depending on the type of boat. Overall, although income from participating in the Learning Center project has increased by approximately 62%, when deducting the costs of going out to sea and maintaining the boat, fishing alone may not be sufficient for a livelihood.

A detailed analysis of the project's performance across 8 provinces shows that areas with continuous operations have a higher rate of increase in aquatic animals compared to areas where operations are in the first year. This is due to increased awareness among members, leading to more conservation or natural breeding areas. Consequently, aquatic animals in these well-maintained breeding areas increase and grow rapidly. In contrast, new areas are less prepared for breeding, resulting in lower catch rates. Furthermore, areas with traditional fishing practices have higher rates of aquatic growth compared to commercial fishing areas. However, feedback from project participants consistently reflects that the project has led to positive returns for all types of fishermen, allowing them to catch more aquatic animals.

6.2 Analysis of the Performance of the Marine Product Development Project

Considering qualitative data along with quantitative data on the products produced, and incorporating feedback from project participants, it is found that the project has successfully developed new products for the market. However, an interesting issue affecting the sale of marine products developed and supported by the project includes the characteristics/differences of products available in the market, product distribution, and pricing. The details are as follows:

6.2.1 Product Characteristics/Differences in the Market

Despite the development of a diverse range of products, many of these products are similar to those already available in the market, resulting in high competition. Additionally, selling products in large quantities with the goal of minimizing inventory by reducing unit prices leads to a mismatch between the selling price and the actual value of the products as developed.

6.2.2 Distribution and Sales Issues

This issue is outside the scope of the project but is crucial for generating income after product processing. Market research shows that small-scale or local businesses must prioritize distribution methods. Relying on natural business growth can be slow and may not be effective, as consumers often buy familiar products. Currently, the developed products still rely on traditional distribution methods, such as in-store sales or consignments at souvenir shops. Only a few groups are planning to use online sales platforms, which could increase distribution and affect sales volume and income for project members. Additionally, the promotion of sales for project members is not clear, leading to ineffective communication between sellers (project members) and customers in terms of creating attitudes, purchasing behavior, or incentives.

An interesting observation in modern marketing (online marketing) is that many areas are expanding their sales channels from traditional in-store sales to online commerce. While this does not replace traditional trade, it is an option that group members are interested in and are working to develop their processed products for online market presence. However, each area still lacks knowledge in trading with modern information technology.

6.2.3 Sales Price

The pricing of products is inconsistent and does not align with consumer behavior or demand. The pricing of members' products is not yet done systematically; it does not consider the cost and value of the products, leading to non-standardized pricing.

6.3 Analysis of the Overall Performance of the Project in the Social Dimension

The project has increased the potential for generating income. Members have been able to partially cope with the economic burden, and participation in the project has helped them survive economic downturns. Additionally, the project has comprehensively improved the quality of life for members, including creating knowledge related to conservation and aquaculture, which directly impacts income, job creation, and community economic growth. Project members have also become role models for other community members, leading to the formation of more conservation networks within the community and serving as models for other community learning centers. This

mechanism has helped build and strengthen social capital. The social capital developed has enabled the community to access production factors at lower costs through strengthened social relationships or structures developed by the PTTEP project. Furthermore, the project has reduced the number of people leaving their hometowns for employment elsewhere, leading to the preservation of traditional occupations and family relationships.

Data on occupational patterns reveal that, over nearly the past decade, Thailand's coastal provinces have faced problems with insufficient fish or other marine animals to generate family income, leading some families to abandon their traditional occupation of small-scale fishing. A key factor in the decline of marine life is the fishing of aquatic animals without regard for growth periods, the presence of illegal commercial fishing boats operating in coastal areas, and the destruction of juvenile marine resources in mangroves or along shores. Additionally, rising sea temperatures due to global warming have caused marine animals to move to cooler waters or deeper areas, making it difficult for small fishing boats to operate.

Therefore, with the implementation of the PTTEP project, which includes establishing aquatic animal hatcheries, educating communities on aquaculture, and continuously releasing hatchery-bred animals into natural areas, local fishing communities have had the opportunity to return to their traditional occupation due to the increase in marine life. However, a significant challenge remains: despite some areas having strong community leaders, organized groups participating in the project, and ongoing conservation activities, there is still a lack of negotiating power to address conflicts in fishing areas. This issue persists in areas where the project is being implemented.

The return of local fishermen has significantly contributed to strengthening and maintaining family relationships, reinforcing the smallest unit of society. However, despite the return of local fishermen, the persistence and sustainability of the occupation still depend on the quantity of marine life, the value of aquatic animals, and various processed products that provide additional income for fishermen.

Although the project has been successful based on numerical data, including the quantity of marine life and the increase in project members' income, the future of local fishermen and commercial fishers relies primarily on self-development and focusing on various essential costs for their livelihood, particularly financial capital and natural resources.

Rapidly changing environmental conditions may make local fishermen vulnerable to livelihood challenges. Without sufficient funding for knowledge development, technology skills, or the ability to organize, these fishermen may lose their capacity to sustain their occupation.

7. Recommendations

Recommendations for PTTEP are in two areas: research implementation and marine life development projects. The details are as follows:

7.1 Research implementation

To ensure that the study and survey are conducted efficiently and yield results as close to reality as possible, the research team offers the following two recommendations:

• Questionnaire Design: The questionnaire should be simplified and clarified, specifying variables related to indirect income based on data from previous years and aligning with the actual conditions in the area.

• Working Process: Surveys should be conducted annually in all areas where PTTEP operates projects for no less than one year. Target groups should be specific, data should be collected in accordance with changing timeframes, and a consistent data collection model should be used.

7.2 Development of the Ocean for Life Project

Recommendations for the development of marine life projects are divided into two areas: 1) Practical recommendations and 2) Policy recommendations. The details are as follows:

7.2.1 Practical recommendations

A. Short-Term Measures

1) Support marketing or distribution channels for members by providing comprehensive marketing knowledge. This includes marketing planning, pricing strategies, and using e-commerce or online marketplaces such as Shopee, Lazada, or Line Store, as well as selling through social media platforms like Facebook or Instagram for efficient consumer reach. Additionally, creating a PTTEP platform as a distribution center to facilitate members' product distribution, with support from PTT affiliates or partners, will create opportunities for diverse market entry.

2) Support the development of products to add value, such as creating brand identity to differentiate products and reduce imitation. Develop creative packaging that incorporates local products, making the product memorable for buyers.

3) Survey and study the process of releasing cultivated fish into natural water sources by knowledgeable agencies to ensure that the released fish genuinely contribute to increasing natural

fish populations. Additionally, enhance the management of project locations, such as at Laem Chabang or Chanthaburi, where project sites are currently lacking in maintenance.

B. Long-Term Measures

1) Plan marketing for processed products systematically. This includes creating a product database and developing short-term, medium-term, and long-term marketing plans. Consider and address factors that impact product sales.

2) Manage seafood logistics efficiently to reduce losses during transportation, streamline processes, and shorten delivery times. PTTEP should provide members with knowledge about logistics management, stimulate awareness about the importance of high-quality logistics systems, and create a logistics network to improve product distribution opportunities and reduce delivery times to consumers.

3) Build a network of PTTEP project members to ensure cohesive and sustainable project operations in the future. Initially, this could involve learning from each area's experiences and facilitating knowledge exchange among them, enabling participating areas to improve their operations more easily.

7.2.2 Policy Recommendations

The following recommendations have been developed from research data, as well as considerations of factors, contexts, and directions from other relevant sectors, such as government policies. The researchers believe that the policies PTTEP should consider implementing are as follows:

A. Plan the Operations with Key Stakeholders who are Involved in or Support the Project Concretely

Including local fishing networks, government agencies such as the Department of Marine and Coastal Resources, the Department of Fisheries, or the Department of National Parks, Wildlife and Plant Conservation, local administrative organizations, and local educational institutions. Such cooperation is crucial for driving the project to achieve its objectives, as each sector has knowledge, resources, and responsibilities that can support the project. However, field visits and data from project members reveal that even with official agreements in place, the systems and mechanisms for supporting members are still not sufficiently clear. Therefore, this cooperation agreement should be expanded to include concrete operational guidelines, such as defining roles and responsibilities, specifying the scope of work, planning operations in collaboration with

project members, and establishing clear evaluation and monitoring criteria both quantitatively and qualitatively to demonstrate the actual outcomes of the project.

B. **Expand Partnerships and Build a Marketing Network by PTTEP**

This means extending cooperation from area development, environmental conservation, and product processing to creating marketing collaborations. This could start with PTT's network or partners of PTT's affiliates to increase sales channels and distribution for both fresh seafood and processed food products. Expanding the marketing network should not only focus on creating distribution channels but also involve comprehensive marketing knowledge development for project members.

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