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## Research Article

### The Danggit Processing Livelihood Project in Prieto Diaz, Sorsogon, A Fish CORAL Project in Gulf Albay

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#### ABSTRACT

The Bureau of Fisheries and Aquatic Resources (BFAR) rolled-out the Danggit Processing Livelihood FishCORALProject for the fishers' organization in Prieto Diaz, Sorsogon in mid 2019 funded by UN-IFAD. Designed to help reduce poverty through increased household income, women participation and project sustainability. This study looked into the relevance, effectiveness and efficiency of implementation and readiness in attaining project objectives. The study is mixed descriptive method and used semi-structured questionnaire, key informants interview, FGD and secondary data analysis. The project was found relevant but poor in coordination and involvement of other stakeholders. Effective but failed to contribute to poverty reduction due to late implementation, no comprehensive project plans and technical support. Inefficient as it failed to translate resources it to incomes and sustained operations. The community organizations are not ready and capable (lack technical and business management skills). The local resources (danggit, people and community organization) guarantee sustainability if managed appropriately. Women empowerment is hardly achieved. Recommendations; 1) Develop project sustainability plan (technical and business facets of the project), capacitate the organization along leadership and business management. 2) Bio-ecological data be produced on danggit stock to fine tune harvesting and regenerative capacity to ensure sustainability of supply. 3) Technical support provision coming from BFAR, LGU, academe, DTI, DOST, NLRC, NGOs in the form of product development, value adding, branding & packaging, business management, access to funds, assigning a full-time community facilitator as priority. Responsibilities and commitments of BFAR, LGU and the beneficiary be concretized through a memorandum of cooperation.

**Keywords:** *Danggit Processing Project, Prieto Diaz Sorsogon*

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## Introduction

The Philippines is well known in Asia as agricultural exporting country, where farming and fishing is the primary source of living especially in the countryside (Rivera, 2013). Farming and fishing are supposed to be the country's lifeline in assuring food security. But according to Philippine Statistics Administration (PSA) data of 2012, farming and fishing sector still among the topmost sector along poverty incidence with alarming figure of 38.3 and 39.2 percent respectively. And one actor identified is that 68% of the towns in the country that were subjected to the study have unsustainable fisheries income unless 58% of their fishing grounds are protected and all fishing activities are regulated (Muallil, Mamaug, Cabral, Celeste-Dizon, and Aliño, 2014).

Prieto Diaz, Sorsogon (see Figure 1), a 5<sup>th</sup> class farming and fishing coastal municipality is composed of 23 Barangays with a total population of 22,442 and poverty incidence of 42.36 (PSA, 2015). Its rich and highly diverse coastal and marine resources do not only provide food but also livelihood from its tourism activities. Of the 23Barangays, Barangay Diamante, Calao, Rizal and Brillante are the coastal Barangays that were identified as beneficiaries of the Bureau of Fisheries and Aquatic Resources (BFAR) Danggit Processing Livelihood Project under the FishCORAL Project for the Gulf of Albay. The project is funded by the United Nation International Fund for Agricultural Development (UN-IFAD) with its main intention to achieve the poverty reduction objective of UN in the fishery sector.



Figure 1. The project location

Locally known as Danggit, **Rabbitfish** has about 25 species (see Figure 2) that constitute the family *Siganidae* of the *Perciformes* order, found in shallow tropical marine waters, such that of Prieto Diaz (Saltwaterfish, Date accessed July 3, 2021; Britannica.com, Date accessed July 3, 2021). The production

environments of danggit aquaculture, farming systems and distinct features of value chains vary per region. But they do not differ on farming technology and production scale that contributes to fishery production in the country (Gonzales, Parreno, Abalos and Santos, 2018).



Figure 2. Rabbit fish and a classic breakfast dish for processed danggit.

Danggit Industry in the country is facing risks such as; climate change (increasing sea

water temperature), presence of 'stocker', cut-throat prices due to local competition,

deterioration of quality (moisture content), stringent food safety standards (labeling, quality assurance/control) and balance in commodity prioritization (danggit vs seaweed etc.). Government and other development agencies must provide opportunity for value-adding through strict implementation and observance of food safety and processing standards. Provide local processors with common service facilities like drying and storage facilities, organize them into marketing cooperative, access to market and develop better policies for the fisher folks families in danggit industry (Building capacity for Agribusiness-led Inclusive Value Chains in the Philippines, <https://research.csiro.au/inclusivechains>).

The Fisheries Coastal Resources and Livelihood Project (FishCORAL Project) was conceptualized with the primary goal of reducing poverty in poor coastal communities and improve food and nutrition security among communities. That can be achieved by building fishing communities' capacity to sustainably manage fishery and coastal resources and by ensuring sustainable engagement in diversified livelihood activities. Danggit Processing project is one of the projects identified for Prieto Diaz, Sorsogon's coastal Barangays along Albay Gulf. Evaluation of the project is necessary as the project is on its terminal phase already.

The overall objective of this Study is to evaluate the outcomes and impacts of the FishCORAL Danggit Processing Livelihood Project in Prieto Diaz, Sorsogon. Specifically, the study (1) Assessed the socioeconomic characteristics of households of the livelihood implementors (2) Identified the different types of livelihood assets owned by the household beneficiaries, (3) Assessment the project performance based on its relevance (fulfillment of objectives),

efficiency, effectiveness, impacts and sustainability and (4) Recommended workable interventions to improve the implementation of the livelihood project. Thus, the significance of the study.

## Materials and Methods

The study is a descriptive - sequential mixed method that extensively made use of quantitative data gathered through the prepared questionnaire and qualitative data gathered through field survey, desk reviews, key informant interviews and focus group discussion. The structured questionnaire is composed of project basic information on, the socioeconomic characteristics of member households, asset ownership and women empowerment. The study conducted field survey, focus group discussions and key informant interviews with selected leaders and the Community Facilitator (FC). The study also made use of available secondary data and documents for the desk review. The questionnaire collected a range of information used as a basis in the analysis of the project performance. The questionnaire delved on the socioeconomic characteristics of the beneficiaries and asset ownership. For the state of women empowerment, the study adapted the Women's Empowerment in Agriculture Index (WEAI), where women empowerment was assessed under five domains (5DE) such as; decisions about agricultural production, access to and decision-making power about productive resources, control of use of income, leadership in the community, and time allocation. FGD and KII were conducted to establish how the community danggit processing project was implemented along relevance, effectiveness, efficiency, impact, and sustainability.



Figure 3. Interviewing a danggit fisher/processors project beneficiary

The area of the study is composed of four adjacent fishing Barangays along the gulf of Albay in Prieto Diaz, province of Sorsogon. The Research respondents/participants are the beneficiaries of the Danggit Processing Project per Barangay. List of beneficiaries were provided by the community facilitator (FC) based from the listing of the official beneficiaries of the project. They were purposively selected being the stakeholders as the primary criteria.

The descriptive analysis was based on cross-sectional quantitative data gathered from the beneficiaries of the program, along with qualitative data generated through Focus Group Discussion (FGD) and Key Informant Interview (KII) with key beneficiaries and the assigned Community Facilitator (CF). The descriptive tools used are; frequency count and percentages in the analysis of the socioeconomic features and livelihood asset ownership of household beneficiaries. The percentage using the ten indicators of the 5DE, wherein each indicator has a corresponding inadequacy cut-offs and weights was used to measure women empowerment. The project performance was assessed based on the evaluation criteria set by OECD-DAC, namely: relevance, effectiveness, efficiency, impact, and sustainability.

As to the limitation of the study, the primary challenge meet was coordination and mobility due to Covid-19 travel restrictions and safety protocols. Another is securing secondary data from the municipal BFAR office and from the organization like; project proposals, financial documents and financial statements and other reports which are not readily available. Another limiting factor is the identification of who really are the beneficiaries and the officers of the Danggit Processing Project. The fisher folks tend to mixed up the project with other projects in the community and the existing fisher folks' organization with that of the danggit processing association membership for this FishCORAL project.

## **Results and Discussions**

After the conduct of field survey/data gathering and rapid project assessment, it was generally observed that there is a nil to no impact that can be attributed to the project. Most of the

projects in the Barangays were implemented between June to August 2019 only and that is 6 to 7 months before the Covid-19 Pandemic restrictions. Delayed implementation of the project and the new normal health protocols and restriction are the major factor that hampered the operation.

The project does not have base line data to measure up the performance of the project. The socioeconomic data collected by the study established the baseline data for the Danggit Processing livelihood Project which may be used as the basis in future evaluation initiatives. Another weakness of the study is the absence of documents like implementation plan & schedule, financial record & financial statements, and operation records which are not readily available both among the beneficiary organizations and BFAR office. Most of the community organization - beneficiaries are not yet properly organized, recognized and functional.

## **The Socioeconomic Characteristics of Households Beneficiaries**

There are 30 beneficiaries who were available during the field survey and they provided information on the socioeconomic characteristics of households in the four costal Barangays of Prieto Diaz, Sorsogon. Predominantly, the families are belonging to the family size range of 1 to 5 members (60%). The result conforms with the 2015 PSA survey where the average Filipino family size is 4.4. As to the family income, other source of family income got the highest frequency, which includes; sari-sari store, fish vending, backyard piggery and raising chicken, farming and other economic activities in response to local needs in the community. Salaries and wages from regular employment follows and fishing only come third. Analysis of data shows that most of the respondents are housewives who are actively involved in income generating activities for the family (see Figure 4). According to them, fishing alone cannot anymore suffice to support the need of the family in the present time that housewives need to be involved in activities that supplement income in the community (Muallil, et al., 2014).



Figure 4. Crude storage system of the processed danggit

Salaries/wages from regular work got the highest mean of P5,120.00, because there are beneficiaries that aside from being members of the fisher folk organization in their Barangays, they also have other more regular jobs. Some of them are serving as utility personnel in government offices, some are elected Barangays official with monthly honorarium and are into private business. Fishing only comes 3<sup>rd</sup> in term of mean income score. According to them, income in fishing is very seasonal and uncertain – sometime when the catch is good they earn high income but most of the time, there is no income and they would resort to doing other work for a living.

As to positional average, fishing, the main source of income for the fishermen

beneficiaries got the central position with the median score of 3,500.00 (Table 2). This is followed by other receipts such as remittance from relatives locally or abroad, allowance for 4Ps beneficiaries, etc. This show that there are still member of the family that need to work from afar like in the cities or even abroad to augment the need of the family. This also shows that there are still a number of beneficiaries who are living way below poverty line to qualify as 4Ps beneficiary. With the average monthly income of household computed from Table 1, it appears that the recipient families are living below the poverty threshold, based on the regional average of 19,583.00 (PSA survey report, 2019),

Table 1. Combined Family Income and other receipts

Income and Other Receipts	Frequency	Mean	Median
Other sources of income	24	1,845.27	1,758.00
Salaries and Wages (Regular Source)	19	5,120.00	1,700.00
Fishing	13	3,834.62	3,500.00
Danggit Processing	12	1,229.00	1,250.00
Salaries and Wages (Seasonal Source)	10	1,440.74	-
Others Receipts	11	4,185.45	2,250.00

Table 2. The household expenditures and other disbursement

Expenditures & Disbursements Items	Frequency	Mean	Median
Food and Non-alcoholic beverages	30	4,566.63	3,793.00
Furnishings, household maintenance	28	547.65	433.50
House, water, electricity, gas/other fuels	27	844.73	621.50
Miscellaneous goods and services	25	86.67	43.50
Transportation	24	1,016.50	200.00
Health	22	379.58	175.00

Expenditures & Disbursements Items	Frequency	Mean	Median
Clothing and footwear	19	139.50	58.50
Education	18	475.53	162.50
Alcoholic beverages and tobacco	17	417.23	50.00
Communication	16	145.23	25.00
Loans payments & other disbursements	9	548.77	-

Table 2 shows the respondent households' expenditures and disbursements profile, showing that food and non-alcoholic beverages are getting the highest share (P4,566.63). This is being followed by transportation with the mean of P1,016.50. Both items are essentials and are needed on a day-to-day basis. The income and other receipts of family beneficiaries are spent for the basic necessity and very meager goes to other needs for decent living. Miscellaneous goods, clothing and footwear got the lowest mean at P86.67 and P139.50 respectively, as most of these necessities are not being purchased every day. Respondents even said that they do not buy clothing and other such needs as they just depend on donations or being given to them by relatives or children working outside Prieto Diaz. Communication is the next lowest in appropriation of P145.23 since they are taking advantage of promos offered by network providers. On the other hand, food and non-alcoholic drinks got the central position with median score of P3,793.00. Communication on the other hand, being the least in priority is in the extreme side of the curve it being the least cost allocated by households. This implies that FishCORAL beneficiary family's current income level is just enough to support for the basic needs only.

### The Livelihood Asset Profile of the Project Beneficiaries

Livelihood assets are classified into physical, social, financial, natural, and human assets according to the Department for International Development (DFID) in 2001. These assets are characterized primarily by its ability to generate a flow of income when put to work and help the livelihood intervention achieve positive livelihood results. The study analyzed to examine the use of these assets by these family-beneficiaries in the study area.

#### Physical assets owned by households

Physical livelihood assets are objects of economic value and functions productively, are needed to execute productive life in the community such as tools, housing, adequate water supply & sanitation and access to electricity. Data revealed that most of the households own cellular phone (77%) for communication, television set (73%) for news and entertainment, and motorized banca (boat) (53%) for fishing and related activities. These physical assets help them in the conduct of their livelihood activities as it also contributes in reducing activity time for efficiency. Ferrer, Pedrajas and Pomeroy (2017) confirm the importance of owning gadgets and equipment in facilitating both household work and livelihood.

The dwelling type in the study area is single detached houses (100%), and family beneficiaries already live on their own once married, despite the poverty condition that they are in. PSA in 2010 survey on the characteristics of poor families in the country said that **majority of Filipino families are already residing in single detached houses (93%)** and are independent from their parents. Most of the houses are already made of strong materials, concrete for the wall and galvanized iron for the roofing, 43% and 63% respectively. There is also quite a number of houses that are built on mixed material but predominantly strong materials. These goes with the national trend that **three out of five poor families are living in houses with roofs made of strong materials and two out of five poor families are occupying housing units with outer walls made of strong materials already**. The coastal Barangay of Prieto Diaz are frequently visited by typhoons and other calamities that fatally destroys their houses, this data is significant indicator of resiliency to calamities.

Most of them owns or has owner-like possession of house and lot of their dwelling (43%), closely followed by 40% of the respondents who own the house but using the lot for

free with consent from the owner (relatives). Others are dwelling in the land legally owned by other person with permission, but they can be asked to leave anytime the land will be needed. 7% of the respondents own their houses but built on land without consent of the owner and some of these are just encroaching on a public land. The implication is that the beneficiaries do not have legal residence rights.

The 40% of the residents obtain their water for drinking and other household uses from local protected deep well/water pump, while 37% are buying purified drinking water and another 37% from refilling stations. Boiling is the most practiced water treatment. Sixty percent (60%) of the families are using toilet with flush to septic tank which is the most sanitary acceptable toilet facility in the modern time. There is one respondent that uses neighbor's toilet. It was found out that it is their parent's toilet that they are using within the compound just adjacent to their house.

#### Social assets owned by households

Social assets are support structures which the program beneficiaries can draw upon in times of need. This includes formal and informal relationships as well as networks in the form of associations.

The respondents have multiple organizational affiliations and are usually need based. Majority of the respondents are engaged in livelihood associations (63%). It implies that the Danggit Processing livelihood beneficiaries are already members and had experienced joining a livelihood association. Some of the beneficiaries also got involved in credit and microfinance groups (23%), as they also availed livelihood loans in the past. This is also a good characteristic of the beneficiaries that is favorable to the implementation of the livelihood project, because aside from experience they must have received training already.

#### Financial assets owned by households

Financial assets are fund resources which households can dispose for livelihoods. Financial capital can be in the form of savings, access to credit, productive assets, or government transfers. The beneficiaries do not have financial asset except for the FishCORAL

initial capital investment for their danggit processing project which is deposited in the bank in the name of the group. Some has access to credit being members of microfinance group.

The beneficiaries do not have money deposited in the bank but 13% of them are receiving regular remittance from family member working outside the province or abroad. They said that they are able to source minimal funds from them when they need small amount for livelihood activity. There are beneficiaries also who receives government financial aid (56.66%), these are 4Ps beneficiaries and the money they receive is mostly for to finance schooling and needs of their child beneficiaries, although they can also save a meager portion of it but most of them said that it is not even enough for the need of the child.

#### Natural assets owned by households

These are natural resources that provide households livelihood benefits. Land, aside from providing shelter, provides a primary source of money and food for the family as they can sell any ecosystem items for cash (Getzner and Islam, 2013). Land is also an important factor for the economic empowerment of the marginalized households in building their asset for sustainable livelihoods.

Most of the beneficiaries only has owner-like possession of house and lot of their dwelling (43%), which means that they are dwelling in the property of the family but do not have the legal ownership yet for them to decide on the property which usually still owned by the parents or the family collectively. This is being closely followed by 40% of the respondents who owns the house but the lot they are using for free with consent from the owner. While the remaining 7% are dwelling in the land legally owned by other person or just encroaching on a public land along the coastline. They cannot fully decide on the productive economic use of the land they are dwelling in the absence of legal ownership.

#### Human assets owned by households

Human assets or human capital are measured in terms of the output yielded by a labor employed with certain skill set. The human capital concept was developed in the 1960

founded on the idea that hard work, educational level and skill development can lead to increased productivity (output). Organizations are encouraged to invest on human asset through training programs and reward system (financial-dictionary, ND). Therefore, human asset is directly connected to educational attainment of the labor force as it determines the kind of job and valuation of labor services of the human resources of the community (Stobierski, 2020).

The male human assets, normally acting as heads of the household are schooled, but no one reached college level. Most of the male respondents are high school undergraduates (43%). They said that during their time, when a physically ready male reach certain age, they are already being trained and involved in fishing and fishing related activities like mending nets, cleaning the banca (boat), and other related activities. They are set to the sea to fish and do not see the need for higher education as they were influenced by their father that fishing is the only way to live. This results to most ending-up fishermen themselves who initially help earn a living for the family until they get married and go fishing to sustain the family of their own. The female members on the other hand are high school graduate (42%). There is one who reached college level (4%) and another one even graduated in college (4%).

Data on educational attainment of beneficiaries for the FishCORAL dangit processing project in the coastal Barangays of Prieto Diaz show that the beneficiaries are able to compute, read and write, thus it is not an issue in terms of training them on basic management and financial recording which are essential in the implementation of a group project. This baseline data is necessary in terms of planning for training and leadership intervention for the group and for women empowerment intervention appropriate for the women of Prieto Diaz.

The study of Labayo and Preña (2024) disclosed that ownership of productive livelihood assets has direct implication to the households' status of being poor or non-poor. Surprisingly, the households having much more physical assets still falls below the country's poverty threshold on pandemic. Livelihood asset own-

ership for the fisher-folks is one important factor with implications for policymakers in addressing gaps. Thus, they suggested that concerned government agencies and developmental organizations includes funding the promotion of asset ownership through capacity-building services. In Malaysia, the Marine Protected Areas (MPA) as having immense impact on people's livelihood, studied the MPAs in Sabah, Malaysia. The study found that human capital, such as leadership, skills, education and health has not yet reached a level that could offer a reasonable standard of living and livelihood for the people in the protected coastal areas (Shah, Uddin and Hussin, 2022), that government has to look into it.

### **Project Assessment**

In the assessment of the Dangit Processing Project, the study adopted the Organization for Economic Co-operation and Development/Development Assistance Committee (OECD/DAC) evaluation decisive factors. According to OECD (2002) most IFAD project performance evaluations use those decisive factors in evaluating the performance of their funded project. As laid out in the DAC Principles for Evaluation of Development Assistance (OECD, 1991), evaluation of an on-going or completed projects should focus on factors such as; Relevance (fulfillment of objectives), Efficiency, Effectiveness, Impact and Sustainability.

#### Relevance of the project and attainment of objective

Relevance factor is the measure of the extent of the project's consistency with the beneficiaries' expressed needs, partners' directions, the country needs and global priorities, and partner's policies. For the FishCORAL Danggit Processing Project in Prieto Diaz, its overall goal is to reduce poverty, improve food and nutrition security, and increase household incomes among the families of poor coastal communities. This is basically aligned to relevant development policies and strategies of the Government (Executive Order (EO) 27, series of 2017) from local to national and is also relevant to the expressed needs of the fishing communities in the area.

Prieto Diaz is home for rabbit fish more popularly known locally as “Toros” which is abundant due to sea grass beds that abounds on its coastline (Juan Escandor, Jr., 2010). The beneficiaries claimed that there ordinances had been passed by the local government to protect it against massive exploitation and future depletion. The availability of patrol boats and watch tower is necessary to properly implement the law by the Fishery Law Enforcement Team (FLET). Very important also is the regular manning towards 24/7 monitoring by the FLET. Which according to Bergonio (2023) had contributed in minimizing and gradual reducing illegal fishing activities within the municipal waters. Thus, Coastal Resource Management (CRM) is important government initiative to achieve sustainable use of valuable resources in coastal areas and its management to enhance fish production (Balilo, Candilaria & Dioneda, 2023).

The women of Prieto Diaz had been into commercial backyard dangit processing for a long time already before the implementation of this group project. But since they do it on their own, their production process is crude, they do not have access to commercial scale market and their prices and income is low. That made this project even more relevant, addressing those challenges expressed by the respondents and the KIs. However, the implementation of the livelihood project lacks technical support and direction from the community facilitator and expected support agencies. Other support line agencies that can provide the needed support were not tapped. The livelihood program of BFAR lacks planning and proper coordination with other stakeholder to make the project implementation more robust and even more relevant. Also, the beneficiaries were not provided Entrepreneurial skill-building Training

to manage their social enterprise, which according to Lyons, Lyons and Jolley (2019), is very essential in the successful development and maintenance of rural entrepreneurial ecosystem

#### Effectiveness of project implementation

Project effectiveness refers to the degree of achievement of the livelihood project objectives at a predetermined time frame. Along poverty reduction, improved food and nutrition security and increase in household incomes, there is no indication that these goals were achieved by the beneficiaries through the project. All of the respondent responded that there is no substantial change in their income and living condition before and after the project implementation.

Interview and FGD revealed that the project did not contribute to poverty reduction, improved nutrition and increase in income. The major reason identified by the beneficiaries is the lack of or absence of proper project planning. According to the respondents, they were just informed of the project then started to identify members without clear program or business plan at least. The organizing, accreditation with relevant government agencies and licensing were left out to them without formal guidance. They then resorted to trial-and-error processes which most of the time they fail.

The modular drying facility (See Figure 5) was just provided without consultation with the beneficiaries; thus, these facilities are not being used at the moment as it does not answer the exact and urgent need of the beneficiaries, and it is not fully functional. This is dismal as its counterpart units deployed in Milagros Masbate in another FishCORAL-supported fish drying livelihood are at least working (Sipronio and Dioneda, 2021)



Figure 5. The Modular drying facility.

During the first roll out, they were not able to produce better quality of dried danggit than what they use to produce because there is no technology-transfer training provided to improve the process. The modular drying facility is not functional especially during rainy season because the LPG and electricity support system connecting port are not yet operational. The transformer is not yet available due to miscommunication with the Local Government who was supposed to provide the transformer based in the memorandum of agreement with BFAR. The LGU was even misled to purchase transformer that is not suitable for the purpose and situation.

Then the pandemic and the new normal protocol restricted their mobility and activities. The beneficiaries deliberately stopped the associations collective livelihood operation and returned to their individual backyard danggit processing and fish drying activities.

At this time of assessment, since they stopped the operation and return to backyard danggit processing, they claimed that the seed money from BFAR for the fishCORAL project together with the little earning they generated during the first roll-out are intact in the bank. Although most of the members agreed on that report, but there is no way of verifying such claim as there is no passbook and financial report presented during the visit. Online follow-ups even failed to have access to said documents.

#### Efficiency in the utilization of project resources

Efficiency is measured on how resources inputs, such as funds, local resources (danggit), implements (modular solar dryer) and expertise, were effectively converted into results in the shortest possible time.

On efficiency along organization of the association, delays in the identification, recruitment and organization of the association are one of the factors identified that affected efficient implementation of the project. There was no clear-cut beneficiary selection criteria and system. The beneficiaries also identified the delay in their accreditation and licensing as another contributory factor due to lack of technical assistance. According to them, they even failed to avail assistance during the pandemic

because they are not yet recognized and do not have the necessary accreditation documents.

Production efficiency is another area identified by the beneficiaries to the project inefficient implementation. According to them, they were not able to efficiently manage the financial input from the FishCORAL project and their local resources. These are due to lack of technical capabilities to run the fish drying module, lack of clear cut project operational systems and the absence of technical support to other critical stage of danggit processing operation. They also observed that the drying facility limits their production due to it carrying capacity and drying time because there is no supplemental power (LPG or electricity) to run the machine especially during rainy days. It is important to mention here that the drying module is supposedly solar powered which drying mechanism can be alternately fueled by electricity or LPG. Utilizing these alternative energy source would mean additions to production cost, hence would have impact on economic efficiency.

As to timeliness and time efficiency measure, there is no means to validate if there were issues related to timeliness, disbursement procedure and pace, costing, project management and other implementing agency factors because there is no available records and documents. This is despite of the repeated requests and follow-ups. But the collective statement of the beneficiaries in every Barangay could already suffice to validate the claim of not efficient utilization of the project resources.

#### Impacts of the project

Impact, according to DENR, refers to the intangible result and/or long-lasting effect or consequence of the project in terms of the ecological, economic, socio-cultural, political, technological and institutional aspects. Livelihood intervention project is supposed to have predetermined impact and baseline data to measure against the result of the project after a predetermined time. But for this study, no baseline data were provided to measure its impact along income generation, poverty eradication and women empowerment.

*On household income.* Part three of the questionnaire of this study delved on the

income and other receipts before and after the implementation of the project to measure the income impact of the project. Result of the survey shows a 100% claim that there is no increase in income contributed by the project because of its delayed implementation and unsuccessful run of the first roll-out. The very little income generated during the first roll-out was decided not to be distributed but be incorporated to the seed funds to be used when the project resumes when the new normal come where they can operate again as association. It could have been nice if the association disclosed how much this “little income”, for reference of future assessments was.

*On poverty eradication.* Respondents were in agreement in saying that the project did not have significant impact on poverty eradication in their community. There was no significant impact on poverty reduction attributable to the project and nothing changed in the family income and consumption pattern of the family beneficiaries. Interview with the KIs and the FGD also claimed the same. The average income

of families of Php 5,120.00 monthly is still below poverty threshold for a family of 1 to 5 members. Even combined family income and remittance, families are still living below the regional threshold of 19,583.00 according to 2019 PSA survey report.

*On women empowerment.* According to the Women’s Empowerment in Agriculture Index (WEAI), empowered woman condition is indicated by sufficient achievements in at least four of the five domains of empowerment (Agrilinks, 2017). Adequacy score shall be 80% or greater in some combination of the weighted indicators in the 5DE shall also be achieved. For the women beneficiaries of the Danggit Processing Livelihood Project in Prieto Diaz, only 6 out of the 23 respondent (26.08%) beneficiaries are able to score 80% or greater along WEIA indicators. Women empowerment in the Fish-CORAL-supported danggit processing livelihood project in Prieto Diaz is low. Table 3 shows the full detail of the women empowerment assessment.

Table – 3: RPIA Women Empowerment Matrix

Women Respondents	WEIA Dimension of Women Empowerment											ADEQUACY SCORE	STATUS
	PRODUCTION		RESOURCES			INCOME	LEADERSHIP		TIME ALLOCATION				
	Input in Decisions	Autonomy	Ownership of Assets	Purchase, Sale or Transfer	Access & Decisions on Credit	Control and Use	Group Membership	Speaking in Public	Workload	Leisure			
W 01	0	0	0	1	0	1	1	1	1	0	56.67	NE	
W 02	1	0	1	1	1	1	1	1	0	0	70.00	NE	
W 03	1	0	1	0	1	1	1	1	0	1	73.33	NE	
W 04	0	0	1	1	1	1	1	1	1	1	80.00	E	
W 05	0	0	0	0	1	1	1	1	0	1	56.67	NE	
W 06	0	0	1	0	0	1	1	1	0	0	46.67	NE	
W 07	1	0	1	1	1	1	1	1	0	1	80.00	E	
W 08	0	0	0	0	0	0	0	0	1	0	10.00	NE	
W 09	0	0	1	0	0	1	1	1	1	1	66.67	NE	
W 10	1	0	1	1	1	1	1	1	0	1	80.00	E	
W 11	1	0	1	1	1	1	1	1	1	1	90.00	E	
W 12	1	0	1	0	0	1	1	1	0	1	66.67	NE	
W 13	1	0	1	0	1	1	1	1	1	0	73.33	NE	
W 14	1	0	1	0	0	1	1	1	0	1	66.67	NE	
W 15	0	0	1	1	0	1	1	0	0	1	53.33	NE	
W 16	1	0	1	0	0	1	1	1	0	1	66.67	NE	
W 17	1	0	1	1	1	1	1	1	1	1	90.00	E	
W 18	0	0	1	0	0	1	1	1	1	1	66.67	NE	
W 19	1	0	1	0	0	1	1	1	0	1	66.67	NE	
W 20	0	0	0	0	0	1	1	1	1	1	60.00	NE	
W 21	1	0	1	0	0	1	1	1	0	1	66.67	NE	
W 22	0	0	1	0	1	1	1	1	0	1	63.33	NE	
W 23	1	1	1	1	1	1	0	1	0	1	80.00	E	
Σ	12	1	19	9	11	22	21	21	9	18			

Women of Prieto Diaz, specifically those involved in the danggit processing livelihood are active in income generating activities to support and supplement for the family's basic needs. The WEIA result shows that even if the women of Prieto Diaz are actively involved in earning income, they still have low empowerment under the WEIA metrics. Of the 10 domains of empowerment for women, the women beneficiaries of Prieto Diaz are empowered only on the control over the use of income, and in leadership as they are empowered to decide on membership to organization as well as in participating to public decision making. These are manifestations of social asset that the project can take advantage of.

In Masbate, a study on the empowerment of women in selected fisheries-related livelihoods in Asid Gulf of Masbate. The study revealed that the women achieved acceptable level of control on the use of household income. They also have social network – established relationships or groups within and outside the organization developing support group towards their empowerment. The need that they identified towards their empowerment is for them to be provided with agricultural production training and enterprising, access to and control of productive resources, leadership in the community, and time allocation. The study recommends, among others, is the establishment of collaboration among concerned government agencies to support then in their enterprising activity and the inclusion of gender sensitivity activities in the community that will lessen gender inequality in the fishery community (Mahawan et al., 2022).

### Sustainability of the project

A livelihood project is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base according to Fouracre (2001). The study of Mrangu (2018) on sustainable rural livelihood, identified; thorough planning, community involvement, monitoring and evaluation, financial infusion and the appropriate management of community based project are the influencing factors.

The sustainability requirements of the Danggit Processing Livelihood project can be seen in two ways. First in the local resources, this includes the healthy population of siganid (dangit) to supply the requirement of the livelihood, the human asset (skills and attitude), the local community and the local government initiatives. Also included here is the capacity of the organization to develop leadership and sustain the enterprise activities, on their own. The second is about the enabling requirements such as the required funding, project implementation plan and technical support.

As to the first facet, Siganid or Rabbit fishes is a limited living resource. Their limits to supply the demand of fisheries and the danggit livelihood is governed by their capacity to reproduce and grow. It is important then to ascertain the regenerative capacity of the organism through bio-ecological studies. There has been recently an ordinance from the local government of Prieto Diaz affording protective measure by prohibiting catching of juvenile rabbit fish. This is in addition to existing policy against illegal fishing activities in the municipal water of the town. There is an issue here however as no one could tell at what size does the species of rabbit fishes cease as juveniles and become spawning adults. The need for reproductive biological studies here is indeed critical. The local community, the women specially, are already into backyard danggit processing business before, hence, they already have the skill and the enterprising attitude. There is already existing fisher folks' association even prior to this FishCORAL project and the community is active. The municipal executive is supportive of the project for fisher folks and the protection of the coastal resources, but there is challenge observed on their set-up. Also, the seemingly limited number of technical staff from both the LGU and BFAR resulted to low time committed to the project.

It is observed that the danggit livelihood project was implemented in haste, despite the late release of the funding, to catch-up with the target end of FishCORAL project implementation. Poor planning and poor coordination with the local government on many items like specification of terms of cooperation (who shall be in charge in assisting and monitoring of the

beneficiaries), the identification of beneficiaries, the specification of counterpart component needed for the modular drying facility and other items. Also there is lack or absence of one very important sustainability factor – the technical support that is being needed by the beneficiaries in terms of organizing, project and financial management, skills training, appropriate technology and basic machineries in order for the association to produce quality processed danggit. There is no input also provided to them on good manufacturing practices and food safety and quality assurance standards. Important quality compliance for their dried danggit to fare well in the high end local and international markets has to be provided as well.

Lastly, along technical support, the beneficiaries have also expressed their need for capability development and support for GMP and HACCP-compliant processing, product standardization and packaging techniques. They need assistance and training on marketing their products, locally and internationally to realize better income through better price. They need assistance and training on establishing network and linkages. In relation to that, study conducted has generated the features for socioeconomic, aquatic ecology and habitat, water quality and capture fisheries components. The interface of every factor showing the assessment results, field activities and infographics was made in place. The study conclusion was that for effective and efficient interface for socio-economic assessment, aquatic ecology and habitat, water quality and capture fisheries assessment, the application of geographical information system generated the geospatial location for coral reefs, seaweed/seagrass, and mangrove sample target area be implemented (Balilo et al., 2020). F

## **Conclusions**

The Fisheries, Coastal Resources and Livelihood Project (FishCORAL) funded by IFAD and implemented by BFAR in the Philippines is supposed to address rural poverty by enabling the poor engage in diversified livelihood activities. These livelihood projects are supposed to help eradicate poverty by increasing family income, women participation and project sustainabil-

ity. For the Prieto Diaz Danggit Processing Livelihood Project, this FishCORAL project funded by IFAD is a most welcomed opportunity. But it did not achieved expected outcome due to delayed project implementation. The project is supposed to have been implemented in 2016 to 2020 (FishCORALBrief, 2015) but the project was implemented about mid of 2019 already. The project was implemented in haste with no clear project implementation plan. Identification of beneficiaries is not clear to the respondents and some other respondents are not even sure of their roles and membership while there are fisher folks who showed up during the field survey visit but are not in the list provided by BFAR.

This project assessment showed that, along socioeconomic characteristic; predominantly, the families belong to the family size range of 1 to 5 members, fishing is the main source of income and their expenditures is more on the basics only like food consumption. They have cellular phone, television set and motorized banca for livelihood asset, their house is made of strong materials but do not own the land they are dwelling at. They have electricity and their main source of drinking water is local protected deep well and water refilling stations and have toilet with flush to septic tank.

On livelihood assets, the topmost physical assets owned by households are cellular phone, television set and motorized banca (boat) respectively. They are dwelling on decent housing with adequate access to water and sanitation. For social assets, the beneficiaries have multiple memberships to organization, mostly livelihood association and credit and micro-finance groups. For financial asset, quite a number of beneficiary families are receiving regular remittance from family member working outside Bicol or abroad, most of them are 4Ps beneficiaries and they do not have bank account. They do not have natural assets at their disposal but human assets are schooled although the most is either high school undergraduate or high school graduate. They are skilled in terms of fishing and danggit processing as they have done this before.

The assessment of the Danggit Processing Livelihood Project found that the project is rel-

evant to all stakeholders more so to the beneficiaries. The seemingly poor coordination among the government agencies, the LGU and the beneficiary organization may have negatively affected the good prospect of the project. As to the effectiveness, the project failed to contribute to poverty reduction, food security and increase in family income due to lack or absence of planning and poor technical support. As to the efficiency in the utilization of the resources of the project, the project was inefficient due to lack of system in the implementation and lack of technical support in the form of appropriate technology transfer and training. The modular solar dryer is not maximally utilized to the point that the beneficiaries called them dysfunctional. Validating the project's operational efficiency is also not possible in the absence of documents and records. As to the impact of the project, there is no measurable and attributable impact as to household income, poverty eradication and women empowerment. The delayed implementation lack of systematic danggit livelihood entrepreneurial plan and the dismal level of technical support are seen as the primary reasons.

Along project sustainability, the local resources like the raw materials, the enterprising people, the local community initiative and the local government support in the form of ordinances and programs already guarantee sustainability if managed appropriately. Supply of danggit although abundant but could not be ascertained due to the absence of bio-ecological information about the siganid (danggit) stocks. Again, the lack of a comprehensive livelihood project business plan, the seemingly poor coordination system between relevant government agencies and designation of a community facilitator that will guide and monitor the project until they are capable of managing themselves with in place membership and succession plan are very serious concerns.

### **Recommendations**

From the key findings the following are hereby recommended:

- 1) The Danggit processing livelihood project shall be guided by implementation plans that includes business and entrepreneurial sustainability plans among others. There

should be clear beneficiary selection criteria set before the restart of the project to enlist appropriate member beneficiaries. There shall be a full time Community Facilitator (FC) to guide and monitor the implementation towards sustainability of the project.

- 2) To make the project more relevant and effective, it is recommended that a clearly defined role of participation and commitment of each of the tripartite major stakeholder (BFAR, the beneficiaries and the LGU) be identified, properly discussed and agreed upon through memorandum of cooperation. The urgent and recurring needs and issues of the beneficiaries must also be identified, specially along family income and women participation. For efficiency, training need of the beneficiaries along the nature of the business (danggit processing livelihood) and the management of the same must be conducted. Good manufacturing practices product standardization and HACCP-compliance shall be instilled to enhance economic revenue potential of the products locally and abroad.
- 3) Towards sustainability, the project shall capitalize on the socioeconomic strength along social assets (membership to organization and participation of women in public discussions, the current consciousness of the beneficiaries). There is a good prospect on mobilizing them towards cooperative business operation.

It is vital to capacitate them on cooperative business and business operation management through training and hands-on activities. Provide them technical training on processing and packaging standardization and support them with appropriate low-cost available technology that shall shorten processing time, improve quality and lengthen self-life to meet international market standard. Train them on marketing their processed danggit products and help them to gain access to commercial and industrial markets – locally and internationally. Appropriate government agencies can be tapped to provide such training and linkage, like DTI, DOST, NLRC, the Bicol University and other government and private institutions.

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