

Empowering Women's Coconut Farmer Groups To Build Family Economic Resilience Based On Local Potential In Tidore Islands City

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Abstract.

Coconut farmers' homes may have a poor economy or income since their goods rely solely on one primary commodity: copra and coconut grains. It can potentially upset economic circumstances since, as the price of copra and coconut falls, so does household income. As a result, help for coconut farmers, notably women farmer organizations, is required to boost the economic worth of their coconuts. For example, the economic value of coconut may be improved by producing various coconut-based goods so that farmers are not only reliant on copra prices. According to the survey findings and the identification of problems with the partners of the women's group Tani Igo Jaya, based in Jaya Village, Tidore Islands City, all members have encountered economic difficulties due to the drop-in copra prices. It was exacerbated by the fact that it occurred concurrently with the COVID-19 epidemic. As a result, most coconut growers refuse to process their coconuts into copra, and some coconuts go to waste. The issue is that partners lack expertise and abilities in processing or diversifying processed coconuts, although all components of the coconut fruit may be utilized to generate economic value. The solution that will be applied to partners is the transfer of science, technology, and skills for partners in processing their coconut harvests, as well as the provision of solid business management so that partners are not only reliant on copra. Furthermore, the identification of waste concerns from processed coconut fruit will be minimized since partners can employ coconut water, coconut pulp, and coconut fiber, which are presently considered waste but have promising economic value. This community service project is intended to create a new entrepreneurial group by exploiting possible sources of local raw materials available to partners, and it will directly benefit the economic resilience of coconut growers' homes. This community empowerment activity was successful in increasing partners' knowledge and skills in processing coconut fruit into nine products: coconut confectionery, shredded coconut (serundeng), coconut chips, sweet soy sauce, coconut jam, coconut milk, coconut oil, virgin coconut oil (VCO), and pots, as well as planting media made from coconut coir.

Keywords: Coconut, coconut farmer women, family economic resilience and tand he price of copra .

I. INTRODUCTION

Almost all regions in North Maluku Province were shocked by the significant decline in farmer copra prices from IDR 10,000/kg to IDR 2,000–3,000/kg from around 2018 to early 2021. As a result of the public's reaction to this condition, which multiple mass media outlets publicized at the time, this had various social and economic consequences and disturbed the learning process. Almost all regions in North Maluku Province were shocked by the significant decline in farmer copra prices from Rp. 10,000/kg to Rp. 2,000–3,000/kg from around 2018 to early 2021. As a result of the public's reaction to this condition, which multiple mass media outlets publicized at the time, this had various social and economic consequences and disturbed the learning process. For a period, practically all institutions in North Maluku could not hold classes because nearly all students protested for the reinstatement of average copra pricing. It is acceptable given that some pupils' parents rely on copra sales for a living. Furthermore, the current situation of the COVID-19 epidemic aggravated the economic difficulties of farming households, notably coconut producers, in 2019. Group coconut growers in the Tidore Islands region are also experiencing economic difficulties. The danger and genuine risk of unpredictable copra pricing at the farm level are confronted by Igo Jaya women's organizations as partners in this community service project. Their copra prices fell again between 2018 and 2020, and several farming families lost interest in producing copra and neglected their coconut crops. It has

the consequence of lowering farming households' economic standing. According to the location assessment completed by the proposal team, there is a potential supply of local raw materials that have not been entirely used by the community in Jaya Village, North Tidore District, namely coconut (*Cocos nucifera*) production. Furthermore, as a result of the identification of difficulties between the proposal team and the partners of the Tani Igo Jaya women's group (as indicated in Fig. 1), it is recognized that all partner members do not know and do not have the ability to process coconut other than copra.



Fig 1. Depicts the proposed team and partner personnel at the coconut farm location (A), one of the coconut coir trash pile places (B)

Another issue with partners is that turning coconut into copra generates a lot of coconut water and coconut fiber waste, which can potentially cause environmental and health concerns. Coconut water left on the ground emits an unpleasant stench. Meanwhile, partners continue to use coconut coir to heat copra and burn sago, but the quantity of coco coir remains mainly unutilized (Fig. 1B). The Ministry of Agriculture runs an agribusiness unit in Jaya Village, but recognition from partners has yet to reach coconut farmer organizations. At the moment, agribusiness operations solely benefit sago processing producers.

A community empowerment program is required to support farming communities in boosting their economic resilience, particularly farmers from the women's organization Tani Igo Jaya. It is hoped that women's farmer organizations will be able to empower themselves autonomously via a people's economy. Academics (lecturers and students) must be supported to fix the difficulties identified to attain this aim.

Based on the previous description and the findings of the initial survey and problem identification conducted in collaboration with partner members of the women's group Tani Igo Jaya in Jaya Village, North Tidore District, it is clear that several issues pose challenges for partners as coconut farmers, including:

1. To develop a home industry-based business, partner members had no knowledge or talent to diversify coconut agro-industry goods, such as diverse processed coconut chips, coconut candy, coconut serundeng, coconut jam, and coconut milk.
2. As an alternative to processing coconut into copra, there is no partner's expertise and abilities in processing coconut into virgin coconut oil (VCO), coconut oil, and sweet soy sauce.
3. Coconut waste, specifically coconut water and coconut fiber, has not been treated, resulting in pollution and environmental hygiene issues.
4. Partner members' knowledge and skills are insufficient to begin managing a home industry, especially production business management, product packing, marketing, financial reporting, and entrepreneurship.

Based on the assessment of the difficulties expressed by the partners, two priority problems are identified for which remedies are provided to the partners, namely:

1. Partners are unfamiliar with and inexperienced in processing coconut into home industry-based goods such as coconut chips, candied coconut, serundeng, coconut jam, coconut oil, and VCO. Partners are also inexperienced in converting coconut water into milk and sweet soy sauce goods. Partners' abilities to convert coconut coir into other crafts, such as pots and planting material, are also unavailable.
2. Partners lack experience in company management and entrepreneurship.

II. METHODS OF IMPLEMENTATION

By using partners' local potential, notably coconut fruit, those who will be empowered are the partner types that lead to a productive economy for establishing a home industry company group. The issues addressed with partners include manufacturing and support in creating various coconut products. The proposed activities are the product of a collaboration between the proposer team and the Igo Jaya women's farmer group partners. The proposal team is a facilitator, while the partners are actively involved in the activity planning and decision-making to ensure the activity's success. The following steps explain the activities carried out by the implementing team and partners:

1. Feasibility study

This activity is carried out to gather preliminary information on the viability of partners participating in activities. Following the activities, focus group discussions (FGD) were held through interviews and discussions. The action continued with direct observation of the observation point.

2. Implementation of activities

After the implementation team has prepared the necessary equipment and materials, the implementation team and partner members agree on an implementation plan. The activity implementation process is separated into manufacturing and product packing. Training in coconut processing skills is carried out throughout the manufacturing stage through product diversification. Two resource people with experience in coconut processing were involved in this project. The product packaging step is completed by assisting and training in packing the suitable product.

III. DISCUSSION RESULT

Igo Jaya is a women's farming organization in Jaya Village, Tidore City, Islands, North Maluku Province. The group comprises ten people with an average elementary and secondary education level. Therefore, they do not yet have knowledge of entrepreneurship or skills in operating a business or business management, including a home industry-level enterprise. Most of this partner's members operate coconut farms, and harvested coconuts are often processed into copra or marketed as granulated coconut. According to information from partners, their organization had never gotten aid or training in coconut management.

Coconut (*Cocos nucifera*) has an advantage in that all sections of the coconut fruit may be used and have economic worth if correctly maintained (Muslim and Darwis, 2017; Triawan, Banon, and Adfa, 2019). In addition to being processed into copra, coconut fruit may also be processed into a variety of economically valuable preparations and has been produced on a home industrial scale (Wijayanti, 2019). The following actions take place during the implementation of community service:

1. Preparation of production equipment, materials and handouts

The implementation team has developed the equipment required to convert coconut into different culinary and non-food items. Some equipment was purchased using funding from the Ministry of Education, Culture, Research, and Technology's community service grants. Equipment support provided to partners includes coconut grater machines, cup presses, heat sealers for packing, blenders, kerosene stoves, and other typical food manufacturing equipment.

The implementation team and students worked together to prepare the handouts. The presentation includes instructions for preparing and manufacturing coconut diversification items. The handout includes nine coconut-based products. From July 25 through July 31, 2022, equipment, materials, and handouts are prepared for a week.

2. Implementation of training

Before the activity's execution, the implementing team and all partner members socialized and introduced themselves. On Saturday, August 3, 2022, at 09.00 WIT, the socializing and introduction took place at the home of the head of the Igo Jaya farmer group, Ms. Kursina Robo, in Jaya Village, Tidore Islands City. The activity starts with an introduction by the implementation head team, who also describes the activity's mission and purpose to the partners. Following that, the implementation teams and partner members were introduced.

The first meeting was conducted on Monday, August 15, 2022, at the residence of the chairman of the Igo Jaya farmer group. The activity runs from 09.00 to 16.00 WIT. The total number of partner members in attendance was ten. The exercise aims to teach partners how to create coconut and VCO oil. While waiting for VCO and filtering coconut oil, spare time is spent training and assisting partners in producing coconut candy and coconut chips. The second meeting was utilized to teach and support partners in preparing serundeng, also known as shredded coconut and coconut jam. This activity will take place on Tuesday, August 16, 2022, from 10.00. to 16.00. The third meeting was postponed until August 17, 2022. The activity took place between 11.00 and 16.00. During this conference, partners are taught how to turn waste from coconut processing into goods of commercial value, namely by incorporating coconut water into sweet soy sauce and coconut milk. The fourth meeting was conducted on Thursday, August 18, 2022, with training materials on how to make coconut fiber pots and plant mediums. In addition, partners are provided information on how to prepare product packaging. The fifth meeting will be an oral evaluation of the items created by partners and input from partners. In addition, conversations were made to ensure that partners understood and were experienced in processing coconut into goods of economic value in addition to being processed into copra. The activity culminated with a closing ceremony conducted on Friday, August 19, 2022. All actions were documented, as may be seen in Fig. 2 below.



Fig 2. Assistance activities for the processing of various coconut-based products

3. Product Description Created by a Partner

Coconut fruit and meat provide a variety of elements that are favorable to health, such as macronutrients, healthy fatty acids, and antioxidants (Ngampeerapong and Chavasit, 2019). Furthermore, coconut includes nutritional fiber, vitamins, and minerals (Fernando et al., 2015). Coconut's main fatty acid composition, lauric acid, and its derivatives have been shown to have antibacterial and antiviral properties (Ramesh et al., 2021). The nutritional richness of coconut provides those who consume it with health benefits. This empowerment activity produces the following food products:

- a. Confectionery made from coconut (Fig. 3A-3D)



Fig 3. Packaging of green (A,B) and red (C,D) coconut confectionery varieties

The coconut sugar flower is produced by combining the flesh of a half-old coconut with sugar and food coloring. Children enjoy coconut candy because it has a sweet and salty flavor. This product can be served as a snack. Because there are no items of this type on the market, the marketing opportunity in the North Maluku area and its environs is still vast. Another economic potential is to offer them as North Maluku-specific souvenirs.

b. *Serundeng* or shredded coconut (Fig 4A-4B)



Fig 4. Packaging of serundeng or shredded coconut (A, B) and coconut chips (C, D)

Serundeng, also known as shredded coconut, is prepared from grated half-old coconut blended with crushed spices. The nutritional content of Serundeng coconut was increased by adding shredded fish. Because the coconut serundeng product has yet to be developed in the North Maluku region, this might be a lucrative economic potential for partners.

c. Chips made from coconut (Fig. 4C-4D)

Coconut chips are prepared by combining thinly sliced aged half coconut with various ingredients and frying them in cooking oil. Coconut chips are available in two flavors: sweet and salty. Coconut chips, like coconut candy items, have yet to be manufactured in the North Maluku region, so the commercial potential remains prospective.

d. Sweet soy sauce (Fig. 5A)

Sweet soy sauce is created with half-old coconut water, palm sugar, and different spices and is sometimes known as spicy sweet soy sauce. It has a great spicy flavor and scent. This spicy soy sauce is not manufactured locally and might be a business opportunity, such as a memento from North Maluku. Soy sauce is prepared by using coconut water, which is now a waste product of coconut copra production.

Several community organizations have successfully produced coconut water for the production of coconut jelly, also known as nata de coco (Zulfita, Warganda, and Santoso, 2018; Mulyadi et al., 2019; Wijayanti, 2019). Sweet soy sauce can also be made using coconut water (Haerani and Hamdana, 2016; Mardesci, 2018; Zulfita, Warganda, and Santoso, 2018). chips are prepared by combining thinly sliced aged half coconut with various ingredients and frying them in cooking oil. Coconut chips are available in two flavors: sweet and salty. Coconut chips, like coconut candy items, have yet to be manufactured in the North Maluku region, so the commercial potential remains prospective.

e. Jam made from coconut (Fig. 5B, 5C)

Jam from coconut is produced using thick old coconut milk and previously blended pandan leaf juice. Eggs and sugar are also included. Because coconut jam manufacturing does not currently exist in the North Maluku region, it has the potential to be developed as a business product by partner members.



Fig 5. Packaged sweet soy sauce made from coconut water (A), coconut jam (B, C), and coconut milk (D)

f. Coconut milk (Fig. 5D)

Coconut milk is produced by combining coconut water and young coconut flesh with sugar and sweetened condensed milk. All components are combined, filtered, and packed in a plastic container (cup), closed, or squeezed with a press.

g. *Virgin coconut oil (vco)* (Fig. 6A)

VCO is extracted from aged coconut milk using a separate procedure that does not include heating. The hose discharges the divided water at the bottom. Water-free coconut milk is stirred and left for 12 hours. The floating layer is extracted and filtered till it is clear. VCO is extensively utilized in the community, among other things, to preserve health. Therefore, chances for partners to generate VCO as a company remain attractive.

h. Coconut oil (Fig. 6B-6C)

Coconut cooking oil is prepared by heating thick coconut milk from shredded coconut juice until the dregs and oil separate. A sieve lined with dry tissue paper is used for separation.

i. Coconut husk pots and planting medium (Fig. 6D)

Coconut coir is one of the byproducts created by partners during the processing of coconut into copra, and it has become an environmental issue. Partners were taught how to make pots and plant medium out coconut coir.



Fig 6. Virgin coconut oil (A), coconut oil (B and C), and potting medium (D)

Manual production of different pots and planting soil from coconut fiber takes only a blender and essential equipment (Azzaki et al., 2020). Coir fiber has specific benefits and a high aesthetic value (Hanum, 2015), so various souvenirs manufactured from coconut fiber can be made as an additional source of revenue for coconut farmers, thus improving their well-being (Zaim et al., 2020). Waste from the extraction of coconut milk for producing the coconut oil and VCO may still be used to make compost and planting medium (Zulfita, Warganda, and Santoso, 2018). Partners do not use all sections of the coconut in the production of copra, which is regrettable since coconut water and fiber are squandered and deemed waste by partners. If coconut water and fiber can be processed further, they can bring considerable economic value (Nurdyansyah and Widyastuti, 2017; Zulfita, Warganda, and Santoso, 2018). Everyone can transform coconut trash into numerous goods of economic worth because it does not require specific knowledge or skills for the producers and utilizes simple equipment (Tarmidji and Ali, 2018). After four days of mentoring activities, the activities were terminated on the fifth day, Friday, August 19, 2022. Before the close, the implementation team conducted an oral assessment of the goods created by partners. Similarly, partners are invited to submit feedback on this community empowerment initiative. Partners hoped that the implementation team would assist them in introducing and promoting their product outcomes. For activities in the second phase, the outcomes of the agreement between the implementation team and partners will be carried out again with entrepreneurship and business management help. Fig. 7B depicts the activity closure documentation.



Fig 7. Team and partner members participating in opening and closing events (B)

IV. CONCLUSION

Community empowerment activities for women's coconut farmers' groups in Jaya Village, Tidore Islands City, can improve partner members' skills in managing coconut yields into various coconut-based products, such as coconut confectionery, coconut husks or shredded coconut, coconut chips, sweet soy sauce, coconut jam, milk, coconut, coconut oil, virgin coconut oil (VCO), and coconut fiber pots and planting media. When copra prices are low, this mentorship activity is intended to help minimize partner difficulties. Partners may use almost all coconut sections to establish a home industrial enterprise.

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