

EMPOWERING COASTAL COMMUNITIES BY DEVELOPING PROCESSED FISH PRODUCTS INNOVATIVE BASED ON LOCAL POTENTIAL IN BUNGKUTOKO SUB-DISTRICT, KENDARI CITY

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Abstract

This empowerment program aims to strengthen the capacities of coastal women in Bungkutoko Subdistrict through the development of innovative fish-based products using local potential. The situational analysis indicated limited diversification of processed fish products, low digital marketing skills, and weak household economic resilience. The program addressed these needs through training on processing fish into “Abon WaPesisir” with various flavors, nutrition education, the use of appropriate technology (fish floss mixer, vacuum sealer, standing pouches), preparation of production SOPs, branding enhancement, and digital marketing training using social media and online marketplaces. In addition, the activities integrated the strengthening of women's roles through mentoring, group learning, and entrepreneurial soft-skills development. The results showed increases in participants' knowledge, production skills, food hygiene practices, and digital marketing capabilities. The group succeeded in producing more than 50 packages of ready-to-sell fish floss with more consistent quality, modern packaging design, and the “Abon WaPesisir” brand. Participants were also able to create promotional content, manage social media accounts, and begin expanding their marketing networks. Overall, the program had positive impacts, including enhanced self-confidence, strengthened business capacity, and greater opportunities to improve household income among coastal families.

Keywords: Empowerment, Fish Processing, Fish Floss, Coastal Communities, Bungkutoko

INTRODUCTION

Indonesia, as an archipelagic country, has enormous potential for utilizing marine resources, including the development of the fisheries sector, which is the economic backbone of coastal communities. In Southeast Sulawesi, fisheries production reached 268,000 tons in 2023, an increase from the previous year, indicating abundant raw material potential.[1] The Bungkutoko Village in Kendari City in 2024 showed a population of 1,942 people, consisting of 989 men and 953 women. Of this number, 162 people, or around 29%, work as fishermen,

so that marine products remain the main source of income for the community.[2] However, in Bungkutoko Village, this potential has not been accompanied by processing innovations or strengthening the downstream sector, so the added value of marine products remains low and the income of fishermen's households tends to be unstable.

Upstream, the catch volume of skipjack tuna in this region averages 150–200 kg per group per month during the normal season, but decreases by up to 40% during lean seasons or bad weather. The main types of fish caught are skipjack tuna, cakalang, and several pelagic fish, with selling prices ranging from IDR 18,000–24,000/kg. More than 90% of the catch is sold fresh to collectors or in traditional markets, without further processing [3]. Efforts to diversify processed products such as shredded fish, crackers, or fish nuggets are still very rare. Only a small number of fishing families have ever tried processing fish for their own consumption, and almost none of the products enter modern or digital market distribution channels [1]. There is no business record, marketing remains very traditional, and the potential for online marketing has not been tapped due to the low digital literacy of the groups. If processing and marketing are developed, based on studies in other coastal areas, household income could increase by 30–50% compared to selling only fresh fish [1,4].

The minimal involvement of women is caused by limited knowledge and skills in processing innovative fish products based on local potential, as well as less than optimal access to training and appropriate technology to market or introduce more widely affordable products.

In response to these challenges, this community service program is designed to empower coastal communities through training in fish processing into innovative, high-value products. Through technical training, business mentoring, and marketing education, this program is expected to increase the income of fishing families and strengthen the role of women as entrepreneurs based on local potential.

IMPLEMENTATION METHOD

This community service activity is implemented through a series of systematic stages to address two main partner issues, namely: (1) the lack of capacity and skills of mothers in processing value-added fish products, and (2) low nutritional knowledge and digital marketing capabilities for processed products. All methods are designed to be applicable, participatory, and encourage program sustainability after the intervention.

1. Implementation Stages

The implementation of the activity consists of five main stages:

a. Program Socialization

- 1) Socialization was carried out to the main partners, namely 15 members of the Coastal Mothers School, along with the sub-district officials.
- 2) The purpose of socialization is to introduce the program, explain the goals and benefits, and build joint commitment during implementation.
- 3) This activity will begin with an initial meeting (kick-off meeting) which will also include a pre-test to measure the partners' baseline knowledge regarding fish processing, nutrition, and marketing.

- b. Technical Training and Nutrition Education
 - 1) The training focused on improving technical skills in processing fish into innovative shredded fish (with various flavors), including hygienic processing techniques, modern packaging, and drying strategies.
 - 2) The training materials also include nutritional education about the benefits of consuming fish and how to maintain the nutritional quality of processed products.
 - 3) Direct practice is provided with the guidance of instructors from the proposing team, including demo sessions and simulations of shredded meat production as well as product quality assessment.
 - 4) Digital marketing education is carried out through training in the use of social media (Instagram, TikTok, Facebook) for product promotion and the creation of simple, engaging content.
 - c. Application of Technology and Innovation
 - 1) The innovations implemented include the use of modern production tools (shredded floss mixer, vacuum sealer, standing pouch), as well as branding strategies and packaging design for the "Abon WaPesisir" product.
 - 2) Promotional and branding materials were created together as a group, including logo creation, product photos, and short marketing videos.
 - 3) Digital technology is utilized for online marketing and expanding sales networks.
 - d. Mentoring and Evaluation
 - 1) After the training, intensive mentoring is carried out for 1–2 months to ensure the implementation of skills in production, packaging, and marketing of fish floss products.
 - 2) The community service team accompanies members of the Coastal Mothers School directly at the production house and online through a WhatsApp group for regular consultations.
 - 3) The target during the mentoring period is to produce at least 50 ready-to-sell fish floss products as group production results.
 - 4) Every week, monitoring of the development of members' skills is carried out, by observing the increase in production volume, flavor variants, and the number of product orders received.
 - e. Program Sustainability
 - 1) Trained members of the Coastal Mothers School will become local mentors, guiding new members or other women's community groups to expand the program's impact.
 - 2) All training modules, educational videos, and digital promotional materials will become group assets for ongoing self-learning and training.
 - 3) The “Abon WaPesisir” product will be actively marketed through social media (Instagram, Facebook, WhatsApp Business) and local e-commerce platforms.
 - 4) The “Abon WaPesisir” product is targeted to become a widely known local business icon and contribute significantly to increasing the household income of coastal women in Bungkutoko.
2. Approach Method and Priority Scale
- The approach used in this activity is participatory, collaborative, and educational,

emphasizing the active involvement of Coastal Mothers School partners at every stage of the program. Innovative solutions are selected and agreed upon with partners based on key needs identified through group discussions. Priority problem-solving focuses on:

- a. Improving skills in processing processed fish products (innovative fish floss) through direct practical training and production assistance.
- b. Improving nutritional knowledge and modern packaging techniques by integrating family nutrition education and the use of technological tools such as shredded meat mixers, vacuum sealers, and standing pouches.
- c. Strengthening marketing capacity through training in social media utilization and digital content creation, so that products can be marketed widely and in a modern manner.

3. Partner Participation

Partner involvement is crucial and central to the success of this program. The Coastal Mothers School's participation includes:

- a. Actively present in all series of socialization, training, and practice of shredded meat production.
- b. Provide training locations (members' homes/sub-districts).
- c. Play an active role in developing product flavor variants, branding, and compiling digital promotional materials.
- d. Directly involved in product marketing via social media/WhatsApp, as well as documenting the results of the work and production process.
- e. Provide feedback and suggestions for improving training modules and production methods.

4. Program Evaluation and Sustainability

Evaluation of program implementation is conducted through formative and summative methods. Formative evaluation: conducted during training and mentoring, with weekly monitoring of production volume, skill improvement, and absorption of digital marketing materials. Summative evaluation: conducted at the end of the program through a skills post-test, a recap of the number of ready-to-sell products, buyer testimonials, and achievement of the target of at least 50 ready-to-sell fish floss products. Evaluation methods include: pre-test and post-test, production logbook, photo/video documentation, and interviews with group members and buyers. Program sustainability is ensured through:

- a. Delivery of training modules, educational videos, and digital materials to groups and sub-districts for self-learning and training of new members.
- b. Empowerment of trained members as local mentors for replication in other groups.
- c. Independent digital marketing management by the group on social and e-commerce platforms, with monthly monitoring of production volume and sales turnover.
- d. The long-term target is for the “Abon WaPesisir” product to become an icon for coastal women's businesses and a source of sustainable income for partner groups.

RESULTS AND DISCUSSION

The community service program "Empowering Coastal Communities by Developing Innovative Processed Fish Products Based on Local Potential" has been implemented according to the planned stages. The entire series of activities was carried out in stages with the active participation of all 15 group members. Activities implemented included program socialization, technical training and nutrition education, technology and innovation implementation, production assistance and evaluation, and program sustainability efforts. Each stage of the activity provided significant achievements in improving the capabilities and knowledge of partners, so that they were better prepared to develop their own fish processing businesses.

1. Program Socialization

The initial phase of the program's implementation began with program outreach to key partners, namely the Coastal Mothers School group and the Bungkutoko Village government. The outreach was conducted through face-to-face meetings to clearly introduce the program's objectives, the benefits to partners, and the activities to be carried out during the service period. At these meetings, participants were provided with a comprehensive overview of the urgency of improving fish processing skills and the potential for family economic development through processed products.

The socialization activity also included a pre-test to determine participants' initial knowledge of the material to be presented, such as fish processing techniques into shredded fish, food sanitation, the nutritional benefits of fish for families, and the use of social media in product marketing. The pre-test results indicated that most participants had very limited knowledge of modern fish processing techniques and digital marketing. These findings then informed the training's focus to be more targeted and tailored to participants' needs.



Picture1. Program socialization activities for members of the Coastal Mothers School in Bungkutoko Village

During the outreach activities, participants demonstrated high enthusiasm. They actively asked questions about the fish floss-making process, sales opportunities, and possible support in the form of simple equipment. These interactions demonstrated a strong motivation to participate in all activities, particularly given their high dependence on their husbands' catches, which do not yet provide significant added value.

2. Technical Training in Processing and Nutrition Education

Technical training is the core of the community service activities. At this stage, all members of the Coastal Mothers School group received intensive training on fish processing techniques into innovative fish floss, in accordance with the training plan outlined in the proposal. The training began with an explanation of the process of selecting good fish, cleaning the fish according to hygienic standards, and separating the fish meat from the bones. Participants were then introduced to floss processing techniques, from slicing and mixing spices, stirring, and drying.

The team provided a live demonstration of the fish floss production process, then divided participants into small groups to practice independently with guidance. This method allows participants to master the technique step by step and understand the entire processing process. The training also included explanations on seasoning variations and flavor formulations to ensure a consistent flavor.



Picture2. Participants took part in a demonstration of fish processing techniques into shredded fish by the community service team.

In addition to technical training, participants also received nutritional education on the nutritional content of fish, the benefits of consuming fish for family health, and how to maintain nutritional value during processing. This education is crucial because the partner group is largely made up of housewives who are responsible for managing their family's food consumption. Participants were very enthusiastic when discussing the benefits of fish and how to process it without losing its nutritional value.



Picture3. Delivery of nutritional education materials

The technical training also included digital marketing training, as outlined in the activity plan. Participants were taught how to utilize social media platforms like Facebook, Instagram, and TikTok to promote their shredded meat products. They were introduced to how to take compelling product photos, adjust lighting, create promotional captions, and upload content consistently. This material was highly beneficial to participants, as most had never used social media for marketing purposes before.

3. Technology Application and Product Innovation

Following the technical training, activities continued with the application of technology and innovations in accordance with the program plan. The technologies introduced included the use of a floss mixer, a vacuum sealer, and modern packaging using standing pouches. These tools were introduced because they can help improve the quality, efficiency, and sales value of floss products.

Participants were invited to experience operating a floss mixer to process the fish into dry, soft floss. They also learned how to use a vacuum sealer to create neat, durable packaging. Modern packaging techniques using standing pouches create a more attractive and professional product appearance and extend shelf life without preservatives.

In addition to hard technology, the program also emphasizes the application of soft technology in the form of innovation in product branding and marketing. Together with the participants, the community service team developed the "Abon WaPesisir" branding, including logo and label design. This identity was jointly agreed upon to be used as the group's product signature and as a consumer attraction strategy.

Digital technology is also implemented through the creation of promotional content such as product photos, short videos of the production process, and social media posts. Participants are trained to use their mobile phones to capture product images in a simple yet high-quality way.

4. Production Assistance and Evaluation

The mentoring phase begins after participants understand the fish floss production techniques. The mentoring lasts for 1–2 months, involving in-person visits by the community service team to production sites and remote support via WhatsApp groups. Through this mentoring, participants are encouraged to independently practice the production process with light supervision from the team.

During the mentoring period, participants successfully produced over 50 packages of ready-to-sell fish floss, meeting the target set in the proposal. The resulting flavor variations also expanded as participants began exploring seasonings and ingredients to suit consumer preferences. Through weekly evaluations, the team observed significant improvements in the quality of the floss, including taste, texture, dryness, and cleanliness of the production process.



Picture4. Fish floss production results

Observational data showed that in the first week of mentoring, participants still struggled to adjust the texture of the shredded meat and determine the right level of dryness. However, in the second and third weeks, participants were able to produce shredded meat with a more even texture and more consistent color. This indicates that participants' skills improve over time through repeated practice.

The mentoring also included an evaluation of participants' ability to utilize social media for promotion. Several participants' posts began to receive a response from the local community, indicating that digital marketing was beginning to take off.

5. Technology and Innovation Products (Hard and Soft)

The technology and innovation products implemented in this program fall into two categories: hard technology and soft technology. Both are designed to improve the ability of coastal communities to produce high-quality, sustainable, and economically valuable fish products.

Hard technology encompasses the use of simple yet functional production equipment, including a floss mixer to speed up the processing and produce a more uniform floss texture, a vacuum sealer to increase product shelf life through vacuum packaging, and modern packaging in the form of standing pouches designed to be more hygienic, attractive, and durable. This hard technology was chosen because it can be used on a household scale, making it relevant for

partners just starting out.

Meanwhile, the soft technology provided takes the form of innovations in the form of knowledge and skills to increase production and marketing capacity. This soft technology includes the implementation of food sanitation standards, innovative shredded meat processing methods with various flavors, branding strategies and product identity design for "Abon WaPesisir," and the ability to create digital marketing content through social media platforms such as Instagram, TikTok, and Facebook. This knowledge provides the foundation for partners to produce quality products while remaining competitive in modern marketing.

6. Application of Technology and Innovation to Society (Relevance and Community Participation)

The technology implementation in this program is carried out directly with the Coastal Mothers School group through training, practice, and mentoring. The selected technology is highly relevant, as it aligns with the characteristics of the partners, who have limited access to sophisticated equipment and require easy-to-operate technology. The technology provided has been tailored to local community needs, particularly in processing the abundant fish catch available daily.

Community participation in the technology implementation was very active. All members participated in training sessions, from using the shredded meat floss mixer machine to modern packaging techniques. Participants also independently tested the production equipment during practical sessions, successfully producing shredded meat products with consistently improving quality. Participant involvement was also evident in the branding process, where they, along with their team, developed the logo, determined the label design, and took promotional photos and videos.

In implementing soft technology, participants actively participated in digital marketing training and learned to create simple content using their mobile phones. Their enthusiasm was evident in their improved ability to create product posts, write engaging descriptions, and promote through personal and group social media. Thus, the applied technology was not only relevant but also fully adopted by the community.

7. Impact (Benefits and Productivity)

The application of technology and innovation has had a significant impact on increasing production capacity and economic value for coastal communities. Participants now have a better understanding and skills in fish processing techniques, production equipment usage, and food hygiene. They are also able to produce fish floss independently and consistently, boosting their confidence in starting a business. Furthermore, the branding and digital marketing skills they gain enable them to expand their marketing network beyond the local area.

In terms of productivity, the implementation of the shredded meat floss mixer and vacuum sealer improved time efficiency and product quality. Participants were able to increase production during the mentoring period, producing more than 50 packages of ready-to-sell shredded meat. The resulting product had a more uniform texture, a more stable flavor, and a longer shelf life thanks to modern packaging. This skill improvement fostered the development of a potential home business, thus directly contributing to increasing the income of fishing

families.

The social impact is also evident in the development of a sense of community and partnership within the group, where participants share experiences and support each other in the production and marketing processes. The initiative to train participants as local mentors helps strengthen the program's sustainability and expand its empowerment impact to other coastal communities.

8. Program Sustainability

The sustainability of the program is one of the key achievements of the program. Participants demonstrated a commitment to continue producing fish floss after the program concluded. Several members with superior skills were appointed as local mentors to guide others through the production process. This is crucial to ensure the transfer of knowledge continues even after the community service program concludes.

The initial impact of the program is already visible through increased participant confidence in selling processed fish products, improved technical and digital marketing skills, and the group's readiness to expand its marketing network. The use of stand-up pouch packaging and attractive branding helps strengthen the product's position in the local market. This program has provided a strong foundation for developing a locally-based fish processing business and has the potential to increase the income of fishing families in Bungkutoko Village.

CONCLUSION

The community service program, focused on empowering coastal women through the development of processed fish products in Bungkutoko Village, has been successful and achieved the targets set in the proposal. Outreach activities, technical training, nutrition education, technology implementation, and production assistance have increased the knowledge, technical skills, and digital marketing capabilities of the Coastal Women's School members.

The "Abon WaPesisir" fish floss product, as the main product, has been successfully developed with various flavors, hygienic quality, and modern packaging. The application of appropriate technology, such as a floss mixer and vacuum sealer, has improved production efficiency and product quality. Furthermore, the group has been able to produce over 50 ready-to-sell floss packages, create digital promotional materials, and build an attractive product brand.

Overall, this activity had a significant impact on boosting self-confidence, entrepreneurial motivation, and increasing the potential income of coastal families. The program also succeeded in strengthening group institutions and opening up opportunities for sustainable independent businesses.

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