



# Application of Appropriate Technology in Producing Fish Tendon Crackers with Good Quality and Safe for Consumption

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## A B S T R A C T

The fish tendon is fresh waste from Tuna Fish which has only been used as a fish meal. It is processed into foodstuffs with higher economic value. However, processing fish tendon into food with high economic value requires the application of technology. Applied research in community service program (PKM). Fish tendon crackers aim to apply appropriate technology to partners to be able to apply in producing Fish Tendon Crackers with good quality and safe for consumption, providing knowledge about business group formation, business management, sanitation, and hygiene, packaging and marketing, and helping partner find product (food and home industry/ PIRT) numbers. The method is used through Interviewing, Counseling, Face-to-Face, and Direct Practice. With this method, it is hoped that partners will get knowledge and solutions to the problems faced. The activity was carried out in stages, the first stage, the team provided counseling, in the second stage, the Team provided direct practice regarding the manufacture of quality tuna fish Skin crackers that was safe for consumption, and carried out 3 repetitions of the practice, evaluated so that the Partners understood. The output target to be achieved in this PKM activity is to publish the results of the Activity in the Journal, disseminate and publish them in the print / electronic period media and make a video of the activity with a duration of 4 minutes.

## 1. INTRODUCTION

### 1.1. Research Background

Pesangararan Village is a village whose position is close to Benoa Port, about 6 KM from Warmadewa University, which can be reached within 12 minutes if the traffic situation is smooth, if there is a traffic jam, the travel time becomes longer and this area is an area prone to traffic jams. Adjacent to Pedungan Village there is a port called Benoa Port, which is the center of Fresh Fish Fishing and processing activities in Bali, especially tuna. Almost all companies around Benoa Port include companies engaged in exports. Tuna fish in export in the form of logs/whole, also processed in various forms such as Loin, Steak, and various other forms of wet fish according to the request of the Buyer.

Companies engaged in processing leave a lot of fresh waste that is still suitable for processing and utilizing in other forms of food, one of which is fish tendon waste. In the 1900s this waste was difficult to handle, and even the processors spent some funds to deal with this waste. Since 1997 there began to be innovations to deal with fish tendon waste in fish tendon crackers.

There is one of the Home Industries processing fish skins on Jalan Diponegoro Gg. Pantus Sari No.44, is owned by Mrs. Ni Wayan Sarimi, who is then said to be a Partner in this activity. Partner started the business in 2010 and now it has 4 permanent employees. Partners process fish skins in a very simple way and equipment. Production Site in 2020 The PPM Team of Warmadewa University has improved business premises, especially places that are in direct contact with raw materials so that Partners can produce better crackers. For 2021, it is continued to help Partners to improve production sites, especially in frying places so that standards as a place of business meet the requirements and can make hygienic products.

The volume of treated skin is quite large until it reaches hundreds of kilograms. From the volume of skin that is processed, there is still a lot of waste that is still wasted in the form of scales and fish Tendon. The Fish Tendon part of the waste still has the opportunity to increase its economic value to become Fish Tendon Crackers. Fish Skins are processed into Crackers with the same technique as making Fish Tendon Crackers. In addition, it is necessary to provide counseling to create Business Groups and Business Management in the same field to get opportunities to increase business scale and get opportunities to get assistance from the government. The government only assists

Business Groups and Partners still including the Household Industry, making it difficult to get assistance from the Government.

Partner stated that Partners want to get Knowledge/ Counseling on an ongoing basis. By submitting a Proposal to the Warmadewa University Community Service Institute, we hope to provide Knowledge / Empowerment to Partners to be able to improve their business.

## 1.2. Literature Review

### 1.2.1. Production Aspects

In production, Partners are still unable to make maximum use of fish skin waste, from several skin volumes processed, around 30% of waste is still not utilized. The waste is in the form of Fish Skins and Fish Scales, Fish Scales will have the opportunity to be used as Fish sauces and Fish Skins have the opportunity to be used as Fish Skin Crackers. PPM in the 2021 Proposal will propose to assist Partners in Technology Transfer in the Manufacture of Fish Skin Crackers and will be given Appropriate Technology in the Manufacture of Fish Skin Crackers. In this activity, Partners will also be assisted in improving the environmental facilities where they produce (especially frying places) are not clean, and difficult to clean, that which greatly affects the quality of the products produced [1]. After that, the Partner is assisted to obtain the Product PIRT Number.

### 1.2.2. Management aspects

Partners have been engaged individually in advancing their business. In this activity, counseling will be provided to increase business scale by forming Business Groups in the same field to get opportunities to obtain government assistance so that the business scale will increase. It is considered necessary that Partners are also given Counseling in the field of Business Management and Entrepreneurship [2]

### 1.2.3. Marketing

Products from Partners from PPM Development in 2020 have increased towards Online Marketing which was previously only marketed in Buleleng Regency by establishing cooperation with the family. Partner cooperates with his brother who lives in Buleleng so that periodically Partner always produces with the request. In the present Year, it is necessary to provide some additional Product Marketing models so that the Marketing Reach is further increased. Below is given an overview of the place of business of the Partner [3].

During the exploration to analyze the partner's situation, the PPM Proposing Team saw that there was quite a lot of waste, especially waste from Fish Tendons which allowed the economic value of the waste to be increased, and PPM would provide TTG (an Appropriate Technology) for the manufacture of Fish Tendon Crackers.

In terms of business scale, Partners need to be given Counseling in the Formation of Business Groups and Business Management within the Group. For Products, Packaging will be given to the Service Program in the following year to get a wider market reach.

From the results of the situation analysis during the exploration, with interviews, directly observing the situation of partners, the PPM Team sees the Partner Problems that are being faced, namely: The Partner does not yet have a Business Group;

Partners do not yet know about Group Business Management; Partners have business facilities, especially frying places have not paid attention to Sanitation and Hygienic; Partners need to improve Their Knowledge regarding Product Marketing; Partners do not yet have Appropriate Technology in making Fish Skin Crackers that are good and safe for consumption; Partner-produced products do not yet have P-IRT certificate.



Figure 1. Conditions of the Partner's Place of Business

## 1.3. Applied Research Objective

From the results of the situation analysis during the exploration, with the interview method, directly observing the situation of the Partner, the PPM Team set the objectives of the PKM Fish Tendon Crackers prioritized to handle:

- With Counseling / Learning will provide Partners:
- Knowledge of Business Group Formation
- Group Business Management Knowledge
- Knowledge of Sanitary and Hygienic production processes
- Knowledge of Making Fish Tendon Crackers
- Knowledge to improve regarding Product Marketing.
- Products have PIRT Number

Providing training regularly three times will provide Appropriate Technology in making Fish Tendon Crackers that are good and safe for consumption and have a uniform shape. To deal with the problems of the Partners above, the Head of the PKM Proposing Team has Competence in the field of Fishery Product Processing and has two Research Articles in the field of Fish Tendon Crackers, namely:

Research to obtain Appropriate Technology to produce quality Fish Tendon Crackers by applying various types of seasonings [4]. Research on the right Packaging Materials for storing Fish Skin Crackers with a storage period of three months [5]. For Problem Handling in the fields of Entrepreneurship, Business Management, and Marketing, the members of the Proposing Team have competence in these fields.

The Home Industry owned by Mrs. Ni Wayan Sarimi was targeted in this Year's Community Service, which was later said to be a Partner. The partner begged back to nurture his efforts to be more advanced and better. The PPM team provides Innovative in handling Waste. The waste is Fish Tendon. The innovation is

to make *Krupuk Urat Ikan (Fish Tendon Cracker)*. The PPM team provided training on making fish tendon crackers to the packaging stage. To provide learning to partners, the material was also given on the formation of business groups, business management, sanitation and hygiene in production, and also product marketing. In this training, Partners are also assisted to obtain PIRT from the products produced.

During the Training and Counseling, Partners with the discipline of participating, partners also involved 4 employees in this activity. The training and counseling were organized by the PPM Team (Figure 2).

## 2. MATERIAL AND METHOD

### 2.1. Approach Method

In this community service the methods that will be used: (a) Interview and discussion methods to find out the problems faced by partners; (b) Counseling method through face-to-face so that partners get knowledge (Figure 3), Group Formation, Group Business Management, Sanitation and Hygiene of the production process, Product Marketing Improvement.



Figure 2. Counseling activities



Figure 3. Training activities

Direct Practice Method by providing appropriate technology in the manufacture of Fish Tendon Crackers that are good and

safe for consumption and help Partners get a Product (Food and Home Industry/PIRT Number).

## 2.2. Activity Procedure

To facilitate work in the field, PKM is carried out through: (a) exploration of the Partner's location, to find out the situation of the Partner's production site; (b) interviews, questions, and answers about the problems faced by Partners so that the PKM Team can provide solutions to the problems faced by Partners appropriately; (c) Distributing Modules and Providing Counseling; (d) Counseling on Business Group Formation; (e) Business Management Counseling in groups; (f) Sanitation and Hygiene Counseling during the Production Process Counseling on Improving Product Marketing. All counseling materials will be provided by the PKM Team and Lecturers of the Faculty of Agriculture who are competent in their fields. Carry out Training on Appropriate Technology for Making Fish Tendon Crackers repeatedly until Partners can make fish Tendon Crackers that are

good and safe for consumption (Krupuk making training is carried out 3 times) (Figure 3). Improving the partner's production site is mainly the place of frying products. Handing over assistance to smoothen the Business Help find PIRT Number for Products. Carry out regular monitoring and assistance.

## 3. RESULTS AND DISCUSSION

The results of the Community Service Activities can be seen in Table 1 by looking at the Solutions provided to Partners and the Targets that have been achieved.

Table 1. Solutions and Targets for PKM Activities

No	Solution	Target
1	Providing Knowledge regarding the Formation of Business Groups	Partners Know and understand how to form a business group (70 %)
2	Providing Group Business Management Knowledge	Partner Able to Understand Business Management in Groups (70 %)
3	Providing Knowledge about Sanitation and Hygienic production processes	Partner Understand the importance of paying attention to environmental cleanliness related to product quality if consumed. (75 %)
5	Providing Increased Knowledge about Product Marketing.	Partners understand marketing issues and can market products with a wider reach (75 %)
6	Providing training repeatedly will provide Appropriate Technology in making fish tendon crackers that are good and safe for consumption and also review how to use excessive quicklime	Partner can produce fish tendon crackers that are good and safe for consumption (100 %)
8	Helping Partners to handle the production site of Fish Tendon Crackers, especially the place to fry products	Partner has a production site that meets sanitary and hygiene requirements, especially a place to fry products (100 %)
9	Helping Partners to get a PIRT Number	In-Process

Table 2. The Output Target

No.	Output	Achievement Indicators
<b>Mandatory Output</b>		
1	Scientific publications in ISSN Journals/Proceedings	Fulfilled
2	Publications in print/online mass media/PT repository)	Fulfilled
3	Increased competitiveness (improvement of quality, quantity, as well as the added value of goods, services, product diversification, or other resources )	Fulfilled
4	Increasing the application of science and technology in society (mechanization, IT, and management)	Fulfilled
5	Improvement of community values (cultural, social, political, security, peace, education, health)	Fulfilled
<b>Additional Output</b>		
1	Publications in international journals	None
2	Services; social engineering, methods or systems, products/goods	Product
3	New Innovations in Appropriate Technology	Fulfilled
4	Intellectual Property Rights (patents, simple patents, copyrights, trademarks, trade secrets, industrial product design, plant variety protection, topographic protection)	Fulfilled
5	Books with ISBNs	None

#### 4. CONCLUSION

PKM in Pesanggaran Village which makes the Home Industry Process of fish tendon crackers is running well and can solve the problems faced by partners and has provided appropriate solutions. Partners must still be assisted because they have considerable potential to be able to advance to become fish tendon crackers processors in terms of quality and quantity. Partners must be accompanied, periodically given Counseling and Training, and become Fostered Partners so that they will become Fish Tendon Crackers Processors which in terms of Quality and Quantity are good and have a wide market reach.

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