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Economic Empowerment Of Traditional Fish Cooking Communities Through The Transformation Of Fish Canning Businesses With The Application Of Hermetic Technology In Trenggalek District

Oleh: Budi Rianto, Mas Roro Lilik Ekowanti,Wahyu Sulistyowati, dan Totok Sudarto

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The fishing port in Prigi Beach, Watulimo District, Trenggalek Regency, is the second largest port on the South coast of Java after Cilacap. The fishing port in Prigi, as an archipelago fishery port, annually produces large fish in the port environment. The emergence of various traditional pindang fish processing businesses in the region, economically is very beneficial to the local community. But along with the development of public health awareness, the traditional processing business, began to worry both the community, environmental pollution, and the results are less hygienic and less able to compete in the market at large.

The problem faced by traditional scavenger business is, in addition to unhygienic boiled fish products, short mass consumption, also very limited market reach.

The purpose of this study is how to improve the quality of processed fish products, which become hygienic, quality, have a longer consumption period, and a wider market span with the application of hermetic technology in the Bengkorok, Prigi, Trenggalek fish processing industry centers.

The research method used in this research is the action research method, which is carried out in stages over 3 years starting from: the first year in the form of identifying traditional fish processing business models, and need assessment from various stakeholders for the development of fish processing businesses, the second year followed by the application of hermetic technology that is relevant to the needs of the targeted fish processing community, and the third year is continued with production and marketing assistance, predetermined fish processing results.

The results showed that the transformation of traditional fish farming business to fish canning with the application of hermetic technology, requires more expensive production systems and processes, tighter production quality standards, the need for sustainable empowerment assistance both in product processes and marketing. Through the transformation of the fish processing business from traditional scavenging to fish canning at the household scale, it can provide economic added value and a longer consumption period, so that the fish canning business can further empower the fish processing community.

Keywords: Empowerment, transformation, Industry, Canning, Fish, Prigi.

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I. BACKGROUND

Java, especially East Java in the south, is an island that borders directly with the Indian Ocean, which is an ocean that has the potential of fish resources which is very potential to be used as raw material for fish processing industry. Trenggalek Regency, has the longest beach among other regencies on the South coast of Java Island. Prigi Beach Trenggalek Regency is one of the beaches in South Java, which has a fairly large Indonesian seaport with a potential catch of fish to support the Fish Processing Industry for the availability of national food based on minapolitan capture. As an archipelago port, Prigi is the largest port in East Java, so that various fishing vessels with adequate fishing technology, making it possible in the Prigi archipelago fishing port environment, developed various fish processing businesses, especially for the economic empowerment of the fishing community in Prigi.

Various fish processing which is managed by the local fishing community that develops in the Prigi fishing port environment, in general there is still a lot that is done traditionally. Although so far there have been some that have become the pre-eminent local community, such as smoked fish, boiled fish, fish meal and others.

The pattern of development of fish processing businesses, which are mostly traditional, so that economically the business is less profitable and from the health aspect of fish processing products results are still less hygienic.

In the Prigi coastal community environment, traditional processing of boiled fish has grown to spread in various residential neighborhoods. The massive development of the traditional fish processing business has now created new problems for the community. Besides causing environmental pollution for the surrounding community due to waste generated. Pindang fish processing production, economically does not provide high economic added value, because it is less hygienic and lacks a long mass of consumption, so it is economically less profitable for entrepreneurs moving fish to move the local community.

The Regional Government of Trenggalek Regency, cq, the Trenggalek Regency Fisheries Service, has been fostering and empowering traditional fish processing communities in Prigi to improve the welfare of the local community. Fish processing business that is growing rapidly in the Prigi coastal environment so far, is traditional pemindangan. To facilitate the empowerment of the fish processing community, even the local government has developed the pindang fish processing organization, in the form of the Pindang Fish Processing Association organization in Prigi, abbreviated as APIG, which was previously in the form of an Association, and has even developed in the form of a legal body for pindang fish processing associations authorized by Kemenkumham. (Fisheries Service, Trenggalek, 2017).

The problems faced by the local government in empowering the fish processing community groups, so far, have been carried out in a traditional way with hygienic product quality and durability of a very short consumption period of around two to three days, so the economic value is very short. In an effort to maintain its economy, the processors and marketers of the boiled fish, in addition to making dried fish with a declining selling value, some are adding formalin above the threshold, to be more durable, so that its economic value in the market can be maintained longer. However, this effort is considered to be very dangerous for boiled fish consumers themselves, because the formaldehyde content above the threshold can cause various diseases for consumers in the long run.

The government's efforts to empower them through training and providing hygienic pindang fish processing facilities and infrastructure in the pindang fish processing center in Bengkorok, always fail. Some of the inhibiting factors of the empowerment effort include:

1. Changes in production sites from the local community to a new environment in the fish processing center, which is far from the population makes the cost of production, especially fish processing labor more expensive.
2. The production process of hygienic pindang fish processing is more complicated and more expensive, along with the packaging, so that the production costs become more expensive.
3. The results of the production of hygienic boiled fish even though they have been able to produce it, but because of higher production costs, the market segment must change from the production of traditional boiled fish.
4. To increase the mass consumption of hygienic boiled fish must be stored in a freezer in the marketing chain, so it must be marketed in modern markets where the market chains are more expensive.

These various obstacles, have made the boiled fish return to the traditional production system because of the economical aspects of traditional fish farming business, it turns out that it is cheaper and more profitable compared to hygienic boiled fish, so that after getting training and mentoring they eventually return to the fish fishing production system. traditional.

To overcome these various problems, research is carried out with the development of the household scale canning industry through the application of hermetic technology. Industrialization of fish canning, besides producing more hygienic fish also produces fish processing products that have a longer consumption period, even up to 1 or 2 years. The long consumption period allows businesses in this field, in addition to being able to reach a wider market, the economic value of the product can also be maintained, as well as the feasibility of its consumption which is guaranteed to be more hygienic.

Industrialization of household scale canning aside from not requiring high capital, can be done by local community fish processing and market groups which are generally economically powerless. The introduction of hermetic technology for people in the environment, with the application of environmentally friendly technology and can reach middle to lower class economic fish processing community, enables businesses with the application of this technology to be accepted by the local community.

Based on the description above, it can be said that Prigi Beach has great potential for the development of the fish canning industry in an effort to empower the community's economy and in providing national food, given that fish have a longer economic value and a higher hygienic value compared to fishery product processing the other.

The problems in this study are as follows:

"How is the Economic Empowerment of Traditional Fish-Scanning Communities Through Transforming Fish Processing Businesses With the Application of Hermetic Technology in Trenggalek Regency?"

The objectives in this study are as follows:

"To describe and analyze the Economic Empowerment of Traditional Fish Scavenger Communities through the Transformation of Fish Processing Businesses with the Application of Hermetic Technology in Trenggalek Regency.

II. LITERATURE REVIEW

A. Empowerment of Fishermen Economy Based on Capture Minapolitan

The fish scavenger community, is a group of fish processing communities that is carried out in a traditional manner, the fish trapping process is generally carried out in a less hygienic manner, with a combustion system that destroys the environment, because it is done using firewood.

On the other hand, the traditional fish scavenger community groups, as a potential economic empowerment for the community can be targeted as community development based on their ability in fish processing business. This is because the group, basically already has a fish supply network, the ability to fish processing (albeit traditionally), as well as the marketing network of processed fish products that have been created. So that this community group has great potential to be developed into a fish processor more modern, hygienic and guaranteed quality, although still in the same scale, namely in household scale production.

As explained by David Corten (1986), "Community Development (Asian Experience)", explained that: Community Based Development, is able to develop socio-culturally compatible, where social processes can be developed more productively and economically able to develop themselves into social fabric that efficient, effective and economical for the development of prosperity with the community.

B. Industrialization of Fish Processing

The types of fishery business are divided into three, among others: Business through fishing, business through aquaculture and fish processing business. Fish Processing is a fishery business carried out in the fisheries business system which is included in the fish processing group. Every person who conducts a fishery business in the field of fish processing and marketing in the territory of the Republic of Indonesia fisheries management must have a SIUP. The government regulates, encourages, and / or conducts research and development of fisheries to produce the knowledge and technology needed in the development of fisheries businesses to be more effective, efficient, economical, highly competitive, and environmentally friendly, as well as respecting the wisdom of local traditions / culture.

Fish Processing Unit (UPI), in the implementation of the Fish Processing Industry, the fish processing business as a fish processing unit must have several general requirements including

1. UPI must have a food safety management system that includes Good Manufacturing Practices (GMP), Standard Sanitation Operating Procedure (SSOP) and Hazard Analysis Critical Control Point (HACCP) and implement it;
2. UPI only receives raw materials from fish cultivation units that are certified in a good way of fish farming, fishing vessels and fishing vessels that are certified for good handling of fish, or collectors / suppliers that are certified for good handling of fish;
3. UPI must pay attention to certain types of fish that are prohibited or require certain requirements that are marketed for human consumption, for example: poisonous fish originating from the family Tetraodontidae, Molidae, Diodontidae, Canthigasteridae; and fishery products containing biotoxins such as reef fish species containing ciguatera toxin and drought containing biological toxins such as: Paralytic Shellfish Poisoning (PSP), Diarethic Shellfish Poisining (DSP), Amnesic Shellfish Poisining (ASP), Neurotic Shellfish Poisining (NSP) .
4. UPI is prohibited from using additional materials that are not permitted in accordance with statutory provisions;
5. The use of chemicals such as pesticides, fumigants, disinfectants, and detergents must be under the supervision of officers who know the danger of their use in accordance with statutory regulations;
6. UPI must have a laboratory that can be used to support quality control of fishery products independently (own check);
7. UPI which handles frozen products must have freezing facilities that are able to reduce temperatures rapidly to reach a central temperature of -18 0C; and cold storage facilities capable of maintaining product temperatures of -18 0C or lower.
8. UPI handling fresh produce must have a cooling facility capable of maintaining product temperature at the melting point of ice.

C. Fish Canning Industry

Canning is a food processing where the product is packaged in cans with the aim to increase the shelf life of the product. Increased shelf life occurs because the processing uses high temperatures and an airtight packaging system. The mechanism of canning food in principle can be done in two ways, namely:

1. Food is first packed hermetically, then heated.

2. Food is heated first before being packed (packaged) hermetically both after cold and hot. The use of cold packaging is often referred to as aseptic canning. Some "fish canning stages" (Akbarsyah, 2006), namely: 1. Air Disposal / Vacuum (Exhausting), 2. Closure of the Container (Sealing), 3. Sterilization (Processing) 4. Cooling (Cooling).

III. RESEARCH METHODS

In this research, the action research method is used, in order to obtain more tangible results in the field in transforming the more modern fish breeding system, namely canning fish with hermetic technology applications for traditional fish processing community groups. In conducting this research, the study also provided assistance to the fish collectors who are members of the Prigi Fish Shaper Association, which is willing to work together in transferring fish processing technology to the fish canning system with the application of hermetic technology.

This research design uses action research models such as participant action research, action research diagnosis and empirical action research (Kemmis & Taggart, 1988). This research method, believed to have a high level of scholarship, was chosen in accordance with the research objective of producing the development of the household fish canning industry in Prigi, Trenggalek Regency, which could become a reliable model in increasing the economic empowerment of the fishing community, through the fish processing industry in households in the era of regional autonomy in Indonesia.

At this stage of need assessment, the focus group discussion method will be used. This method is very good for digging data from the Trenggalek District Fisheries Service officials and the Fishermen Community, especially those who are members of the Prigi Fish Shaper Association which are the objects of economic empowerment through the Industrialization of Fish Canning in Prigi Beach, Trenggalek Regency. Hope researchers with this method, they can express their opinions openly and in groups. In addition, in the implementation of this focus group discussion, researchers (guides) must be able to submit problem questions in a way that is understandable and in accordance with the respondent. (Lyon and Trost, 1981)

As for what is used as the object of research and at the same time the subject of research is a group of fish scavengers, who are members of the Prigi Fish Shaper Association (APIG), which legally forms an organization or group is the Fish Scaffolding Association in Prigi.

The technique used to collect data is to focus group discussion, observation and documentation. The focus of group discussions supported by interview guidelines was used to identify the interests and needs of the fish processing community and surrounding community members, as well as the various potentials for fish canning management in the area of study. Observation is used to observe the conditions and potential that can be developed through the application of technological technologies that are developed and used as a means of increasing the economic empowerment of fishing communities of fish processing groups, with the application of hermetic technology in fish canning efforts in the study area. The documentation method is used to capture data related to the data stored in the Trenggalek District Fisheries Service Office documents and related agencies to support the research process.

In an effort to dig up data so that they are interconnected and connected in an effort to empower the economy of the traditional fish processing community to fish canning with the application of hermetic technology, collaboration with relevant fisheries services is also carried out. Starting from the key person, the Trenggalek Regency Fisheries Service and in a snow ball based on the recommendation of the key person. The other officials and the fish processing community, determined a number of people to be actively involved in the discussion group forums, as the method determined in this study. Besides that, as a control variable for the actions of the fish processing actors and the management of the fishery processing community empowerment, several other members of the Fish Scaffolding Association are involved in the area of the research object in a discussion group forum to be able to obtain a comprehensive picture of the Fish Canning Industrialization model for the processing community. fish in the Trenggalek Regency area.

With this method, it is expected to produce a prototype model of the household fish canning industry, which can be implemented and developed for other fish processing communities who are interested in producing canned fish in the Prigi coastal area of Trenggalek Regency.

Data analysis was performed using an approach, namely a qualitative approach. Qualitative data are analyzed by basing on logical thinking. From the research object, a descriptive analysis was carried out to obtain conclusions from the performance of the household scale fish canning industrialization model developed in the study area. The analysis technique used in this study is an interactive model analysis as developed by Miles and Huberman (1984) which consists of 3 (three) components of analysis, namely (i) data reduction, (ii) data presentation, and (iii) drawing conclusions. Data Reduction is the initial step of the analysis to find the data most relevant to the research problem. The data is then displayed in the form of frequency distribution modeled tables with the intention to be easily understood which will then be analyzed based on relevant social theories.

IV. RESEARCH RESULT

A. Overview of the Research Area

Economically structured, the community as a whole is classified in very poor community groups: 10,664, Poor: 32,008, Almost Poor: 14,734 with a total number: 57,406 (Source: BPS Trenggalek Regency) Trenggalek Regency as an area bordering the sea, also has an archipelago area spread in the Southern Region of Trenggalek Regency. The number of islands in the Trenggalek Regency is 58 islands, all of which are still uninhabited. The outermost islands of the Regency of Trenggalek Regency are Panikan Island and Sekel Island which are not yet known. The potential is as a potential area for marine tourism, which is much in demand by foreign tourists. While the area of the sea (Exclusive Economic Zone) ± 35,558 km2, including 58 small uninhabited islands. (Trenggalek Regency Fisheries Service, 2016)

B. Potential of Fisheries in the District of Trenggalek

The coastal area in the Trenggalek Regency consists of three Administrative regions in three (3) Districts, namely: Watulimo District (Prigi Beach), Munjungan District and Panggul District. Among the three sub-districts, Trenggalek has the largest fish port after Cilacap on the southern coast of Java, namely Prigi Beach.

In an effort to develop the fish canning industry in Trenggalek Regency, as a beach bordering the Indian Ocean, which is the South Sea of East Java, it stores abundant sea products, among the mountain peaks that surround the Prigi Beach, Watulimo District, Trenggalek Regency, East Java (Rianto , 2015)

The number of fisheries households in 2014 recorded 5,384 households consisting of 3,812 marine fisheries households and 1,572 inland fisheries households. Marine fisheries households are in 3 districts namely Panggul, Munjungan and Watulimo.(Central Bureau of Statistics, 2012).

Based on the condition of the Trenggalek Regency which is on the southern coast of East Java with its coastline, the Trenggalek Regency has the potential to be developed into a minapolitan area both based on capture fisheries and aquaculture fisheries. The potential of aquaculture that can be developed in Trenggalek Regency is the cultivation of tilapia and catfish in Sumurup Village, Bendungan District as the center of minapolitan activities and catfish farming in Sambirejo Village, Trenggalek District as hinterland areas. (Source: Department of Maritime Affairs and Fisheries, Trenggalek Regency, 2014).

C. Transforming Fish Processing

In an effort to empower fish processing communities from the traditional way of scaling to more hygienic canning, various steps are carried out as follows:

1. Application of fish canning industry technology with fish canning machines, on a 150 square meter building land provided by the Prigi Fish Scavenger Association (APIG) under the Trenggalek Regency Government, in this case the Fisheries Service, accompanied by training of implementing staff both from fisherman representatives as well as from APIG, who will work closely with the Program Implementation Team from Hang Tuah University in Surabaya. In addition, program socialization and dissemination was also carried out, as well as training especially for APIG members and PT. Samudera Jaya Lestari which will operate the fish canning industry machine at the intention.
2. Training in developing small-scale fish canning industry:

a) The technique and process of making canned fish with certain quality standards that are allowed to be marketed by the competent authority.
b) Guidance for managing trademarks to the Health Office and the Trade Office.
c) Empowerment of community organizations related to the fish canning business, in collaboration with the Prigi Fish Management Association, to empower its members in the fish canning business, in Prigi.
d) Development of cooperation with the Trenggalek District Government office related to efforts to develop the fish canning industry in Prigi.

D. Fish Canning Preparation

After being agreed by both the local government (Trenggalek Regency fisheries service) and with community groups targeted for empowerment through the transformation of fish processing, the following is carried out preparations for various things needed for the application of fish processing with the application of hermetic technology, so as to realize the development of fish canning industrialization in the Prigi Coast environment, can absorb more labor and can empower the fish processing community in the local area. The industrial development determined is through the development of fish processing industrialization within the Prigi community, in the future the household-scale fish canning industry will be developed and can produce in a quality standard that can be guaranteed by a team with supervision from both internal and external organizations. The step of preparation Fish Canning stated by Rianto (2017) as follows:

1. Making Seamer

Making this seamer, technically, can be described as follows:

a. Requires 750 watts of electricity.

b. To facilitate the supply of electricity in the engine mounted an inventer, so that enough electricity with one cell.

c. The machine weighs approximately 30 kilo grams so it is easy to move from one place to another.

d. The machine is not too large so it does not require a large place for household scale entrepreneurs or home industries in the MSME group.

2. Making Boiler Machine

a. Making a boiler uses a piping system to get maximum heat.

b. The use of boilers is done with a maximum pressure of 4 bar, with the intention to be able to put strong pressure on the Autoclaf until it can soften the fish spines in the can.

c. The piping heating system to the Autoclaf , is used to provide a maximum pressure of 4 bar, with a temperature of approximately 114-116℃, for 115 minutes.

3. Making Autoclaf Machine

a. Making autoclaves, using a hermetic cooking system.

b. Autoclaves are designed to be able to cook fish in cans with 1 bar air pressure and cook for 115 minutes.

c. Autoclaves are designed to be able to hold as many as 100 cans, with one cook.

D. Canned Fish Making Training.

Research on the application of the fish canning industry with the application of Hermetic technology at the Bengkorok fish processing center, prior to the observation, is conducted first by identifying various problems that exist in the fish processing community at the fish processing center in Bengkorok. The next step is the introduction of fish canning processing with the application of hermetic technology to the intended fish processing group.

The purpose of the introduction of fish canning hermetic technology is to provide knowledge and understanding of increased production and quality standards of the products produced, both in terms of quality and the duration of economic value of the catched fish, through the use of fish canning production process machines.

From the results of a survey in the bengkorok fish processing center environment, which allows the development of the fish canning industry with the application of Hermetic technology is in the new fish processing building building by the local government in this case prepared by the Trenggalek Regency Fisheries Service, there are 4 building units prepared. But in this trial and training, it was conducted in ward 1, owned by Mr. Suhadi, as the chairperson of PPIG.

With the training in making canned fish in collaboration with Partners, held in Prigi Beach, Trenggalek Regency, the training process starts from providing theoretical material on canning fish economic benefits from business aspects and the importance of guaranteeing quality production for consumer safety in the production of nutritious food for the community with canned fish production. In the training program, the advantage of canned fish is that fish is produced hygienically by the production process using Hermetic technology application, which is the process of cooking fish by cooking it together with the can in a closed state, with the hope that canned fish are not easily polluted by bacteria from nature free because it is tightly closed.

The results of fish canning studies show an increase in the economic value of fish in cans can be extended to 1 to 2 years can still be consumed healthily, because the packaging in cans, tend to be more resilient when shipped in a wider market distribution reach, even to the outside country. The long economic life of the canned fish enables extensive marketing, so it can reach a variety of canned fish consumer communities.

V. CLOSING

1. Empowerment Traditional fisherman fish processing fisherman communities, can be empowered economically, through the transformation of fish processing in a more modern process by canning fish with hermetic technology applications.

2. Fish processing with the application of hermetic technology can be transformed to traditional fish processors, without having to stop the previously traditional processing patterns, with government involvement through facilitation of more hygienic fish processing facilities, namely fish canning.

3. To be able to apply hermetic technology, traditional fish brokers must receive assistance, in full from the process of making fish canning, to the marketing process, before they have their own market networks.

4. The use of new technology with fish canning, can increase the income of the fish processing community, because canned fish economically have higher added value, have a longer consumption period, and have a wider market reach.

5. Needs continuous improvement for various series of fish canning production machines, in order to produce canned fish more efficiently so that it can provide more benefits for the fish canning industry empowered through this fish canning industrialization program.

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