

Community Empowerment In Teluk Awur Jepara Village Through The Ecopreneurship Training-Flavoring Production From The Prawn Husk

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ABSTRACT

During the last decades, prawns have become an important sea commodity along the north coast of Java Island. The Marine Science Techno Park (MSTP) was known as the largest prawn pond in Jepara Regency give a good opportunity for surrounded people to create or develop the prawn based business. Although prawn is the good protein source, its utilization in the industrial food often resulted the organic waste especially husk. Community empowerment which was carried out in Teluk Awur Village-Jepara aimed to provide the ability and skill of people around the MSTP about processing of the prawn husk into the natural flavoring. Prawn husk flavoring (PHF) was economically viable and can be a business opportunity. Materials, production, packaging, and distribution process of PHF were environmentally friendly in accordance with the ecopreneurship business model. Utilization of prawn husk in food business initiation with an ecopreneurship approachment can be implemented in the Teluk Awur society.

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INTRODUCTION

Teluk Awur Village, in Tahunan District, Jepara Regency, is a location with abundant maritime potential. Its geographical location, which is not far from the coast of the Java Sea, makes Teluk Awur a strategic place to develop various kind of community business. Taking into consideration, Diponegoro University build the MSTP as one of the prawn cultivation center in Central Java. Some of prawn pond were generated to maintenance the prawn culture around the Awur Bay.

Prawn is a source of protein that is popular with the public because of the slightly sweet and fresh taste of its meat, and the popularity of market demand is the reason why prawn was chosen as the object for community empowerment activity which carried out by undergraduate student at the last year of study period. They innovated a natural flavoring agent by processing the one of aquaculture waste products namely prawn husk. That waste is widely considered to be an intrusive or disturbing part of prawn when consumed, resulting in husk often being thrown away during the cooking process. Prawn husk still contains some nutrition that are benefit to the body such as calcium carbonate, protein, and chitin (Kandra et al., 2012). In the culinary field, sometimes chefs used prawn husk as one of ingredients for making consommé. Amino acid contained in husk obtained the delicious flavor solution when it was boiled into the water as a solvent (Yassin et al., 2018). Thus, prawn husk likely can be utilized as flavoring agent.

Flavoring agents is one of the food additives that originate from both nature or synthetically. One of the famous synthetic flavorings is Monosodium glutamate (MSG) which is used to produce a better taste in dishes (Wijayasekara and Wansapala, 2017). MSG has been consumed widely throughout the world as a food flavor enhancer in the form of L-glutamic acid, because the addition of MSG will make food taste more delicious. Monosodium glutamate is widely used throughout the world, MSG consumption in the world varies greatly, in Indonesia the average MSG consumption is 0.6 g/day. (Sulastri, 2016). Consumption of MSG beyond the accepted daily intake in the long period of time certainly will cause various kinds of side effects without realizing it (Adeleke et al., 2022). Thus, there is an alternative to MSG as a flavoring that is more natural and does not cause health problems which, if the product is consumed in the long term, is very necessary. The abundant prawn resource of Teluk Awur society, from both coastal fishermen and MSTP prawns farms can process prawn husk into natural flavorings which environmentally friendly and low in production operational cost.

Empowerment of local communities for prawn husk processing into natural flavoring was expected can be triggered the society economic growth in Teluk Awur Village Jepara through the ecopreneurship concept. Ecopreneurship is an ideal choice considering that this model is an environmentally based business activity without worrying about damaging the surrounding environment. The processing, packaging and distribution carried out in starting this business use environmental benchmarks around Teluk Awur Village.

LITERATURE REVIEW

Community Empowerment based on the Local Potency

Empowerment means a process of being efficient so that people can change their living conditions for the better. Community empowerment is a process of developing opportunities, will/motivation, and the ability of the community to gain access to resources, thereby increasing their capacity to determine their own future by participating in influencing and realizing the quality of life for themselves and their community (Windartini et al., 2023). In Law on Villages Number 6 of 2014 point 12 it is stated that Village Community Empowerment is an effort to develop community independence and welfare by increasing knowledge, attitudes, skills, behavior, abilities, awareness, as well as utilizing resources through the establishment of policies, programs, activities, and assistance that is in accordance with the essence of the problem and priority needs of the village community. The essence of empowerment is an effort to awaken all existing village capabilities to achieve goals which are carried out through growing motivation, initiative and creativity to advance.

Community empowerment is a process for people to gain skills, knowledge and experience as a form of improving their skills, so that they can play an active role in the development process and have an impact on social life (Rahmat, 2020). Empowerment efforts in an area can be carried out through a non-formal education approach by increasing the community's understanding of the various benefits they can receive if the potential in their area can be developed properly. The hope is that after receiving empowerment, people can be more productive and have adequate skills. With these skills, people can also have a more prosperous life and create an independent society. Independence means the ability to consider the right decisions in responding to various individual and community problems (Malik and Mulyono, 2017).

The realization of an independent community through community empowerment programs should be carried out by looking at the various local potentials of an area. Areas with some existing local potential are then identified with problems related to the possibility of developing this potential so that in the end an innovation can be determined as a solution. Local potential is the power, strength, capability and ability possessed by a region that can be developed in order to improve community welfare. Human resources and natural resources constitute local potential as determining factors for the success of regional development.

The capabilities possessed by a village that may be developed will forever remain potential if not processed or utilized to become a reality in the form of benefits to the community. Therefore, regional potential requires certain efforts to make it useful for society. Potential is an ability that has the possibility of being developed, such as strength, ability and power that can be developed to become greater (Putri et al., 2023). The term potential is not only indicated for humans but also for other entities such as the terms regional potential, tourism potential and so on. According to Endah (2020), in identifying

local potential, there are 3 things that must be done, namely: 1) identifying community needs which from time to time always experience development and change in line with changes and development of society. The ability to identify needs is a manifestation of society's capacity to compare current reality and ideal reality as society's ideals; 2) identify potential, resources and opportunities that are always developing. Without these activities, existing potential and resources will remain latent and not be actualized to fulfill needs. Identification activities need to be carried out as part of the knowledge of the principle of prioritizing local potential and resources in community empowerment. This identification is needed to see the overall potential and available resources, both in the form of natural resources, human resources and social resources. Social resources have a level of significance that is no less important than other resources. Community development based on internal dynamics is a process of change that relies on the encouragement of internal energy and existing potential and resources; 3) processes and efforts to find more profitable ways to utilize existing potential and resources. Through the process of social learning and the process of adapting to their environment, society will find ways and knowledge about utilizing available resources. It can be said that to achieve a level of prosperity, village communities need to cultivate local potential, both human and natural resources. Local potential is in the form of human resources in empowering the community as development subjects who know the problems of their own community, while natural resources are wealth used to improve the socio-economic welfare of the village community itself.

Local potential can be in the form of human resources where in community empowerment, their role is as development subjects who can understand problems in the community itself (Dwimawati et al., 2019). Local potential in the form of natural resources is wealth that is utilized to improve the socio-economic welfare of the community in an area. Community empowerment that refers to local wisdom is often carried out on the grounds that local wisdom contains a philosophy and outlook on life that has been applied in various areas of life such as social values, economics, health, environmental management, and so on. Based on its form, the local potential of an area consists of physical potential and non-physical potential. The physical potential of a village consists of land, water, climate, wind, livestock and humans as a source of energy. Meanwhile, the non-physical potential of the village consists of mutual cooperation, educational institutions, social institutions and village officials (Mendrofa et al., 2018).

Flavoring Agent from the Prawn Industrial Waste

Flavoring is one of the additional ingredients (additives) given to food with the aim of adding synthetic ingredients which are processed using chemical processes and can function as additives which have positive and negative effects on human health. One process for making non-chemical (natural) glutamate can be obtained from amino acid derivatives using the protein hydrolysis method or what is known as the HPI method (Beddows, 1979). HPI is the process of breaking down a molecule into sim-

pler compounds with the help of water molecules. Protein hydrolysis is the process of breaking or breaking peptide bonds from proteins into simpler molecules. Hydrolysis of peptide bonds will cause several changes to the protein, namely increasing the solubility and taste of the dish (Faoziah, 2014).

One of the ingredients due to the increase in NH₃ content and flavoring that is often consumed by the public is mono sodium glutamate (MSG) or commonly called mechin or vetsin. Monosodium glutamate (MSG) is the sodium salt (sodium) of glutamic acid (one of the non-essential amino acids that make up protein) which is naturally found in all food ingredients that contain protein (Aziz and Akolo, 2019). There are two types of glutamate produced, namely those produced by the human body and artificial/synthetic glutamate. The use of synthetic glutamate can be obtained from amino acid derivatives or from chemical processes (Henggu and Nurdiansyah, 2021). The use of COO glutamate and reduced molecular weight of proteins or polypeptides, damage to the globular structure of proteins.

One of the raw materials commonly used in making natural glutamate is shrimp. In general, shrimp is a food that has high nutritional value. Shrimp in Indonesia are generally exported as raw materials that have had their heads, tails and skin peeled. Indonesia is one of the exporting countries for frozen shelled shrimp. As a result of the increase in demand for frozen shrimp for export, this has created quite a large problem of shrimp shell and head waste. This shrimp waste then becomes waste whose utilization is less than optimal, causing environmental pollution, especially bad odors and environmental aesthetics. In home industries, this waste is only processed into shrimp paste or dried for poultry feed. To provide additional added value to shrimp waste, it is necessary to improve the quality of processing shrimp waste into a product with high economic value and broad benefits. In comparison, in countries such as America, Japan and Switzerland, shrimp waste has been processed in large industries to become commercial products. Industrial products include cosmetic products, medicines, agriculture and food preservatives.

So far, shrimp shell waste in Indonesia has not been utilized optimally, because it is only used as an ingredient for making shrimp paste, shrimp crackers and shrimp shell flour. Shrimp shells can be used to produce chitin, chitosan and glucosamine, which have quite widespread use in various fields and of course have much better added value. Broth powder is a product that is known as a cooking additive obtained from boiling meat or better known as a seasoning. Seasonings that are sold on the market contain natural flavoring ingredients such as garlic, salt and sugar and have gone through a drying process so they have a longer shelf life. According to Djohar et al. (2018), fishery products can be a potential alternative natural flavoring because they contain a lot of glutamic acid. According to research (Meiyani et al. 2014), shrimp head waste has potential as a flavor because it has glutamic acid value, which is one of the components in flavor which gives an umami taste to food. Using shrimp shells to make powdered stock in a simple way is certainly easy for everyone to do. It is hoped that this powdered broth can replace dependence on the use of Mono Sodium Glutamate (MSG), which is a synthetic flavoring. Using it in excessive amounts can cause health problems. So, it is necessary to find alter-

native natural flavorings that are friendlier to health. This powdered stock made from shrimp shells is a good idea which can later be used as a flavor enhancer in dishes, because its shape is almost the same as commercial seasoning.

According to Hermanto and Nengseh (2020) shrimp shells contain 20-30% chitin compounds, 21% protein and 50% minerals. Meanwhile, shrimp heads contain 80.15% water, 14.67% protein, 0.93 fat and 2.64% ash (Ngitung and Sri Rahmaandi, 2022). This shows that shrimp shells and heads can still be used, especially processed into food. One preparation that uses shrimp shells and heads is shrimp stock. Shrimp broth can be processed into natural flavoring. According to (Ningsih et al., 2023) shrimp shells and heads can be used as alternative ingredients as a substitute for Monosodium Glutamate (MSG). This is because shrimp naturally has a strong and savory taste which can influence the taste of a food. The strong savory taste is due to the glutamic acid content in shrimp (Umah et al., 2021). According to (Susilo et al., 2020) the glutamic acid content in shrimp heads is 913 mg/100 g. This proves that the shrimp shells and heads are suitable for use as stock. Apart from that, based on research conducted by (Astriana et al., 2022) it shows that shrimp stock powder contains 48.01% crude protein, 4.17% carbohydrates and 20.95% fat.

MATERIAL AND METHOD

Community empowerment was conducted in MSTP prawn farm Teluk Awur Village, Jepara Regency, Central Java Province, and community that needs to be given guidance with the aim of downstreaming the business. The data used are primary and secondary data. Primary data was obtained through observation, experiments and interviews with MSTP prawn pond managers and the resident of Teluk Awur Village. Observations are carried out to see market conditions by following product trends from customers, while experiments are carried out to develop processed products that are easy to make and are popular with many people. Secondary data was obtained from previous research, scientific literature, and literature studies. Secondary data is complementary to primary data.

The data collection method was carried out through interviews with MSTP prawn pond managers and surround women community to determine the innovation in making processed prawn to create downstream business.

Coaching of Prawn Husk Flavoring (PHF) Production

Participant of this coaching are women community of Teluk Awur Village. The preparation method for making prawn huskflavoring consists of several stages. First, grind all the spices such as garlic (50g). Then roast the prawn huks (500g) until dry. Put the roasted prawn huks with crushed garlic and salt (20g) into a food processor or grind until smooth and has a powder-like texture. Next, remove from heat and let the mixture sit. PHF is ready to use or can be packaged in plastic packaging for sale.

The packaging used in the flavoring product is oil paper which can be recycled, considering the busi-

ness concept is ecoprenurship. Oil paper measuring 15x15 cm can be formed and divided into 2 mini bag packages using the origami technique, which are then attached with paper stickers with the logo of your choice.

Mentoring of Business Feasibility Test

The prawn dimsum business feasibility test is carried out by tabulating all the cost components that have been incurred to make prawn dimsum. This cost also includes production capacity, packaging, and selling price of dimsum per piece. After that, the total production costs, profits, production cost, and break event point (BEP) are calculated. The business feasibility test is carried out by analyzing the financial Gross Benefit per Cost Ratio (Gross B/C), and a business is considered feasible if the value is more than 1. The following is the formulation of Gross B/C:

$$\text{Gross } \frac{B}{C} = \frac{\text{Benefit}}{\text{Cost Ratio}}$$

RESULT AND DISCUSSION

General description of PHF

Flavoring is one of the basic spices that many people use as additional additives to make food delicious. Almost all foods, snacks and instant products on the market include flavorings as one of the ingredients in the recipe. PHF is the innovations of prawn waste utilization in the food field (Figure 1) This product innovation is expected to improve food quality and expand business opportunities for downstream companies based on ecopreneuership.

The potential for PHF can be seen from marketing interest and objectives, product quality, low production costs and competitive prices with market prices (Figure 2). There are various types of flavorings on the market and the most popular is synthetic MSG or commonly known as mecin, micin, and vetsin. The price of MSW flavoring is relatively more expensive than PHF. In general, prawn huks are used to make flavorings contain natural umami which does not require a lot of chemicals such as MSG, thereby cutting production costs. Reducing dangerous chemicals is also in line with the vision and mission of the ecopreneurship business model used in this business initiation.

PHF has been successfully produced with a net weight of 500 grams. The total final weight of the product is then divided into 100 flavoring packages, each of which has its own weight of 5g (Figure 1). In terms of texture, PHF is not too smooth like the vetsin flavoring.



Figure 1.
PHF Product made by Teluk Awur Village Society.



Figure 2.
Price of flavoring products in online shops.
Source: Tokopedia, 2022

Study of business feasibility of PHF was carried out on a small scale with the main raw material being 500 grams of prawn husk resulted in 100 packages of 5 g PHF. This product was shared to women community for selling purpose with price of 500 IDR/pack. This price was determined based on mark-up considerations and penetration pricing strategies. Mark-up is the difference between the selling price and the costs that the seller wants to set as the profit he wants to obtain. The amount of the mark-up value is purely the seller's decision, but there is an average mark-up that is usually used in each relative. For example, the mark-up at grocery stores for daily necessities is generally no more than 15%, restaurants 60-250%, and clothing 55-62%. (Wang et al., 2013). The penetration pricing strategy is usually used to introduce new products at lower prices in the hope of getting a large sales volume in a relatively short time. Apart from that, this strategy can also reduce competitors' interest and capabilities because low prices will cause the margins obtained to be limited.

The cost components contained in the PHF production process consist of the costs of raw materials, auxiliary materials, and variable costs for product packaging. The total cost required to produce 100 packages of PHF (5 g/pack) is IDR. 19,500 so the production cost per pack is 195 IDR. The profit obtained from selling 100 packs of PHF is 50,000 IDR while the total production cost is only Rp. 19,500 IDR. Comparing the profit toward the production costs resulted the concept of benefit per cost ratio (B/C) with the value of 2.6. B/C is one of the investment criteria, if the B/C value is greater than 1 then a business is declared feasible (Rankin and Alma, 2017). The B/C of 2.6 means that every 1 IDR spent will generate a profit of 2.69 times, so PHF is economically feasible to produce.

CONCLUSION AND RECOMMENDATION

PHF is economically viable and can be a business opportunity. Materials, production, packaging, and distribution process of PHF were environmentally friendly in accordance with the ecopreneurship business model. Utilization of prawn husk in food business initiation with an ecopreneurship approachment can be implemented in the Teluk Awur society.

REFERENCES

- Adeleke, D. A., Olajide, P. A., Omowumi, O. S., Okunlola, D. D., Taiwo, A. M., & Adetuyi, B. O. (2022). Effect of Monosodium Glutamate on the Body System. *World News of Natural Sciences*, 44, 1-23.
- Askin, M., A. Rusli, N. Nadila, N. Nurfaidzin, C. P. Subrata, R. Aziz, and M. F. Achmad. 2022. Empowering the Lengkong Village community through MS OFFICE training. *Jurnal Pemberdayaan Masyarakat Maspul*. 4(1): 22-28. (the original article in Indonesian Language)
- Astriana, B. H., A. A. Damayanti, C. E. Larasati, M. R. Himawan, and D. P. Lestari. 2022. Processing

- Azis, R., and I. R. Akolo. 2019. Quality characteristics of water content, ash content and organoleptics in instant flavorings. *Journal Of Agritech Science (JASc)*. 3(2): 60-77. (the original article in Indonesian Language).
- Azmana, M., Mahmood, S., Hilles, A. R., Rahman, A., Arifin, M. A. B., and Ahmed, S. 2021. A review on chitosan and chitosan-based bionanocomposites: Promising material for combatting global issues and its applications. *International journal of biological macromolecules*, 185, 832-848.
- Djohar, M. A., S. M. Timbowo, and F. Mentang. 2018. The level of panelists' preference for natural flavoring from fishery by-products with edible coating from carrageenan. *Media Teknologi Hasil Perikanan*. 6(2): 37-41. (the original article in Indonesian Language).
- Dwimawati, E., F. Beliansyah, and A.Zulfa. (2019). Community empowerment through the use of technology in order to improve the quality of human resources in Gunung Menyan Village. *Abdi Dosen: Journal of Community Service*. 3(1): 8-16. (the original article in Indonesian Language)