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Empowerment of Coastal Communities through Utilization of Fish Waste in Realizing a Blue Economy

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Abstract

Fish waste, which includes fish innards, fish heads and bones, as well as remaining fish washing water, if not managed properly, can cause environmental pollution. This waste is increasing day by day. This will have a deadly impact on biota invertebrates which, like other shells, therefore it is necessary to process fish waste so that it can at least reduce environmental pollution. To control efforts, a service activity program is needed, namely socialization and training on the implementation of the Blue Economy by Utilizing Fish Waste into Catfish and Petis Feed in Tlesah Village, Tlanakan District, Pamekasan. By holding this training, the community understands how to use fish waste into products that have economic value and understand the stages of making products starting from preparing tools and materials, the length of the production process until it becomes fish food and paste products. Partners' knowledge about the blue economy has increased after the presentation of the material by viewing response to material conclusions empowerment after a demonstration or practice of utilizing fish waste.

Keywords: coast, fish waste, blue economy

INTRODUCTION

Madura has wealth in the fisheries and marine sectors to provide added value and have mark strategic as Source Power Natural (SDA) which can give financial benefits, especially in providing protein food, earning foreign exchange, and providing employment opportunities. Therefore, creativity is needed in order to empower grow a transformation life in public coast which more good like case in Tlesah Village. Tlesah Village is one of them coastal village in Tlanakan District, Pamekasan Regency whose average population is fishermen and their wives are fish sellers.

Group (POKLAHSAR) "Barokah Daughter Fisherman Tlesah" is a community group of coastal teenage girls and mothers (wives of fish fishermen) in Tlesah Village. This business group on average is coastal women and fishermen's wives generally take on dual roles namely at home stairs and selling fish caught by sumi (around the nearest village or even in urban areas). But with a group "The Blessings of Tlesah Fisherman's Daughter" they do processing results catch her husband become processed fish which can be used as a specialty food with a higher selling value. After they are produced, they become products their processed fish is then packaged and marketed to various shops and the public around Pamekasan.

Will but there is a number of problem which faced by partner between another thing is that there is production waste from processed fish in the form of bones, skin, fins, heads, scales, innards, and liquids which pollute the environment, cause a foul smell, and disturb human health and will have a negative impact on surrounding communities and damage coastal areas. This waste is increasing every day. This will have a deadly impact on biota invertebrates which, like other shells, therefore it is necessary to process fish waste so that it can at least reduce environmental pollution. Sihite (2013) said that fish waste is usually piled up, and these piles are

often left for too long, causing an unpleasant odor. Haryati *et al.* (2013) and Kuswoyo *et al.* (2022) stated that marine fish waste can pollute the environment both on land and in water, because marine fish waste still contains quite high levels of protein.

One technique for producing processed fish that is environmentally friendly is the blue economy principle, namely the Blue economy is a strategy implemented by the government to develop fish processing production into products that are more useful, practical and have high selling value with the *Zero Waste System concept*. For produce growth economy in sector fishery And at a time ensure To preserve marine natural resources, fish processing in Tlesah Village can be carried out with principles of blue economics. This is very important to be integrated with marine conservation and fishery Which friendly environment in frame realize development marine And fisheries because of the blue economy concept adheres to several principles, namely creativity, innovation, utilizing local resources, and utilization material Which attempted For No leaving waste in frame management source Power natural Which more Good. The use of fish waste will reduce environmental pollution and produce products that have economic value. Muflih (2013) said that biological processing of liquid waste is to reduce dissolved components in line with Septiansyah *et al.* (2020) said that waste minimization is an effort to reduce the volume of environmental pollution.

Based on this background, a service activity program is needed, namely socialization and training on the Implementation of Blue Economy by Utilizing Fish Waste into Catfish and Petis Feed in Tlesah Village, Tlanakan District, Pamekasan. It is hoped that the existence of a service program will reduce this the presence of fish waste which can pollute the environment and can increase income because it already has processed products.

METHOD

The flow of implementing the service program in implementing solutions to partner problems is described as in the picture under This

Stage Preparation

- a. Surveys and preparation : Identification of problems is carried out by field surveys to The location is the Barokah Putri Fishermen group which is in Tlesah Village for know problem And desire partner in utilization of fish waste which has been polluting the surrounding environment.
- b. Coordination internal: namely identifying assets in the form of equipment owned by the group that can be used in implementing training.

Planning Stage

Stage Planning is selection alternatives and plans program or activities to be carried out which include:

- a. Prepare material Which will be delivered to training participants.
- b. Prepare the tools and materials needed to practice making catfish feed products and paste from fish waste
- c. Create an SOP for making products so that participants can practice after providing assistance
- d. Product packaging assistance training.

Stage Implementation Activity

Methods for implementing this training include:

- a. Presentation Method. Method This used To tell a number of matter Which related with benefits, impacts, functions, tool materials, How Implementation of *Blue Economy* in process production fish food by using fish bones and heads and making paste from fish water waste.
- b. Demonstration Method. Method This used to demonstrate method How The application of *Blue Economy* in the processed fish production process by utilizing fish bones and heads into catfish feed products and making petis from fish water waste. Expected with exists method this is society coast can practice direct make product .

- c. Practice Method. This method is used to train participants Implementation of *Blue Economy* in the fish feed production process by utilizing fish waste, namely fish bones and heads.
6. Stage Evaluation, evaluate activities and product results.
7. Mentoring , this assistance is carried out by providing direction to participants until the product is packaged well.

RESULTS AND DISCUSSION

Description of Activity Implementation

Empowerment activities through processing training are carried out in face-to-face events. Face to face meeting method lectures in delivering material and demonstrations of product manufacturing practices. Implementation of activities service to this community carried out by 3 (three) service teams and bringing in competent speakers in the field of fisheries processing as well as environmentalists whose topics of discussion include:

1. Fish potential in the coastal areas of Madura, especially in Pamekasan Regency.
2. Processed fish products, especially tuna
3. Waste produced from fish
4. The impact of waste on the environment
5. Utilization of fish waste into products that have economic value
6. Tools and materials needed to manufacture the product
7. The process of making products using fish waste



Figure 1. Presentation of material regarding the use of fish waste at Mitra's premises

The method used is lecture and demonstrations. Next explains material about the use of fish waste into products that have economic value. From the material presentation activity on the benefits of tuna fish, the participants understood, but in terms of the impact of fish waste and the benefits of waste produced from fish, it was very clear that some participants didn't understand. By outline the essence of the participants' questions that is:

1. The impact of waste, especially water from fish washing, on the environment and marine biota.
2. Can only the bones and heads of tuna fish be used as feed products?
3. The time required to make feed and petis products.

Empowerment programs for the community , especially for fishermen's children, take the form of education and practice in making products with purposeful waste utilization to reduce waste from fish washing water, fish bones, innards and fish heads that are underutilized. Apart from reducing environmental pollution, it will also have an impact on If the fishermen's children 's economy is managed well because they have processed products .

Participants' understanding of the use of fish waste

The problem of waste from fish, including the remaining fish washing water, fish heads and innards and fish bones, is the subject of discussion solutions to find solutions so that they can reduce environmental pollution. Komariyati *et al* (2018) said that waste produced from the fish processing process can be fish that is no longer suitable for consumption or processing, stomach contents and other parts that are not commercialized which can reach 10-20% of the raw material. Basically adequate knowledge and insight from activities assessed can be used for solve some of the problems faced. Rimalia (2021) says that fish waste can be used as an alternative feed, because it can gives quite good results protein content . Each activity participant tells a story experience regarding unused or underutilized fish waste. The main material delivered to increase knowledge In order to reduce environmental pollution, namely:

1. Impact of fish waste
2. Utilization of waste to support the blue economy
3. Products resulting from the use of fish waste



Figure 2. Discussion with partner participants regarding the use of fish waste

Providing material by showing several images related to the impact of waste on the environment which has the impact of polluting the surrounding environment and also has an impact on the existence of marine and coastal biota. Discussions about fish waste that could be used made participants' enthusiasm high because the presenter also has an environmentalist background so he can provide solutions in accordance with conditions in Tlesah Village. To know participants' understanding of the material has been submitted, the empowerment team repeats return the material that has been presented, Next, invite participants to Continuing the conclusions that have been read by the team.

Practice and Increasing Participants' Knowledge

Practices or demonstrations are carried out to increase participants' knowledge in waste utilization because demonstrations will make it easier to remember and easier to understand the material that has been presented. The products made are fish food and paste products. The stages in carrying out a demonstration are:

1. Explanations regarding the tools used and their functions, such as large buckets for storing ingredients such as fish bones, water, bran, scales for measuring doses, blenders for softening fish heads, fish innards and bones and other tools.
2. The ingredients needed and the dosages used for making petis and fish feed respectively.
3. The process of making a product starts from the stages of materials used to the estimated time for each stage.
4. Finishing the product, namely the finished product, just needs to be packaged well so that it is attractive and has sales appeal.



Figure 3. Explanation of tools and materials



Figure 4. Product manufacturing practices

After practicing product making, an evaluation was carried out by asking participants about the use of fish waste in the product making process. There was an increase in understanding about the blue economy after demonstrations or direct practice in the use of fish waste. Apart from that, participants also understand the process of making a product, starting from preparing tools and materials until the product is ready to be packaged. This means that empowering coastal communities, especially fishermen's children, has a positive impact in increasing knowledge about the impacts and functions of fish waste so that it reduces environmental pollution and can even provide economic value.

CONCLUSION

From the results of the activity it can be concluded that training on the application of blue economics by utilizing fish waste, namely bones, innards and fish heads as well as waste water from washing fish into products that have economic value, was carried out well, because partners understand how to make products starting from preparing tools and materials, the length of the production process until it is finished. fish feed products and paste. Partners' knowledge about the blue economy has increased after the presentation of the material by viewing response to material conclusions empowerment after a demonstration or practice of utilizing fish waste. Next there is a need technical activities on how to utilize social media as a marketing bridge with the application of *digital marketing*.

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