Community Empowerment Through 2nd Generation Tempeh Innovation Towards a Food Organized Village

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ABSTRACT. *Tempeh is one of Indonesia's traditional foods. Currently proposed to be a world cultural heritage in UNESCO. Tempeh cannot last long, so it takes innovation to increase the economic value of tempeh itself. The main objective of this empowerment program is to optimize the potential of "UKM" (Small and Medium Industries) in the food sector for tempeh craftsmen and reduce the losses of tempeh craftsmen for those whose tempeh is not sold. The target partner of this community assistance program is the "UKM" group Tempeh Village in Beji Village, Junrejo, Batu City who has been economically productive as Tempeh craftsmen. The method used is Asset Based Communities Development (ABCD), where the community service focuses on assets owned by the community as the main basis for program development. The efforts carried out help SMEs deliver material on the nutritional value of 2nd generation tempeh, workshops and 2nd generation tempe making practices, entrepreneur assistance and evaluation. This innovation is expected to be a solution to the unsold tempeh problem. This assistance was carried out for 3 months. The output of this empowerment activity is in the form of material modules, 2nd generation tempeh products, understanding of the nutritional value concept of second generation tempeh and digital marketing media plans.*

Keywords: *2nd generation tempeh, tempeh flour, beji, tempeh products*

INTRODUCTION

Tempeh is one of the traditional foods that have long been consumed by Indonesians. Currently, Indonesian Nutrition and Food Experts (Pergizi Pangan) and the Indonesian Tempeh Forum, register Tempeh as an intangible cultural heritage of Humanity to the United Nations Educational, Scientific and Cultural Organization (UNESCO). Even though tempeh is relatively cheap, tempeh has a fairly high nutritional content, namely protein and isoflavones which function as antioxidants. The main nutritional content found in tempeh is protein, which is around 14.77% to 22.73%. [1]. Tempeh has high nutritional content, which is very useful to meet protein needs through vegetable protein sources. The nutritional value of Tempeh is not inferior to animal food, even in some aspects the nutritional value of tempeh is better than animal food [2].

One of Tempeh craftsmen centers is in Beji Village, Junrejo sub-district, Batu city, so that the area gets the nickname tempe village. In these areas, various methods of making Tempeh are traditionally carried out from generation to generation. The resulting tempeh certainly has a different taste. Currently, the obstacle faced by the "UKM" in the village of tempeh is that when the Tempeh is not sold on that day, then in the end the tempe will be sold at a fairly low price and even thrown away in vain. The use of unsold Tempeh is dried and processed into tempeh flour to become more nutritious and attractive processed Tempeh products, so the flour will be made into 2nd

generation tempeh. The conventional Tempeh processing technique needs to be improved so that it is competitive with other modern foods. This can be done by changing the composition and processing method so that the final product is produced where the shape of the tempeh is not visible. The flour you get can also be sold in the form of well-packaged processed flour.

This service aims to empower "UKM" craftsmen of tempeh so that the resulting Tempeh has high economic value. This is done through mentoring where existing potentials are developed through craftsmen to overcome existing problems. The target partner of this community assistance program is a group of tempeh craftsmen in the Tempeh Village, Beji Junrejo Village, Batu City who have been economically productive as Tempeh craftsmen. The unsold Tempeh is collected at Tempe Bank and then processed into Tempeh flour. The flour can be resold with a good packaging process. In addition, tempeh flour can also be processed into second generation tempeh products. The process solution is expected so that unsold tempeh can be used for other food products with beneficial values.

The second generation of tempeh is a processed product from tempeh whose original form is not visible. Research conducted by Yohanes et al (2015) states that second generation Tempeh is rarely consumed, this is due to a lack of public understanding of what second generation tempe is, even people do not understand the meaning of second generation Tempeh [3]. Through this

community service assistance, the community is educated and even given training on how and processes in the second generation of tempeh processing towards the millennial era, so that tempeh which was previously unsold can be used to become unique, interesting and nutritional food processing so that it can become a village with food sovereignty.

METHODS

In order to change the condition of the Beji villagers socially, economically and environmentally, the method will be used is Asset Based Communities Development (ABCD) a companion prioritizing the use of assets and potentials owned by the community to be used as empowering materials. The steps in the stages of implementation activities in mentoring Tempeh craftsmen are First, maturing understanding of second generation Tempeh and Stages of field activities for the Team and related parties, such as making Tempeh flour, processing Tempeh at BANK TEMPEH, nutrition education of second generation Tempeh, determining groups for technical assistance (management, business and cooperation).

The priority of this program is to strengthen the management of Tempeh from unsold sales. Second generation tempeh processing assistance and human resource improvement in managing the Tempeh bank results is based on the results of the initial survey and the agreement between the target group and the facilitator that has been carried out (the results of the FGD or initial survey).

Training Method

This activity is carried out with several training methods, namely:

a. Lecture method

The lecture method was chosen to explain how to make tempeh flour, the second generation of tempeh-making process, hygienic production methods, and product management to the packaging and marketing process.

b. Question and answer method

This question and answer method is very important for the training participants, both when receiving an explanation of how the product is made and when practicing it. This method allows Tempeh craftsmen to gain as much knowledge as possible about second generation Tempeh processing and also experience after practicing making it.

c. Simulation Method

This method is very important given to Tempeh craftsmen to provide an opportunity to practice the second generation of Tempeh and Tempeh flour processing. The hope is that the Tempeh craftsmen will really master the training material received, know the level of their ability to

apply the manufacturing method, then identify what difficulties still exist so that they can be solved together.

RESULTS AND DISCUSSIONS

The implementation of community service activities in Beji Village is in the form of a mentoring process in the utilization of unsold Tempeh, as shown in Figure 1. In Beji village, Tempeh craftsmen have different ways of making Tempeh, this is done because of the inheritance of their ancestors in the process of making Tempeh. There are three ways in the process of making Tempeh which is carried out in Beji village, namely: tempeh siraman, tempeh squeezed and tempeh palstic. The three of them have different characteristics and different manufacturing processes, while the manufacturing process is generally the same, which takes 3 to 4 days. [3]. Tempe that is not sold from the craftsmen is made into a Tempe Bank, so the craftsmen can deposit the tempe results into the tempe bank. The tempe bank will be rewarded with a nominal amount desired by the craftsman to see the condition of the tempe. Assistance in Bank Tempe activities will produce tempe flour. This tempeh flour will be used as the second generation of tempeh.

A. Education on the nutritional value of second-generation tempeh and tempeh.

This educational process is carried out for the tempe craftsmen UKM, this is done so that people understand correctly the nutritional value of tempe and what is meant by second generation tempeh. By knowing the nutritional value and its benefits, people can change their mindset to take advantage of unsold tempe to be processed into second generation tempeh. People knowingly know and consume tempe every day but the results of the questionnaire state that not all people understand the nutritional value of tempeh, even the second generation of tempe.

Tempe comes from fermented soybean seeds using tempeh yeast or *Rhizopus* mold. The price of tempeh is cheaper than meat. The high source of protein in tempeh is one of the nutritional fulfillments of vegetable sources because it is able to fulfill some of the daily nutritional needs. In addition to high protein content, tempeh contains dietary fiber, calcium, B vitamins and iron. The content of antibiotics and antioxidants in it can cure infections and prevent degenerative diseases. In 100 grams of tempeh contains 201 kcal of energy, 20.8 g protein, 8.8 g fat, 13.5 g carbohydrates and 1.4 g fiber [4]. The results also show that tempeh can be used to increase the body's immune system considering the current condition that people need a strong immune system. The results of the

fermentation of tempeh produce lactic acid bacteria (LAB) which make an important contribution in the fermentation process and ensure the safety of the resulting tempe [5].

The second generation of tempe is a processed product from tempe where the tempeh's original form is not visible. Usually the community has produced these preparations, such as brownies, ice

cream, and tempeh chocolate. The laboratory test results show that the second generation of processed tempeh still has a high nutritional value compared to other processed food products because the basic ingredients of tempe already have high nutrition, as shown in Table 1.

Figure 1. [A] Tempeh to be dried, (B) Tempeh flour, [C] 2nd Generation Tempeh Socialization (Source: Personal Doc.)

Table 1. Content of Water and Protein in 2nd generation

Type	Content (%)	
	Water Content	Protein
Tempeh of 1 st gen	42	16,8
Tempeh Flour	3,5	10,2
2 nd Tempeh Wet Product	-	8.5
2 nd Tempeh Dry Product	-	6.8

Source: Results of UB THP Laboratory Test (Personal Documents)

Based on Table 1, tempe flour is very functional if it is used as an alternative to making tempe the second generation. In terms of nutritional value which is still high, namely the protein is still 10.2 percent so that it can be used as a processed product, namely second generation tempeh. The second generation of processed tempe also still has a high protein value, namely 8.5% for wet cakes (Ice Cream, Pudding, Samosa) and 6.8% for dry products such as (cookies, pastry, tempe pie). As for the understanding and economy of Beji villagers Also increasing, this can reduce the unsold tempe so that it can help reduce the losses of tempe craftsmen in Beji village. This can be seen from the results of the questionnaire given during the mentoring process.

The results of the evaluation in this community service program activity use two approaches, namely internal and external. The external approach is by asking questions through closed questionnaires which are distributed to the tempe craftsmen, while the internal approach is by observing and analyzing the shortcomings and needs that have not been met during the activity. Evaluation is carried out by the community service implementation team to provide excellent service, as shown Figure 2. In the evaluation of training, it can be concluded that 95.00% of respondents agree that community service activities are useful,

88.00% of respondents agree that the tempe UKM assistance activities are very helpful for the circulation of funds, 97.00% of respondents agree that knowledge increases after participating in training, and 85.00% of respondents stated that the overall training activities are good. The entire activity referred to includes the facilities provided, the provision of materials and mentoring. On our note, from the results of the distributed questionnaires are the educational levels of various tempe craftsmen. The level of education greatly influences the desire to make innovations and breakthroughs in advancing human resources. It takes a gradual and approach in delivering material according to the respondents faced

Figure 2. Results of Community Service Implementation

B. Making Tempe Generation Two

The assistance process for second generation tempeh is carried out after the community understands correctly how the processing of tempeh flour is then processed into second generation tempeh. The process of making this second generation of tempeh includes ice cream products,

pudding, samosas, while for dry products we process them so that these products can be included in the center by the city of Batu, where the processing can last approximately 6 months. The flow of the second generation of tempeh is as follows:

1. Making tempeh flour at Bank of Tempeh

Tempe that is not sold is then deposited with the tempe bank for processing by: steaming for 15 minutes, cut into thin strips, drying in an oven at

600 Celsius for 24 hours. The results of the oven are milled and then sieved and the tempeh flour is ready to be packaged.

2. 2nd Tempeh Processed Products

The finished tempeh flour can be processed into various kinds of products according to the “UKM” of each group. The products made include: ice cream, pudding, samosas, cookies, pastry and tempeh pie, as shown in Figure 3.

Figure 3. [A] Pastry, [B] Cookies, [C] Pudding, [D] Pie Tempe

Figure 3 is the result of the second generation of Tempeh product innovation. This second generation Tempeh making training activity is based on local wisdom, so that later it can be used as souvenirs from the city of Batu. This second generation of Tempeh products based on local wisdom is expected to increase knowledge, skills and motivate UKM of Tempeh to become entrepreneurs with the ideas given. Besides being used as additional income, entrepreneurship food with local ingredients can also be used as souvenirs typical of the region. The nutrients obtained from the second generation of tempeh processing are also quite potential. This can be used to increase the immune system where the nutrients in tempeh do not decrease much after being processed into second generation tempeh. [6], so that the second generation of tempeh products can be used as functional food because the ingredients are still functional. This proves that Indonesia is a nation capable of being independent in the midst of a pandemic. In Figure 3 is the second generation tempeh simulation and assistance program.

In this mentoring activity, there are no significant obstacles in the implementation of community service in the form of training, because the materials used are the results of tempeh craftsmen who are already in Beji village, the equipment used is easy to get because almost every tempeh UKM already has the equipment, plus other tools. such as modules / materials that are presented in easy to understand language, and instructors who are competent in their fields. along with the increasing pattern of education and technology, people are very aware that what they are looking for is not only delicious food but healthy, nutritious food that can meet the

physiological and nutritional needs that are very necessary, so here we need assistance for material processing or from a technological side to create products. food based on local wisdom, namely 2nd generation tempeh.

3. Entrepreneur Assistance

Instilling the spirit of Entrepreneur Life Skills for the community with educational development models and opening entrepreneurial insights to UKM of Tempeh by increasing their skills in making innovative products so that they can improve the family economy. Then implemented technical marketing from the distribution of members that have been made. In the marketing itself, which is centered by Batu. To add insight and make it easier for SMEs in the product marketing process, the companion uses the method by learning together in the WhatsApp group. [7]. UKM are included in the Womenwill group where in the WA group the UKM will be fostered in digital marketing. Womenwill is a Google initiative that focuses on digital programs to empower the economy of women around the world. Women who have access to economic opportunities will greatly benefit their families, communities and countries. The description of the stages provided by Womenwill in program assistance to UKM, is shown in Figure 5. Businesses are broadly divided into 4, namely trade, production and services. Even though they are different, there is a common thread in common, namely in terms of raw or supporting materials, production and sales processes. With this assistance, SMEs will better understand how to process and market the correct product so that they

can slowly increase the productivity of tempeh SMEs in Beji village.

Figure 3. a) Assistance, b) 2nd generation tempeh making process

Figure 4. Stages of Assistance Education (Source: Womenwill Indonesia, 2020)

CONCLUSION

Based on the results of the implementation of community service activities, it can be concluded that the second generation of tempeh innovation assistance program can create economic improvements, more effective turnover of funds, and increase the entrepreneurial spirit of the UKM of tempeh. Through the innovation of the UKM of tempeh, Beji tempe village has food sovereignty and climate resilience.

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