



Ecotourism Development of Wanagiri Village through PKK Empowerment in Food Souvenir Processing of Taro, Marketing and Institutional Strengthening

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The processing of innovative Food Souvenir products is currently growing rapidly, producing various processed products on the market. Village community empowerment aims to increase independence, knowledge, attitudes, and skills, so a mentoring program is needed according to needs. Wanagiri Village is a tourist destination village located in Sukasada District, Buleleng Regency. Wanagiri Village has a variety of natural potentials, one of which is taro tuber which has the potential to be developed. Taro Food Souvenir products are products that are in great demand by people throughout Bali. Taro Food Souvenir products have been produced and marketed by partners but not yet intensively, the packaging is not good and the marketing is not optimal. Partners want to improve the appearance of their products so that they have a long shelf life so that they can be economically independent. The solutions provided to solve the problems faced by partners are: providing appropriate technology for processing taro Food Souvenirs; packaging and labeling, marketing strategies, drafting rules for sharing of work and profit agreements between group members, and providing equipment assistance. The method used is active community participation and exploratory. Community service activities have been running smoothly. International community service regarding taro processing has a positive impact on society, especially economic empowerment, food diversification, and cultural preservation. recognizing that the community actively supports the success of this activity, respecting local traditions in a sustainable manner will benefit the community. The performance of food souvenir products will look more attractive and provide added value, which will have an impact on increasing income and people's welfare.

Keywords: Taro products; food souvenirs; women empowerment; wanagiri; creative village.

1. INTRODUCTION

1.1 Research Background

The process for processing food into innovative products. Food Souvenirs are currently growing rapidly to produce a variety of processed products that are increasingly diverse. Effective and efficient innovative product processing is synonymous with food processing of the concept of environmentally friendly packaging to support the Sustainability Development Goal's Program. Food processing in an effort to empower village communities is an effort to develop community independence and welfare. Prioritizing community needs for increasing knowledge, skills, and awareness in utilizing resources through programs, activities, and assistance is essential [1,2]. Village Development is an effort

to improve the quality of life and life of the Village community. Wanagiri Village is a village located in Sukasada District, Buleleng Regency. Most of the people's livelihoods are farmers who have the potential to be developed. The distance between the village government and the sub-district is 20 km, the district is 22 km, and the province is 57 km. Wanagiri Village is known as an ecotourism destination with a variety of potential commodities that need to be developed, one of which is taro tuber. The tourism potential in Wanagiri Village opens up opportunities for various community activities [3,4,5]. One of them is taro cultivation activities which can support the availability of food that is then processed into chips, nuggets, bread, and taro jam and offered to visitors. The community chooses taro cultivation activities based on the relatively high need for carbohydrates, which is a special

attraction for domestic tourists and abroad. This potential needs to be developed through assistance involving several active groups such as women's food processing groups, to increase their knowledge, skills, and independence.

Universities, especially Warmadewa University, are collaborating with Central Bicol State University of Agriculture (CBSUA) (Philippines), and Universiti Malaysia Sabah (UMS) (Malaysia). So far, most tertiary institutions are more orientated towards the theoretical aspects of science and technology development, but the development aspects towards practice are still limited so the contribution of science through research activities has not been able to provide real benefits for the wider community. With community service activities, it is hoped that partners in Wanagiri Village will have the skills, entrepreneurial spirit, and insight to manage local natural resources. Thus, it is expected to be able to open business opportunities, provide added value, and increase the independence and welfare of the community. Wanagiri Village has a Wanagiri PKK group. PKK stands for Family Welfare Development, is a social organization that empowers women to participate in Indonesia's development. The group's location was far from the crowds and was still somewhat behind in terms of skills. The activities carried out by the PKK women range from social gatherings, sports, dance practice, drumming practice, training for making ceremonial materials, and others [6]. Due to its remote location, this group still needs support so that empowering women can foster an entrepreneurial spirit. Groups also need assistance so that members have supporting activities that can help increase family income so that the welfare of the community increases.

This ability will later be practiced to meet family needs so that they can develop their business independently. This desire is supported by the proximity of a market located in Sukasada District which is known for ecotourism objects including selfie tours, views of Crocodile and Tamblingan lakes, and three waterfalls. Besides being rich in cultural arts, the island of Bali also has a variety of processed foods. In fact, many of the typical Balinese snacks or snacks are favored by foreign and domestic tourists. These processed foods have their own charm in their unique shape and taste [7]. Maintaining food souvenirs made from tubers is the duty and responsibility of all parties in reducing or suppressing the use of wheat flour.

The processing of taro souvenir food has better prospects and development opportunities. In food processing, the type and quality of raw materials and auxiliary materials vary greatly. Conventional food product technology is characterized by a picture where the product is processed with a poor level of sanitation and hygiene, uses raw materials with a low level of quality or freshness, food safety is not guaranteed, technology is passed down from generation to generation, and the business is managed by a family with an inadequate level of management ability [8]. Therefore, it is necessary to develop food processing with several improvement efforts by applying basic feasibility to processing food souvenirs [9]. Aspects of environmentally friendly product packaging materials need to be studied for business development and product marketing development [10]. With the problem of various processing processes for taro souvenir food, it is necessary to apply basic feasibility in order to produce quality taro processed food with broad marketing [11].

The Wanagiri PKK group is chaired by Mrs. Komang Budiantini, formed in 2000 with a total of 20 members. The group's activity is processing taro into chips, nuggets, bread, and taro jam using ordinary plastic packaging without any effort to maintain quality and extend shelf life. This group does not yet have good knowledge about taro food souvenir product packaging, nor do they have knowledge about marketing strategies. Processed taro products that have been packaged/produced are usually not only marketed to markets around the village but also taken by middlemen at relatively low prices. With Community Service activities (International Community Service) funded by the Warmadewa University Community Service Institute, the Wanagiri PKK group hopes to have skills and insights into managing natural resources that support ecotourism maintain local wisdom and have an entrepreneurial spirit, so as to increase independence. The group's taro-based food souvenir processing training activities are expected to be able to produce and market taro food souvenir products. Good postharvest handling and packaging processes result in quality being maintained, longer shelf life, and wider marketing so that they are able to independently increase income and family welfare [12]. Partners are also given knowledge about the utilization of taro souvenir food processing waste (zero waste) [13].

1.2 Literature Review

Local commodities in Indonesia as food sources are very diverse and have the potential to be developed. Limited knowledge related to processing local food ingredients into innovative products is one of the challenges for developing micro, small, and medium enterprises. Product diversification by utilizing local ingredients is one of the efforts made to reduce imports of staple materials and reduce dependence on wheat flour. Local food ingredients such as taro have the potential to be superior food ingredients, because of their composition which is rich in carbohydrates and other functional components. Innovative taro-based products can compete in the market if they are produced with the right steps and technology. Appropriate technology to process taro into innovative products is a fundamental need at this time.

Efforts to increase public interest in processing local food into innovative products cannot be done alone, it needs support from various parties. Several community groups such as the PKK have started producing taro into a number of products, but the quality has not been able to compete with products sold in markets, cafes, and malls. Existing groups need to be further encouraged and optimized by providing appropriate technology for innovative taro-based products. This is expected to provide added value to the products produced, increase product quality, longer shelf life, and wider marketing, which will ultimately have an impact on increasing income and people's welfare. The food processing process will be easier if taro cultivation is done properly. This will produce quality taro tubers and have an impact on the quality of the processed products produced. Proper cultivation will produce quality processed products.

Taro (*Colocasia esculenta*) is a plant that is quite popular these days. Taro has several common names around the world, such as Taro, Old Cocoyam, Abalong, Taioba, Arvi, Keladim Tayoba, Yu-tao, and Satoimo [11,13]. The optimum harvest age for taro is between 6 to 18 months with the characteristics of the leaves being yellow and dry, and the taro tuber is the part that can be harvested. Taro usually thrives in tropical areas. Taro is an export commodity that can increase the country's foreign exchange and play a role in maintaining food security. Apart from being fresh, taro is also marketed in the form of frozen tubers. As a taro-producing

country, Indonesia has two taro cultivation centers, namely Bogor and Malang. The most widely grown type of taro is bentul taro with high productivity and good taste and a fluffier texture. Taro tubers consist of primary and secondary tubers. The primary tubers are cylindrical in shape and 30 cm long with a diameter of 15 cm, while the secondary tubers are small and grow around the primary tubers. Taro tubers come in a variety of shapes and sizes, depending on the growing environment and variety. Taro spread across Indonesia has a conical, cylindrical, or elliptical shape.

Taro is a food with high nutritional value. Protein, carbohydrates, fat, crude fiber, phosphorus, calcium, iron, thiamin, riboflavin, niacin, and vitamin C are examples of macronutrients and micronutrients contained therein. The chemical composition changes according to several parameters, including variety, age, and tuber development. Differences in the chemical composition of taro tubers are also influenced by climatic conditions and soil fertility. Taro has the added benefit of having its starch easily digested. This is because the starch grains are small and contain high amylose (20-25%). In addition, taro is gluten-free, so taro-based foods can be included in the diet of people who are allergic to gluten. Taro macronutrients and micronutrients include 98 calories, 1.9g protein, 0.2g fat, 23.7g carbohydrates, 28.0mg calcium and 61mg phosphorus, 1.0 mg iron, vitamin A 3 RE, vitamin C 4.0 mg, vitamin B1 0.13 mg, water 73.0 g, edible ingredients 85%. Taro can be used in the food industry to make bread, jam, dodol (sweet snacks), noodles, nuggets, biscuits, taro chips, and others [8,9].

1.3. Research Objective

The objectives of this community service activity include: 1) Help provide knowledge about the potential for ecotourism development in Wanagiri. 2) Help provide knowledge about taro souvenir food products to increase production, quality, and implementation of basic feasibility. 3) Help provide knowledge about techniques and design of environmentally friendly packaging (sustainable packaging) and good labeling design, 4) Help provide equipment assistance so that the types of processed food become more and more diverse. 5) Help provide knowledge about good marketing strategies so that the market is wider and income increases. 6) Assist in providing knowledge and assistance in drafting the rules for sharing work- and profit-sharing

agreements between groups for institutional strengthening and business sustainability of processed taro products

2. MATERIALS AND METHODS

2.1 Training Materials

The training material that will be provided is a set of knowledge regarding insights into processing food souvenir products, especially taro, including how to pack and label, market, and strengthen group institutions. With the knowledge package provided, it is expected to be able to provide knowledge and skills that can enrich the competence of the target audience as processors of various taro souvenir food. To support the training process for processing various taro souvenir food products, the following infrastructure is needed: 1) A leaflet containing instructions on how to process various taro souvenir food products, packaging and labeling, marketing, and institutional strengthening. 2) Schedule of activities and time required. 3) Processing tools for the practice of making various taro souvenir food products. 4) Consumable materials, namely materials used to make food souvenirs (taro chips, taro nuggets, bread, and taro jam).

2.2 Implementation Methods

The implementation method is the pattern or system of actions to be carried out or the sequence and stages necessary in carrying out community service activities. Implementation methods include coaching, training, mentoring, and consulting in a structured manner on various matters that become obstacles in an effort to provide added value to partners. The achievement of implementation objectives is determined by the implementation process. One way to achieve that goal is to use the right method. The method is one of the tools to achieve the goal. Methods in relation to achieving implementation objectives so that they can be entered into long-term memory. The method is an aspect that can expedite the path of implementation toward what has been formulated. Various methods that can be applied in the implementation of community service include lectures, questions and answers, discussions, demonstrations, modeling, inquiry, simulations, games, role-playing, and others. These methods can be implemented separately or implemented in combination according to the

abilities and characteristics of the material being studied.

This community service activity program is carried out by means of training through lecture and discussion methods, demonstrations and training, as well as question and answer. a) Lecture and Discussion Method: This community service activity will begin with giving lectures and counseling to housewives who are members of the Wanagiri PKK. These women were gathered in a room with the implementation team to give lectures on activity material. The material provided is related to the processing of taro into taro chips. This activity aims to provide theoretical knowledge to mothers about the material for the activities to be carried out. The activity was then continued with the Discussion method to deepen the respondents' understanding of processed taro products and learning media. During the implementation of this activity, more pictures and explanations were displayed regarding processed taro products into taro noodles, taro nuggets, taro bread, and taro jam in the hope that respondents could understand more quickly. 2) Demonstration and Training Methods: Demonstration and training activities are follow-up activities carried out by community service implementers to the lectures and discussions that have been carried out. This activity was carried out by demonstrating the processing of taro into taro chips, taro nuggets, bread, and taro jam.

2.3 Stages of Implementation

This community service activity includes the stages of preparation, implementation, and post-program handling.

- a) The preparatory phase includes the following activities: 1) Socialization of the training program, carried out in the community through the meeting program by inviting the community and housewives who are members of the Wanagiri PKK. 2) Recruitment of training participants which is planned to be attended by as many as 20 people, taken by representatives from the sub-village. 3) Preparation of training facilities and infrastructure or processing practices including the schedule of training activities.
- b) Implementation phase: The training will be held for 2 days planned for August 2023 which will take place at the Balai Banjar in

Wanagiri Village. Implementation of activities carried out based on a schedule that has been prepared. At the end of the activity, an evaluation is carried out, namely an evaluation of mastery of knowledge and skills.

The stages of implementing community service activities in the village of Wanagiri are as follows:

1. Literature study: The literature needed is knowledge about the process of making taro chips, taro noodles, taro nuggets, bread, and taro jam as well as knowledge about the materials for processed taro production tools so that the products produced are safe for public consumption.
2. Analysis of the community situation: this is a very important start because community service starts with the intention to help the community. This stage is carried out with two sub-stages, namely the first determines the target audience, the wider community, certain communities, certain audiences or organizations or certain people in society. The second is to determine the problem areas to be analyzed in a comprehensive manner, which means trying to find, see and study all the problems faced by the target audience. This requires a multidisciplinary approach. It can also be limited, meaning that it is only limited to one problem area. The situation analysis that will be carried out is observing the production process of food souvenir chips, taro nuggets, taro bread, and taro jam carried out by partners, observing the quality of the processed taro produced, observing the production equipment used, observing the marketing carried out.
3. Identification of problems: The results of the analysis work which includes the targets and problem areas can be found and then the problems faced by the selected target group can be formulated. In this stage, the target will be handled through community service activities later.
4. Define specific work goals. At this stage, it can be determined which new conditions you want to produce through community service activities later. In other words what changes would be desired that would make the work goals clearer?

5. Problem-Solving Plan. Problems that have been identified need to be solved and at the same time achieve the goals that have been set by finding alternative solutions to problems and choosing the best alternative.
6. Social approach. The principle is that the target community is the subject and not the object of this community service activity. For this reason, efforts are made to involve the community as much as possible, by trying to make an approach and make them aware that the problems that have been formulated above must be solved. Furthermore, if they are unable, then this is where the executors and universities take a role so that they can improve the lives of the target audience.
7. Implementation of Activities. Prior to the implementation of the activity, a work plan is prepared which includes determining how the activity will be carried out, determining the implementation time, determining the implementation places, determining the people who will be involved in the activity.
8. Evaluation of activities and results. Each stage needs to be evaluated to be able to move on to the next stage, which needs improvements during the activity process. Equally important is the evaluation of the results or impact of all community service activities, so that you not only know what the results of the activities so far are but also learn how to identify and measure the changes that have occurred. This evaluation will produce a form of accountability for everything that has been done before. The results of this evaluation are not only important as administrative completeness but are also very important to be known by everyone involved, including the target community.

2.4 Post-Program Handling

Evaluation is carried out by giving questionnaires to participants to determine the level of success of this activity. It is hoped that the implementation of this community service activity will run smoothly, and the participants will be enthusiastic and active in participating in the training from start to finish so that it can motivate the Wanagiri PKK members participating in the training to be able to process taro into various food souvenir products.

3. RESULTS AND DISCUSSION

3.1 Results

The community service program activity entitled Ecotourism Development of Wanagiri Village Through PKK Empowerment in Food Souvenir Processing of Taro, Marketing, and Institutional Strengthening has been running smoothly. The activity was carried out on Friday, Tanggal Juni 23, in the form of counseling or theoretical studies to provide an understanding of the material for Processed Taro Product Development which was attended by 20 people from members of the Wanagiri PKK Group and 15 people from Village Officials. The activity continued with a presentation of material by speakers from BICOL University and Universiti Malaysia Sabah. Partners actively participate in seminar activities and provide questions related to the material presented (Fig. 1). The activity then continued with hands-on practice of making bread, jam, nuggets, and taro chips. The participants who attended this activity were 20 people from the PKK Wanagiri, Wanagiri Village. The extension team also donated tools and materials for making bread, jam, and taro chips.

3.2. Discussion

The implementation of this activity had the impact of increasing the knowledge and skills of group members in the processing and marketing of processed taro products. Community service can provide training and knowledge to farmers about better taro processing techniques. This can increase the productivity and quality of their taro crop, thus increasing the income of farmers. Processed taro that is made innovatively can provide a variety of food products, which in turn

can open up new market opportunities. Food diversification can also reduce dependence on certain types of food and reduce the risk of food vulnerability. If community service succeeds in increasing farmers' income and creating new jobs, this can increase the level of welfare of society as a whole. Increased income can enable access to better education, health care and infrastructure services. Community service can also increase community knowledge and skills in terms of taro processing. By providing training and education, communities can develop their own capacities, which they can use for self-employment and community development. International community service regarding taro processing can also promote and strengthen local wisdom regarding the culture and tradition of taro processing. This can strengthen cultural identity and provide greater recognition of local skills and heritage.

3.3 Obstacles / Obstacles

In the implementation of international community service activities, the inhibiting factor is the difficulty in finding a schedule for carrying out activities amidst the busyness of the community because there are many traditional activities in the village so the implementation schedule is difficult to agree on.

3.4 Supporting Factors

Members of the Wanagiri Taro Processing Group were very enthusiastic, active and eager to know about the development of taro products until all activities ended. The locations prepared for the implementation of international community service activities are very supportive and representative.



Fig. 1. Food souvenir product based on talas



Fig. 2. Training participants with the head of the Wanagiri village, team, and all speakers of International Community Service from Indonesia, Philippines, and Malaysia

3.5 Solutions and Follow-up

Obstacles encountered in implementing international community services can be overcome by communicating with group leaders and village officials. Counseling and practice activities can take place smoothly.

3.6 Future Plans

Furthermore, the international community service team will continue to assist in strawberry product

development activities and product marketing. The next plan is for the implementation team to assist the group in developing taro chip product innovations to obtain a p-IRT.

3.7 Strategic Steps for Further Realization

Strategic steps to realize the next plan, namely, assisting groups in managing p-IRT permits and assisting in completing the administration so that p-IRT permits can be owned by the group.



Fig. 3. Transfer of knowledge by the speakers

4. CONCLUSION

Community service activities have been running smoothly. International services regarding taro processing can have a significant positive impact on society, especially in terms of economic empowerment, food diversification, and cultural preservation. It is important to involve the community actively in this service process and respect their local knowledge and traditions to achieve results that are sustainable and beneficial to the community. The public can also update the packaging of products that have been

made to make them look more attractive and have more selling value.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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