



Water Management through the Adoption of Tarpaulin Ponds to Enhance the Self-Sufficiency of the Wanagiri Village Community

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ABSTRACT

Community Service activities are carried out in Wanagiri Village, Sukasada, Buleleng, which has abundant water sources but has not been utilized optimally, especially for the Fisheries sector. Fish Group activities are weakening due to a lack of motivation, and the location for Fisheries Activities is challenging to reach. This community service aims to provide solutions to the Merta Lestari Fish Group (Partners) to actively re-cultivate tilapia with the Biofloc system, providing Training on Tarpaulin Pond Making. The method used utilizes Interview, Counseling, Face-to-face, and Direct Practice. With this method, it is hoped that Partners will get knowledge and solutions to the problems. Activities are carried out in stages, in the First Stage, the Team Provides Counseling, in the Second Stage, the Team provides direct practice on making Tarpaulin Pools, conducting evaluations so that Partners understand, and then carrying out Coaching. The output targets to be achieved in this activity are publishing the results of activities in international journals, publishing in print/electronic media, making 4-minute activity videos, and obtaining IPR Certificates.

1. INTRODUCTION

1.1. Research Background

The needs and food security of the community must be met, so efforts are needed to meet them. Various solutions have been widely proposed and applied to the community to create food security independently [1]. One of the efforts that has been very well known and has been applied by the community is aquaculture or what is often referred to as aquaculture. Aquaculture is defined as an activity to produce aquatic biota which is carried out in a controlled manner to obtain benefits both in terms of economy and nutritional fulfillment [2]. Aquaculture is an important part of developing the fisheries sector in Indonesia by contributing to food security and job creation at the national level. The aquaculture sector has significantly influenced economic development, especially in rural areas [3].

A comprehensive policy in the aquaculture sector was developed in 2010. The policy contains guidelines for the development of activity programs in the field of aquaculture. The guidelines are prepared based on four main principles: pro-poverty, increased employment, increased economic growth, and sustainability. Over time and with policies in the cultivation sector, various cultivation systems began to develop. Tourism potential in Wanagiri Village opens up opportunities for various community activities that support tourism activities. One of them is aquaculture activities that can support food availability, which can then be processed and offered to visitors, for example, tilapia nyat-nyat. The choice of tilapia farming activities is based on the needs of animal protein from fish which is quite popular with domestic tourists and can be a special attraction for foreign tourists to try traditional Balinese cuisine. All potents in Wanagiri Village need to be developed with mentoring involving several active groups to improve their knowledge, skills, and independence.



1.2. Situation Analysis

Wanagiri Village is a village located in Sukasada District, Buleleng Regency. Most of the people's livelihoods as farmers, ranchers, and coffee processors have the potential to be developed. The population is 3111, Male is 1620 and Female is 1491. The area of Wanagiri Village is 1575 Ha consisting of 1122 Ha of plantations, 11.50 Ha of moor, and 28.25 Ha of housing, the rest are offices.

The location and boundaries of Wanagiri village are north of Ambengan, Git-git, Sambangan, and Panji villages. East of Pegayaman Village, south of Pancasari Village, west of Gobleg Village, Banjar District. Distance from Village Government to District 20 Km, Regency 22Km, Province 57 Km. Hamlets 3 (three) include Banjar Dinas Yeh ketipat, Banjar Dinas Bhuanasari, and Banjar Dinas Asah Panji. Wanagiri Village is a village that is still young because it was only formed in 1973 it is a merger of three hamlets / banjars that were previously other villages, namely Banjar Dinas Asah Panji the Panji village area, Banjar Alas Ambengan, including the Ambengan Village area which is now called Banjar Dinas Bhuanasari according to the Regent Decree Number. 10 in 1989, and Banjar Yeh Ketupat included the area of Gitgit Village. Before Mount Agung erupted in 1963, the people's plantation of Wanagiri Village was a wilderness area. Wanagiri Village has a variety of natural potentials that need to be developed in the agriculture, animal husbandry, and fisheries sectors [4]. The location is a bit far from the crowd so community activities are only involved around the area. The distance between Partner and Warmadewa University can be seen in the picture in Figure 1.

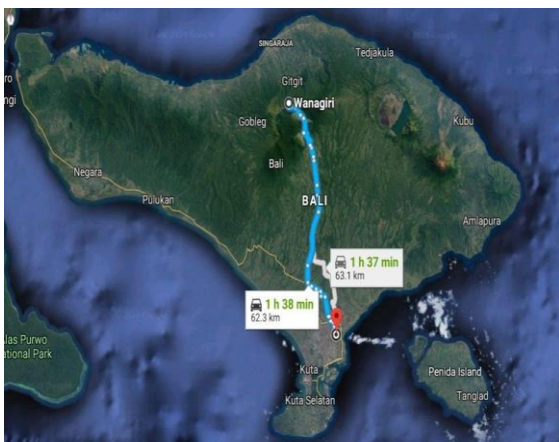


Figure 1. Mitra Location (Distance From Warmadewa to Mitra 63.1 Km). Source: Google Mapps, 2022

Village Community Empowerment following Law RO Number 6 of 2014 is an effort to improve the quality of life and life as much as possible for the welfare of the Village community (1). Furthermore, it is also said that the empowerment of rural communities is an effort to develop community independence and welfare by increasing knowledge, attitudes, skills, behavior, awareness abilities and utilizing resources through the establishment of policies, programs, activities, and assistance following the essence of priority problems of community needs (5).

Wanagiri Village also has potential water resources, namely three waterfalls that have the potential to be developed as tilapia farming locations.

As a university, especially Warmadewa University in collaboration with Universiti Teknologi Mara (UiTM) Malaysia, this condition is both an opportunity and a challenge to establish more intensive and sustainable cooperation in the long term. So far, most universities are more oriented from the aspect of developing science and technology theoretically, but the aspect of practical development is still limited so the contribution of science made through research activities has not been able to provide tangible benefits to the wider community. With community service activities funded by Warmadewa University, partners in Wanagiri Village, especially the Merta Lestari Fish Group, are expected to have skills, entrepreneurial spirit and insight in managing 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.

The problems of partners can be seen in Table 1. Expertise and Team Assignments with Students can be seen in Table 2.

Table 1. Partner Problems (Merta Lestari Group)

No	Problem	Partner (Merta Lestari Fish Group)
1		The potential of Wanagiri Village has not been optimized which has sufficient water resources to carry out aquaculture activities.
2	Fisheries Sector (Merta Lestari Fish Group)	The road to the pond is very steep and difficult to reach
3		The Fish business group began to be passive in activities due to a lack of motivation to re-mobilize the activities of the Fish Group.



Figure 2. Road to Fish Farm (Difficult to reach)

1.3. Objectives

The objectives of International Community Service (PKM) Activities in Wanagiri Village are to Provide Counseling and Training in Making Tarpaulin Ponds using the Biofloc system, Reactivate the Interest of Fish Groups for activities, Donate tools and materials that support activities, carry out Evaluation and coaching. In this PKM activity, the target is the Merta Lestari Fish Group (Mitra). This group of fish has long been formed but has become inactive with the obstacles faced. Partners are given Counseling and Training in Making Tarpaulin Ponds that can be applied in the yard or surrounding areas so that steep terrain does not become an obstacle for Fish Groups to carry out activities. Fish groups are able to utilize and manage abundant water resources. Merta Lestari Fish Group as a partner can be active again in tilapia farming so that it can be independent and increase income.

2. METHOD

2.1. Method of Approach

The method of implementing the service activities carried out is using:

1. Interview and discussion methods to be able to find out the problems experienced by partners.
2. Face-to-face methods and provide training, so that partners gain knowledge about aquaculture.
3. Direct practice, guided by instructors who are competent in their fields so that partners can apply the technology provided and can handle problems.
4. The implementation methods implemented include coaching, training, mentoring, and structured consultation on various things that are obstacles in an effort to provide added value for partners. The achievement of implementation objectives is determined by the implementation process.



Figure 3. Counseling Activities and Counseling Participants

2.2. Procedure

This PKM Activity Plan includes stages, namely preparation, implementation, and post-handling of the program.

2.2.1. Preparation

The preparatory phase includes the following activities:

1. Community situation analysis: determine partners, and determine problem areas to be analyzed by finding, seeing, and studying all problems faced by partners.
2. Problem identification: The results of the analysis work that includes the objectives and problem areas can be formulated as problems faced by the Partner.

3. Determine specific work goals. At this stage, changes can be determined to be produced through the service activities carried out.
4. Social approach. The principle is that the target community is the subject and not the object of this community service activity.

2.2.2. Implementation stage

The training was held for 1 day, at the Wanagiri Village Banjar Hall. The implementation of activities is carried out based on the schedule that has been prepared. At the end of the activity, an evaluation is carried out, namely an evaluation of the mastery of knowledge and skills.



Figure 4. Tarpaulin Pool-Making Training Activities

2.3. Partner Participation

Partner Participation in this PKM: Partners/trainees are expected to abide by all agreements that have been made; Partners are expected to be disciplined and earnestly carry out all series of activities until all activity plans end.; After PKM activities end, partners are expected to be able to continue activities well and the pioneered business can develop:

1. Partners are able to Manage / Utilize Water Resources in Wanagiri Village
2. Partners are able to make tarpaulin pools and implement the Biofloc system
3. Partners want to be active in freshwater fish farming
4. Partners are able to be independent and increase their income
5. Scientific publications in international journals, posters, videos, publications in the media

3. RESULT AND DISCUSSION

The outcomes achieved in the Community Partnership Program in Wnagiri Village, Sukasada District, Buleleng Regency are: (1) Partners are able to manage Water Potential; (2) Partners Able to activate freshwater fish farming activities; (3) Partners are able to create Tarpaulin Pools and implement the Biofloc system.

3.1. Economic Impact

The community partnership program implemented in the Merta Lestari Group of Wanagiri Village, Sukasada District, Buleleng Regency provides benefits to partner groups, especially partners who can manage existing water sources, have been able to make tarpaulin pools and apply Biofloc sides, Tarpaulin pools are made to be placed around the yard of the house so that it is easy to supervise. In the future, partner groups will be able to increase their income from the Fisheries sector by carrying out Tilapia farming. Partners will also be able to process their own tilapia farming results into Nila Nyat-nyat, which can be marketed locally.



Figure 5. Downstream Activities of PKM (Food Acarde)

3.2. Partner Contributions

The implementation of this PKM is strongly supported by the Ikan Merta Lestari group and also village officials such as Village Heads, Traditional Leaders, Environmental Heads, and Fisheries Extension Workers who want to combine this PKM program with the Wanagiri village program, to realize the vision and mission of Wanagiri village, Sukasada District, Buleleng Regency as a Tourism Village. Merta Lestari Group contributed in the form of counseling sites, and places to practice making tarpaulin ponds, and also prepared the consumption of counseling participants with funds that had been budgeted at this PKM.

3.3. Constraints

The obstacle faced in this PKM is that there are very few active Partner members so the trained participants must be able to transmit this Program to other members who are still not active, so it takes a long time to achieve the objectives of this PKM Program. It needs to be continued with assistance from Warmadewa for the achievement of this program, in addition to the distance between partners who are quite far from Warmadewa.

3.4. Supporting Factors

The supporting factor for the implementation of the Merta Lestari group PKM is the availability of abundant water sources is the main factor for the success of this program. The desire of the Partners is very strong to rise again in fish farming activities, and the discipline of the members present is also very supportive of this PKM Program.

3.5. Solutions and Follow-Up

Conduct regular assistance and monitoring, so that the wishes of partners who have begun to rise do not recede anymore. After tilapia farming into consumption fish has been realized, the number of tarpaulin ponds increases, so that the production of consumption fish is quite a lot, then counseling in the field of fish processing is carried out again so that partners have the option to make maximum use of the consumption fish produced. The choice is sold fresh or processed into a product. Only one type of preparation is introduced, namely Nila Nyat-nyat. There are many other types of preparations that can be carried out with the basic ingredients of tilapia. The strategy that we do next is to provide assistance either through social media or visiting partners to realize the stages of the Plan to be implemented so that the success of the plan at each stage of the activity can be seen. Increasing production, expanding markets, and increasing capital, are agendas that must be implemented.

4. CONCLUSION

From the community partnership program that we do, it can be concluded that: Merta Lestari Group is able to utilize existing water sources; Merta Lestari Group has been able to make a Tarpaulin Pool and apply the Biofloc side; Merta Lestari Group has aroused its interest in tilapia farming; Economically, the impact has not yet been seen because all new activities are carried out; New partner group members are some active people, it takes an effort from the Group Leader to arouse the interest from other group members. Merta Lestari Group must be able to move together with all members to revive Tilapia Farming Activities so that Wanagiri Village becomes a Center for Producing Tilapia Consumption, because of the enormous opportunity possessed by Wanagiri Village, namely abundant water sources.

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