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Growing Together, Empowering Together: Building Food Security from the Village

Putu Indah Budi Apsari[1] | Mirah Sastradiyadnya Suwitra[2]

1. Faculty of Medicine and Health Sciences, Warmadewa University
2. Undergraduated Student of Warmadewa University

Correspondence address to:
Putu Indah Budi Apsari, Faculty of Medicine and Health Sciences, Warmadewa University
email address: putuindah51@yahoo.com

Abstract. Food issues are quite complex and complicated in society. People spend 70% of their income to meet food needs. Through the KKN-PMM Warmadewa University in Sibang Gede Village, we raised this issue to be targeted in the village food security system strengthening program. Our purpose hoped that this food security program will produce healthy food sources for the community. The activities carried out include planting long bean seedlings and raising catfish. The results of this community service have produced long bean plants 10 cm tall and 48 catfish. The sustainability of this program will be monitored by the village team. The long beans will be raised by the local community and the catfish will be given to the underprivileged.

Keywords: community; food; security; Sibang Gede; village

INTRODUCTION

Sibanggede Village is located in Abiansemal Subdistrict, Badung Regency, Bali Province. Based on administrative data from the village government in July 2025, this village has 1,947 households with a total population of 7,308 people. Of this number, there are 3,622 men and 3,686 women. This data provides an overview of the demographic composition of Sibanggede Village and reflects the needs of the population in various aspects of life, including education and health. In terms of education, Sibanggede Village provides adequate facilities to support children's educational development. There are 2 kindergarten buildings, including 1 public kindergarten and 1 private kindergarten, as well as 4 elementary schools spread across various banjars in Sibanggede Village. With these educational facilities, the community of Sibanggede Village has good access to kindergarten and elementary education.

To meet health service needs, Sibanggede Village is equipped with various health facilities. The village has 1 auxiliary health center, 12 integrated health service posts, and 9 doctor's offices or practices, including 4 dentists, 2 specialists, and 3 general practitioners. These health facilities aim to ensure that the residents of Sibanggede Village receive adequate and easily accessible health services, thereby improving the quality of life of the community.

In the economic sector, most of the villagers fall into the category of unemployed or not working, totaling 1,449 people, students and college students totaling 1,436 people, and housewives totaling 755 people, the majority of whom are women. Among those who are employed, the private sector is the most dominant with 1,603 people. This is followed by the self-employed sector involving 725 people and farmers or plantation workers totaling 607 people. In the formal government sector, there are 252 people who are civil servants, 22 members of the Indonesian National Armed Forces (TNI), and 42 members of the Indonesian National Police (Polri). Additionally, there are educators and healthcare workers such as teachers, lecturers, doctors, nurses, and midwives, which indicate the presence of basic services in this village. Meanwhile, the service and skilled labor sectors, such as construction workers, carpenters, mechanics, artists, tailors, and transportation workers, also exist, though in smaller numbers. Traders and other small business owners also contribute to the village economy. Overall, the employment structure in Sibanggede Village reflects a combination of formal and informal sectors, agriculture, and diverse domestic roles, which generally indicates a fairly balanced socioeconomic dynamic in the village community.

This village also has a food security area managed by local residents. Crops cultivated on agricultural land include chili peppers, eggplants, and other plants. This area also has catfish ponds, which are managed as part of the fisheries sector. The harvest from these activities is planned to be donated to underprivileged communities as a tangible form of the village's food security program. Additionally, in Sibanggede Village, there is a 3R Waste Processing Facility (Reduce, Reuse, Recycle) that serves as a site for managing both organic and non-organic waste. Waste management is conducted on a scheduled basis, with organic waste processed on odd-numbered days and non-organic waste on even-numbered days. The entire processing process is carried out by local residents and operates smoothly and efficiently. The existence of these two programs serves as a concrete example of community active participation in supporting food security and environmental conservation in the village.

Sibanggede Village is currently planning to develop its potential as an eco-tourism village based on natural resources and local wisdom. One of the main attractions planned is a canoe trail,

with the starting point at Taman Beji Sibanggede, located at Jl. SBY No. 2, Sibang Kaja, Abiansemal District, Badung Regency, Bali, and ending at the Food Security Area of Sibanggede Village. Although the concept and planning have been established, this tourism village is still in the development phase and has not yet officially opened. This initiative is expected to serve as a strategic step in enhancing the village's tourism potential and supporting the empowerment of the local community in the future.

METHOD

This program is implemented with the aim of improving food security in rural communities by utilizing available land productively and providing food sources through the cultivation of long beans and catfish, the results of which can be enjoyed by the community at harvest time. This program is participatory in nature because it has previously been implemented by local residents of Sibanggede Village, particularly by officials responsible for food security (O'connell et al., 2021). By targeting Local residents of Sibanggede Village, particularly those directly involved in activities in the Food Security area, such as officers or managers.The general public who will benefit from the results of the food security program, either directly (e.g., through the distribution of agricultural products) or indirectly (e.g., through education on sustainable agriculture) (Elisaria et al., 2021). Involvement of food Security Officers of Sibanggede Village the primary implementers of the program, they are responsible for managing and maintaining the land and the existing food security system in the village (Fergus et al., 2021). Meanwhile, KKN students act as mentors and supporting implementers, assisting in field activities, documentation, and providing input for future program development. As a tangible contribution, the students also donated long bean seeds and catfish seeds, which are expected to support the sustainability and productivity of the village's food security program.

Observation Stage

At this stage, we conduct surveys and direct observations of the agricultural land and catfish ponds that will be used.

Preparation Stage

Cleaning and preparing the planting area (plowing, leveling, and preparing beds). Providing long bean seeds and planting media such as fertilizer. As well as installing plastic mulch on the beds. Cleaning the ponds and filling them with water, as well as providing catfish seeds and initial feed.

Implementation Stage

The first implementation was on July 23, 2025, where we carried out soil loosening and bed installation on the land as preparation for the planting medium for bean seeds and the release of catfish seeds. The second implementation was on July 24, 2025, where we applied fertilizer at the Food Security site. The third implementation was on July 26, 2025, where we planted long bean seedlings. This program was implemented over a total of 8 x 60 minutes. This program was implemented on Wednesday, July 23, 2025, Thursday, July 24, 2025, and Saturday, July 26, 2025 located in food Security Program in Sibanggede Village

Output Indicators

It is hoped that KKN students can enhance collaboration between food security officers and students, strengthening the spirit of mutual cooperation in the community. Additionally,

students contribute tangibly by donating long bean seeds and catfish seeds, which are expected to increase productivity and support the sustainability of the program. All activities have been well-documented as evaluation materials and for follow-up reports.

RESULT AND DISCUSSION

We observed the growth of long beans and catfish fry for approximately two weeks. The parameters observed were plant height, number of plants grown, and the suitability of fertilizer for plant growth. We also evaluated the catfish fry we released, including the number of survivors, the length of the catfish, and the average weight of the catfish we raised, as well as assessing water accessibility for the catfish pond we created. The results of this evaluation are presented in Table 1.

Parameters	**Long Bean**		**Catfish**	
	Before	After 2 Weeks	Before	After 2 Weeks
Number alive	30	30	50	48
Length (cm)	0	10	15	25
Fertilizer suitability	yes	yes	-	-
Water accessibility	yes	yes	yes	yes

The data show the growth and survival of long bean plants and catfish over a two-week period under specific cultivation conditions. For long beans, the survival rate was 100% (30/30) both before and after the observation period, with a significant growth in length from 0 cm to 10 cm. This suggests that the initial planting was successful, the environmental conditions (fertilizer suitability and water accessibility) were optimal, and no mortality occurred (Astriany et al., 2024). For catfish, the survival rate decreased slightly from 100% (50/50) to 96% (48/50), indicating a minor mortality rate, which could be attributed to handling stress, competition, or environmental variation. The catfish exhibited a notable growth in length from 15 cm to 25 cm, reflecting a 66.7% increase in body length, suggesting adequate feeding and suitable water conditions (noting that water accessibility was consistently “yes”). Fertilizer suitability was only relevant to the long bean crop, marked as “yes” throughout, while catfish culture relied solely on water accessibility (Tiga et al., 2022). Overall, the data indicate that the integrated system supported both plant and fish growth effectively, with minimal mortality and substantial length gains over the two-week period. This points toward the viability of an aquaponic or integrated farming setup where nutrient cycles benefit both plant and fish production.

Figure 1. Planting long bean, and cultivating catfish in artificial pond

CONCLUSION

The conclusion from the results of this community service is that the long beans we planted and the fish we released grew as expected. Through this food security program, it is hoped that the community can enjoy the results and benefit from them for their daily needs to support the community's nutrition.

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