

**CULTIVATION OF FAMILY MEDICINAL PLANTS AND
ORGANIC RICE IN PAYU PUTAT VILLAGE,
WEST PRABUMULIH SUBDISTRICT,
PRABUMULIH CITY**

Fira Noviyanti^{1*}, Sarion Masona²

^{1,2} CDO Pertamina Adera Field

E-mail: ¹⁾ firanoviyantisari@gmail.com

Abstract

Payu Putat Village, known for its fertile soil and ample land, has excelled in vegetable production, including rice, vegetables, and medicinal plants. Despite these advantages, insufficient agricultural knowledge and management have given rise to environmental challenges, such as floods, surplus harvests leading to waste, and depressed vegetable prices due to oversupply, consequently diminishing farmer incomes. To combat these issues, PT. Pertamina EP Adera Field launched the Sustainable and Environmentally Friendly Agriculture program (PSRLB) in Desa Payu Putat, focusing on the Family Medicinal Plant and Organic Rice Cultivation (Bu Togar Panik) sub-unit. Bu Togar Panik's mission is to educate and support farmers in transitioning from conventional to organic farming methods, emphasizing the effective use of household waste as organic fertilizer. The program aspires to transform Desa Payu Putat into an organic agriculture hub, offering a diverse range of commodities and setting an example for other villages to harness natural and human resources for organic farming. Crops include organic rice and eight vegetable types: water spinach, long beans, basil, cherry tomatoes, purple eggplant, bird's eye chili, bok choy, and cucumbers. Additionally, nine Family Medicinal Plants (TOGA) varieties, such as red ginger, pineapples, galangal, sambang, and moringa leaves, are cultivated. Launched in 2022, the program in 2023 includes activities such as organic rice cultivation training, MOL and organic pesticide preparation training, herbal basic and advanced training, facility and infrastructure procurement, group management training, and land development. Bu Togar Panik has demonstrated positive outcomes, such as organic compost and MOL production, diverse organic crops, and the formation of local farmer groups.

Keywords: Family Medicinal Plants, Organic Farming, Rural Community Development, MOL, Sustainable Agriculture

1. INTRODUCTION

Payu Putat Village, West Prabumulih Subdistrict, is part of the working area of Adera Field. The majority of its population earns a living as farmers. Out of a total of 1,371 people, nearly 1,000 people or 73% are farmers, mainly cultivating vegetables with mixed commodities and experienced human resources.

The village is quite popular for its vegetable production in Prabumulih. Its vast land and fertile soil make it suitable for cultivating various crops, including rice, vegetables, and medicinal plants. The transportation access for agricultural mobilization is also well-established. However, this great potential has not been accompanied by proper knowledge and management of agricultural yields, leading to environmental issues such as flooding, surplus harvests resulting in vegetable wastage, and low vegetable prices due to oversupply. Consequently, the income of farmers in this village remains low.

In terms of the environment, Payu Putat Village requires improvement. Lack of community skills in waste management leads to household waste piling up and causing floods. Moreover, the lack of awareness of Healthy and Clean Living Behavior (PHBS) contributes to the spread of communicable diseases such as leprosy, tuberculosis, and dengue fever in the area.

In response to these conditions, PT.Pertamina EP Adera Field is committed to empowering the community in Payu Putat Village through the Sustainable and Environmentally Friendly Agriculture (PSRLB) program. One of the sub-unit programs is the Cultivation of Family Medicinal Plants and Organic Rice (Bu Togar Panik), which is implemented in the village.

Bu Togar Panik is a program that provides education and assistance to enhance the skills of farmers who previously practiced conventional farming, encouraging them to switch to organic farming. This organic farming system prioritizes the effectiveness and efficiency of using household waste, such as stale rice and rice washing water, as local microorganisms (MOL) and organic fertilizers.

Another goal is to establish Payu Putat Village as a center for organic farming with a diverse range of commodities. Thus, it can serve as a model for other villages in utilizing the potential of natural resources and human resources in organic agriculture. The cultivated crops in this village include organic rice and eight types of organic vegetables, such as Water Spinach, Long Beans, Basil, Cherry Tomatoes, Purple Eggplant, Cayenne Pepper, Caisin, Pakcoy, and Cucumber. Additionally, there are nine types of Family Medicinal Plants (TOGA), namely Red Ginger, Pineapple Clam, Galangal, Sidaguri, Meniran, Pulutan Leaves, and Moringa Leaves.

The activities of this program include the transition from using inorganic fertilizers to compost/manure fertilizers through the integration of household waste utilization. Training is provided on making organic fertilizers and changing the community's mindset to adopt organic fertilizers for a healthy and environmentally friendly farming system. Other activities include field assistance to improve the quality of organic vegetables, organic rice, and herbal plants, as well as support for vegetable processing facilities through the Created Shared Value, where produce is purchased from supported farmers to recover their capital. Additionally, there is guidance for marketing and capacity development in group financial administration.

2. LITERATURE REVIEW

Based on the Department of Health of the Republic of Indonesia's definition (Anonymous, 1990), Family Medicinal Plants (Tanaman Obat Keluarga or TOGA) refer to a plot of land, whether in the yard or garden, utilized as a growing medium for plants with medicinal properties to meet the medical needs of a family. Nevertheless, cultivating TOGA is not limited to just house yard areas; it can also be done in pots or polybags.

Indonesia is one of the world's megabiodiversity countries, resulting in abundant and diverse natural resources for medicinal raw materials (Von Rintelen et al., 2017). Medicinal plants provide an alternative solution in modern medical treatments, especially with the increasing concern of antibiotic resistance (Gupta & Birdi, 2017).

TOGA has transformed from being solely used as medicinal plants grown in households to fulfill primary medicinal needs to becoming potential sources of simple business ventures that provide additional income for families (Nurdiwati et al., 2017).

This has fueled public interest in developing and utilizing TOGA, especially among housewives (Kusumawaty & Khaswarina, 2018).

The national market demand for TOGA materials used in herbal medicines has seen an increase, leading to a significant rise in the utilization of TOGA in Indonesia (Andrian & Faradila, 2017). Some Indonesian TOGA commodities have even entered the global market. Two main export commodities are ginger and turmeric (Saputri et al., 2019).

The growing attention to TOGA highlights its significant role in Indonesia's herbal plant sector. With abundant biodiversity and natural resources, Indonesia holds vast potential for developing herbal medicines. The change in perception of TOGA from merely being domestic medicinal plants to potential sources of income indicates its economic value. Additionally, the increasing demand for herbal products, both domestically and internationally, shows a bright future for the utilization of TOGA in Indonesia's herbal medicine industry.

This literature review emphasizes the importance of TOGA in meeting medicinal needs, contributing to family livelihoods, and driving the growth of the herbal medicine market in Indonesia. The high interest from various stakeholders, including the general public and policymakers, supports the continuous need for research and development in utilizing TOGA in the health and economic sectors of the country.

The agricultural sector in Indonesia holds a strategic position in the nation's economy, particularly in providing domestic food needs and creating job opportunities. However, the development of the agricultural sector, especially rice farming, still faces challenges, with declining productivity factors (Karyaningsih et al., 2008). To address these challenges, the promotion of organic rice farming is identified as a key strategy to improve the agricultural sector's productivity (Fagi & Las., 2006).

Since 2001, Indonesia has been promoting organic farming with the slogan "Towards Organic 2010," aiming to become a major player in the global organic agricultural market (Hidayat & Lesmana, 2011). The increasing demand for organic agricultural products worldwide presents opportunities to increase income and welfare for farmers in rural areas of Indonesia while preserving natural resources and environmental sustainability (Kanaya & Firdaus, 2014). The Ministry of Agriculture has integrated organic farming development into agricultural revitalization programs, focusing on quality improvement, value addition, production system efficiency, and environmental sustainability.

The concept and application of modern organic farming are relatively new in Indonesia (Las et al., 2006), resulting in various misunderstandings about it. Organic farming is essentially a cultivation system that utilizes organic or natural inputs while minimizing or avoiding the use of agrochemicals and chemical pesticides. There are two perspectives on organic farming in Indonesia: the first emphasizes food safety, health, environment, and farmer welfare, while the second highlights the degradation of rice field physical land and food safety issues (Kementerian Pertanian, 2019a, 2019b). Both perspectives acknowledge the importance of preserving natural resources while ensuring food safety.

The rapid population growth in Indonesia and the negative impacts of the green revolution, characterized by excessive use of chemical fertilizers and pesticides, have led to environmental degradation and a decline in natural soil nutrients. In response, organic farming and the use of organic fertilizers have emerged as potential solutions to reduce environmental damage and promote sustainable farming practices.

However, the promotion of organic farming faces several challenges, including a lack of skilled human resources in the agricultural sector, the absence of specific regulations for organic farming, limited access to financial services, and the influence of middlemen in the agricultural market. Although organic products command higher prices in the global market, early adoption of organic farming practices can lead to decreased agricultural yields. Therefore, transitional policies and support are needed to help farmers shift their land to organic farming. Cash assistance programs and assistance in returning to traditional or local seed varieties can help mitigate income losses during the transition.

To maintain high productivity in organic farming, this study recommends adopting the System of Rice Intensification (SRI). By adopting SRI and addressing these challenges, Indonesia can tap into the potential of organic farming, contribute to poverty alleviation, promote sustainable agriculture, and enhance farmer welfare.

3. RESEARCH METHODS

Bu Togar Panik, which started in 2022 and is planned to be completed in 2026, is implemented through a systematic and bottom-up approach of community empowerment programs. The process involves planning, implementation, monitoring, evaluation, and the final reporting stage. All stakeholders, including the community, other companies, and relevant stakeholders, are actively engaged in the entire process.

During the planning phase, social mapping and a need assessment are conducted in the West Prabumulih District. This is followed by Focus Group Discussions (FGDs) with stakeholders to gather information and recommendations on the program's form to address the community's needs. Subsequently, field visits and inspections are carried out to validate the information and plan the program's execution effectively and efficiently. The program is then introduced to the beneficiaries and stakeholders, which include local government, private sector, Non-Governmental Organizations (NGOs), and community leaders. The aim of this step is to garner support and involvement from all parties in the program.

By adopting a comprehensive planning process and involving all stakeholders, Bu Togar Panik ensures that it addresses the actual needs of the community and gains support from various entities. This collaborative approach is vital to the success of community empowerment initiatives, fostering sustainable development, and creating a positive impact on the livelihoods and well-being of the people in Desa Payu Putat.

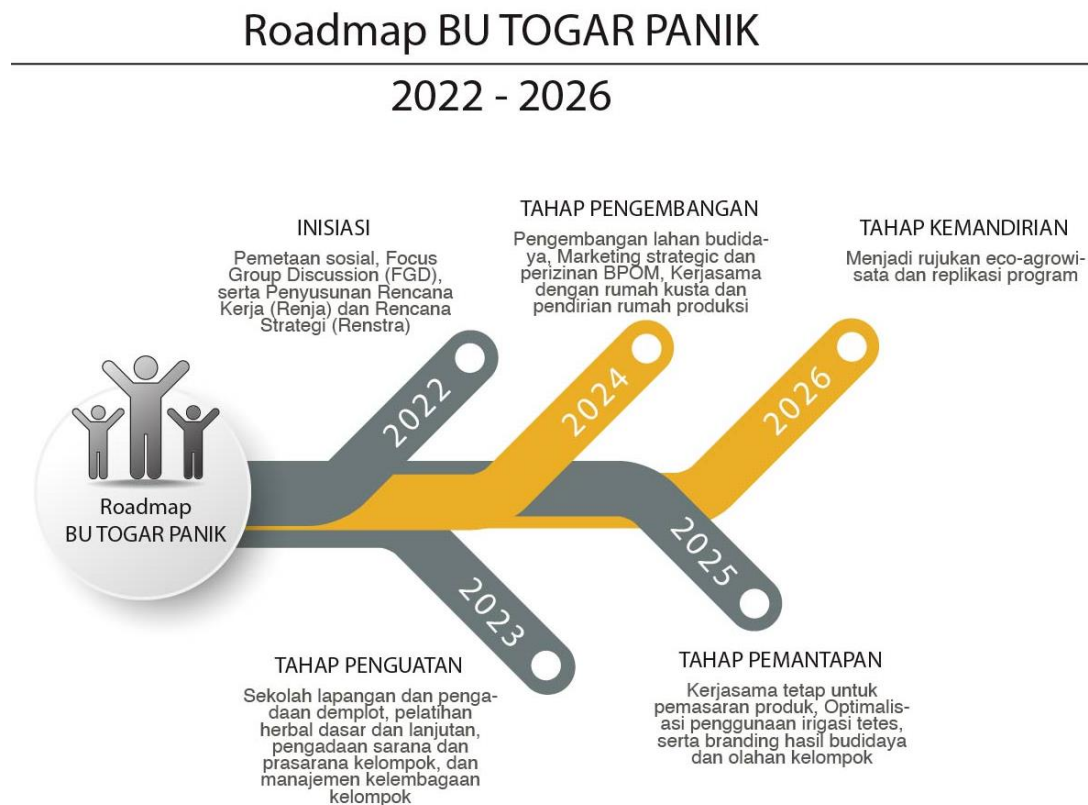


Figure 1. Roadmap BU TOGAR PANIK

Over the course of five years, Bu Togar Panik has undergone a series of activities, from planning and implementation to evaluation. In 2022, the initiative began with introducing the environmental and social conditions in Desa Payu Putat, followed by the development of Work Plans (Renja) and Strategic Plans (Renstra). In 2023, the program provided training and demonstrations on organic vegetable cultivation, organic rice farming, soil ecology, basic herbal knowledge, and advanced herbal practices. Additionally, the program facilitated the procurement of group facilities and institutional management.

In 2024, activities included the development of cultivation areas, strategic marketing, collaboration with the "Rumah Kusta" (House of Leprosy) institution, and the establishment of a production facility. In 2025, collaborative efforts focused on marketing the group's products and branding their cultivated and processed goods. Finally, in 2026, Desa Payu Putat became an eco-agri-tourism reference, and the program was replicated in other areas.

The program's innovation lies in several elements:

1. **Drip Irrigation:** This method conserves water and fertilizer by slowly releasing them to the plants through customized holes, utilizing gravity pressure.
2. **Eco-Agroforestry:** This approach optimizes land use by combining food crops and perennial woody plants. The community cultivates various plants, including TOGA, vegetables, rice, oil palm, and rubber, all on the same land.
3. **2-in-1 Organic Pesticide and Fertilizer Production:** The program utilizes household waste to create liquid organic fertilizers and pesticides, which provide essential nutrients, enhance plant resilience, and stimulate vegetative growth.

4. "Rumah Kusta" (House of Leprosy): This facility provides examinations and herbal treatments for leprosy patients.

Through these innovative methods, Bu Togar Panik not only empowers the community by promoting sustainable agricultural practices but also addresses environmental challenges and contributes to the well-being of the people in Desa Payu Putat.

4. RESULTS AND DISCUSSION

4.1. Result

The group of farmers involved in the PSRLB Lubuk Niur, located in the Payu Putat Village, consists of 16 individuals, with a composition of 11 females and 5 males. After learning about the PSRLB ecosystem, the participating farmers attempted to cultivate and grow Family Medicinal Plants and Organic Vegetables. They used a demonstration plot with an area of 0.25 hectares on the land owned by one of the members of the Lubuk Niur group.

In addition to cultivating Family Medicinal Plants and Organic Vegetables, the group of participating farmers also engaged in the practice of producing organic materials as their main production tools, such as Compost and Indigenous Microorganisms (IMOs). The amount of Compost produced reached 1 ton, while the quantity of IMOs produced amounted to 120 liters. There were 6 types of IMOs produced, including IMOs from snails, gamal leaves, bottle gourd, bamboo shoots, banana peels, and papaya.

As for the results of the Bu Togar Panik commodities sales carried out by the Lubuk Niur group, they are as follows:

Table 1. Commodities Sales of Bu Togar Panik in Januari 2023

No	Commodities	Unite Price (Rp)	Total
1	Long Beans (30kg)	3,000	90,000
2	Basil (104 ikat)	500	52,000
3	Water Spinach (530 ikat)	1,000	530,000
4	Tomato Cung (5 kg)	7,000	35,000
5	Purple Eggplant (10 kg)	8,000	80,000
6	Mustard (5kg)	5,000	25,000
Total			812,000

Source: Monitoring Evaluasi Januari 2023

Training in basic herbal knowledge is also one of the activities of Bu Togar Panik. Here, the participants, consisting of 12 females and 5 males, undergo training on the application of self-care, where they will gain independence in taking care of themselves and their families for manageable health complaints. Moreover, this herbal training serves as reinforcement for herbal cultivation, enabling participants to develop organic and environmentally friendly herbal cultivation in their respective areas, and utilize it for personal and community healthcare.

From this training, several outcomes have been achieved. The community now understands the scope of the Sustainable Healthy and Environmentally Friendly

Agriculture Program, organic herbal cultivation, the morphology of medicinal plants, the types of medicinal plants, and their benefits. Participants have also acquired knowledge about traditional medicine classification, various herbal preparations, the process of making simplisia, appropriate dosages for herbal concoctions, and correct mixing techniques. Finally, participants have gained understanding in utilizing Family Medicinal Plants (TOGA) for self-care, addressing common minor health issues experienced by the community, and have become capable of producing various basic herbal products, which can be expanded to enhance their economic well-being through herbal medicine entrepreneurship or herbal raw material businesses.

4.2. Discussion

Based on the 2023 Work Plan, there are 9 activities to be carried out, namely training on organic rice cultivation, training on the production of Local Microorganisms (MOL) and organic pesticides, basic herbal training, advanced herbal training, procurement of facilities and infrastructure, group management training, cultivation land development, monitoring, and evaluation.

Here is an explanation of the activities conducted:

1. Training on organic rice cultivation:

Before the PSRL program was introduced, the community practiced conventional farming and did not apply fertilizers to their crops. The group currently manages an area of 1 hectare. Through training on soil ecology, the community gains additional knowledge about soil ecology with a focus on efficiency and productivity in every process.

At the beginning of the mentoring period, the farmers learned how to manage the soil and then practiced organic rice planting in the field, resulting in a two-fold increase in yield. Previously, without mentoring, the farmers would only get 1 ton of rice, but after receiving mentoring and trying the "mentik susu" variety, they obtained yields of 3-4 tons. Currently, the farmers are focused on increasing seedlings to be applied by group members.

2. Training on the production of MOL and organic pesticides:

The use of MOL and organic pesticides is perceived by farmers to help optimize cultivation results, as bird and grasshopper pests have decreased. MOL also aids in accelerating composting because it is a liquid made from natural materials, serving as a medium for the growth of useful microorganisms that accelerate the decomposition of organic matter. From an environmental perspective, the production of MOL and pesticides helps preserve the environment by utilizing household waste and agricultural residue. The quantity of compost produced has reached 1 ton, while the produced MOL amounts to 120 liters. There are 6 types of MOL produced, including MOL from snails, gamal leaves, bottle gourd, bamboo shoots, banana stems, and papaya.

3. Herbal training:

Family Medicinal Plants (TOGA) are plants cultivated in home gardens, pots/polybags, or fields used as medicine to meet the family's medicinal needs. They consist of selected medicinal plant species grown in the vicinity of homes, typically plants used for first aid purposes. Family medicinal plants also serve as a means of utilizing the environment around the house and garden.

For the cultivation of family medicinal plants, the group has already developed over 20 species propagated through polybag media. The resulting herbal plants have been marketed on a small scale and processed into simplisia and various food products, such as bawang dayak pempek (a type of fishcake), rosella syrup, VCO (virgin coconut oil), moringa leaf pudding, and bawang dayak juice.

4. Group management training:

The limited availability of supporting infrastructure for the activities of the Lubok Nior group poses a challenge in the cultivation process.

5. CONCLUSION

The development of the Bu Togar Panik program in the Payu Putat Village, which has been running for nearly 5 months, shows promising progress. This can be observed through the establishment of production facilities such as organic compost and Local Microorganisms (MOL), the introduction of a variety of commodities consisting of 9 types of Medicinal Plants and 8 types of Organic Vegetables, and the involvement of 16 farmers in the program.

The benefits of Bu Togar Panik are evident, including the initiation of knowledge and skills related to Sustainable and Environmentally Friendly Agriculture (PSRLB), the growing trust in and benefits of PSRLB experienced by participating farmers, and the establishment of a community for farmers engaged in PSRLB. Additionally, the PSRLB program has influenced local institutions in the Payu Putat Village, namely the Neighbourhood Association (RW), the Community Health Center (Puskesmas) Assistant in Payu Putat Village, and the Local Agricultural Extension Center (BPP-PPL) in the West Prabumulih District.

Several recommendations are suggested:

1. Efforts should be made to expand the cultivation area for both paddy and medicinal plants to maximize the potential of available natural resources and promote environmentally friendly agriculture to the wider community.
2. Laboratory testing of the developed Local Microorganisms (MOL) should be conducted to measure the effectiveness of the materials used.
3. Innovative initiatives for sustainable and environmentally friendly agriculture, such as new tools or farming systems, should be introduced by the group to optimize cultivation outcomes.
4. A marketing strategy for selling healthy rice produced by the group should be implemented, focusing on both online and offline marketplaces.
5. All food products and herbal simplisia should replace artificial sweeteners and refined sugar with natural sweeteners like stevia.
6. Attention should be paid to the composition of ingredients in herbal product formulations to maximize their benefits when consumed by consumers. Additionally, each product should undergo laboratory testing before being distributed in the market.

REFERENCES

Andrian, N., & Faradila, F. (2017). *Peluang dan tantangan perdagangan tanaman obat di Indonesia. Dalam: Info komoditi tanaman obat, Editor: Salim, Z., Munadi, E. Badan Pengkajian dan Pengembangan Perdagangan Kementri- an Perdagangan RI.*

Jakarta.

- Fagi, A. ., & Las., I. (2006). *Membekali petani dengan teknologi maju berbasis kearifan local pada era Revolusi Hijau Lestari. Prosiding Seminar YAPADI: Membalik Arus Menuai Revitalisasi Pedesaan. 24 Mei 2006. Yayasan Padi Indonesia, Jakarta (To equip farmers with advanced technology b.*
- Gupta, P. D., & Birdi, T. J. (2017). Development of botanicals to combat antibiotic resistance. *Journal of Ayurveda and integrative medicine*, 8(4), 266–275.
- Hidayat, A. S., & Lesmana, T. (2011). The development of organic rice farming in Indonesia. *RIEBS*, 2(1), 1–14.
- Kanaya, I. A., & Firdaus, M. (2014). Daya saing dan permintaan ekspor produk biofarmaka Indonesia di negara tujuan utama periode 2003-2012. *Jurnal Manajemen & Agribisnis*, 11(3), 183–198.
- Karyaningsih, S., Pawarti, M. D., & Nugraheni, D. (2008). *Inovasi Teknologi Budidaya Padi Organik Menuju Pembangunan Pertanian Yang Berkelanjutan.*
- Kementerian Pertanian. (2019a). *Cara Membuat Mikro Organisme Lokal (MOL)*. <http://cybex.pertanian.go.id/mobile/artikel/83580/Cara-Membuat-Mikro-Organisme-Lokal-MOL/>
- Kementerian Pertanian. (2019b). *Teknologi Budidaya Padi Organik*. cybex.pertanian.go.id/ , <http://cybex.pertanian.go.id/artikel/97380/teknologi-budidaya-padi-organik/>
- Kusumawaty, Y., & Khaswarina, S. (2018). Peningkatan motivasi ibu rumah tangga untuk memanfaatkan tanaman obat keluarga (TOGA). *Buletin Udayana Mengabdikan*, 17(1), 7–13.
- Las, I., Subagyo, K., & Setiyanto, A. P. (2006). Isu dan pengelolaan lingkungan dalam revitalisasi pertanian. *Jurnal Litbang Pertanian*, 25(3), 106–114.
- Nurdiwaty, D., Puspita, E., Kusumaningtyas, D., Winarko, S. P., Tohari, A., Solikah, M., & Faisol, F. (2017). Pemberdayaan Wanita Melalui Tanaman Toga Untuk Membantu Meningkatkan Pendapatan Keluarga. *Jurnal ABDINUS: Jurnal Pengabdian Nusantara*, 1(1), 20–27.
- Saputri, G. Z., Dania, H., & Putranti, W. (2019). Optimalisasi Pemanfaatan Jahe (Zingiber Officinale) Dan Rosella (Hibiscus Sabdarifa) Sebagai Minuman Kesehatan Di Madrasah Muallimin Muhammadiyah Yogyakarta. *Jurnal Pemberdayaan: Publikasi Hasil Pengabdian Kepada Masyarakat*, 2(2), 241.
- Von Rintelen, K., Arida, E., & Häuser, C. (2017). A review of biodiversity-related issues and challenges in megadiverse Indonesia and other Southeast Asian countries. *Research Ideas and Outcomes*, 3, e20860.