

Practice of the Social Forestry Development Program as a Forest Conservation Strategy in Yehembang Kangin Village

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Abstract. The rate of development and economic growth of a region is inextricably linked to various activities that pose risks to environmental degradation, including forest destruction. This is concretely evidenced by the increasing cases of forest encroachment in the Jembrana Regency. Such encroachment is triggered by activities like “ngawen” and illegal logging, leading to environmental damage and loss of biodiversity. In this context, PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai plays a role in supporting the development of social forestry programs in Yehembang Kangin Village, Mendoyo District, Jembrana Regency, Bali Province, to raise community awareness on the importance of forest conservation and empower the community members of the Banu Giri Lestari Forest Farmer Group sustainably. This research employed a descriptive qualitative approach supported by purposive sampling data collection techniques. The results of this study indicate that the social forestry development program in Yehembang Kangin Village has brought positive changes in the group’s behavior towards forest conservation. This program has produced local heroes and their successors, who are expected to become agents of change in the wise and responsible management of forests. Additionally, the group has initiated independent cultivation of timber and fruit trees by practicing the “tanem tuwuh” (plant to grow) pattern to support ecosystem sustainability and increase the diversity of flora and fauna within the forest.

Keywords: *Biodiversity, CSR, Protected Forest, Social Forestry, Yehembang Kangin Village.*

A. INTRODUCTION

Indonesia is an archipelagic country rich in natural resources, including forests, seas, mines, water, land, air, and robust tourism. However, regional development has made these natural resources vulnerable to exploitation and exploration. Consequently, environmental damage has become unavoidable. Resulting in global warming, which then triggers climate change (Kusmana, 2015). The rate of deforestation continues to rise, with Indonesia being recorded as one of the countries with the most significant forest destruction on an international scale. Between 2001 and 2023, Indonesia experienced extensive deforestation, covering 30.8 million hectares (research.wri.org, 2024). Causing the reduction of biodiversity as a consequence of the destruction of natural forests (Mangunjaya, 2006). The Indonesian Institute of Sciences (LIPI) also mentioned that Indonesia ranks as the sixth country with the highest biodiversity extinction (National Geographic Indonesia, 2019).

The impact of deforestation is also evident in Jembrana Regency, one of the regencies in Bali Province. Jembrana Regency is recorded as having the second-largest forest area after Buleleng Regency, with an area of 41,351.27 hectares, or 31.61% of the total forest area in Bali (jembranakab.go.id, 2015). However, this forest damage occurs due to illegal logging activities and the conversion of forests into plantation areas. All sub-districts in Jembrana Regency are not exempt from the increasingly rampant forest destruction. The most extensive forest destruction occurred in Pekutatan District, covering 6,129.29 hectares, followed by Mendoyo District with 1,926.73 hectares, Melaya District with 642.25 hectares, and Negara District with

302.00 hectares (Sundra, 2017). The reduction in forest area and the increase in environmental destruction activities in Jembrana Regency have also led to a decline in biodiversity (flora and fauna). Forest destruction in Jembrana Regency is caused by encroachment and the conversion of forests into plantation areas.

Therefore, cooperation between parties is needed to maintain forest sustainability by supporting sustainable regional development efforts. The forest area in Jembrana Regency is technically under the management and regulation of the area and forest products under the supervision of the UPTD West Bali Forest Management Unit (KPH Bali Barat) (Novasari, 2023). The forest areas in Jembrana Regency are technically managed and monitored by the Forest Management Unit of West Bali (KPH Bali Barat). KPH of West Bali is obligated to manage and regulate forest areas and their natural resources, adhering to the provisions of Law Number 41 of 1999 concerning Forestry and Bali Governor Regulation Number 11 of 2016 concerning the Establishment of the Organizational Structure and Main Tasks of the Technical Implementation Unit within the Bali Provincial Forestry Service. Collaboration has been established between PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai and the Technical Implementation Unit of the Forest Management Unit of West Bali (KPH Bali Barat) since 2023. The mission is to restore the ecological functions of forests and reduce deforestation activities, particularly in Mendoyo District, Jembrana Regency, Bali Province.

Thus, PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai, through the implementation of its CSR and biodiversity programs, began mentoring the Banu Giri Lestari Forest Farmer Group, which consists of 58 members who manage gardens with Non-Timber Forest Products (NTFPs) commodities. The company's assistance focuses on efforts to conserve forest areas, transform sustainable forest management practices, strengthen group capacities, and organize the group's plantation areas as locations for developing social forestry agrotourism. The Banu Giri Lestari Forest Farmer Group is a community organization that has received official recognition for forest management through social forestry practices from the Ministry of Environment and Forestry (KLHK) since 2018. The Banu Giri Lestari Forest Farmer Group is entrusted with the responsibility of managing a protected forest area of 76.25 hectares in Yehembang Kangin Village, Mendoyo District, Jembrana Regency, Bali Province. Therefore, based on the above realities, this research aimed to identify the strategies for implementing social forestry program development as an effort to conserve forest areas that have been carried out by PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai in Yehembang Kangin Village.

B. METHOD

This study aimed to uncover the best practices in implementing community empowerment and biodiversity programs in the social forestry area of Yehembang Kangin Village. The company, in its best practices, collaborates with several relevant stakeholders such as the Forest Management Unit of West Bali (UPTD KPH Bali Barat) and the Yehembang Kangin Village Government. The community-based empowerment practices carried out by PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai aim to create social, economic, and environmental independence for the program beneficiaries, namely the Banu Giri Lestari Forest Farmer Group. The concept of empowerment has emerged since humans recognized the era of change and development. Therefore, the role of empowering specific community groups is a primary responsibility that is established as a process of positive change. Thus, it can be interpreted that community empowerment is an economic development concept that encompasses social values (Habib, 2021).

Two premises underlie the emergence of the "empowerment" concept, namely failure and hope (Friedmann, 1992 in Bahri, 2013). Empowerment is understood as both a process and a goal (Suharto, 2004 in Bahri, 2013). As a process, empowerment involves a series of activities carried out to strengthen the power or capabilities of disadvantaged groups in society (Suharto,

2004 in Bahri, 2013). As a goal, empowerment refers to the state or outcome that a social change aims to achieve (Suharto, 2004 in Bahri, 2013). Therefore, three important stages are needed in the implementation process of empowerment: awareness-raising, capacity-building, and empowerment (Wrihatnolo, et al., 2008 in Bahri, 2013).

PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai, in implementing the development of the social forestry program in Yehembang Kangin Village, integrates the concept of community empowerment with biodiversity conservation activities. Integrating community empowerment implementation with environmental issues and natural resource conservation is a form of CSR practice (Nurjannah et al., 2017 in Lestari et al., 2022). Biodiversity is promoted as one of the important factors in supporting sustainable regional development in Yehembang Kangin Village. According to the World Wildlife Fund, biodiversity includes millions of plants, animals, and microorganisms, along with the complex ecosystems they form, creating a living environment (Anggraini, 2018). Biodiversity includes all forms of life on earth, from simple organisms like fungi and bacteria to beings capable of thinking like humans (Sari et al., 2022).

This research was conducted in the social forestry area of Yehembang Kangin Village, Mendoyo District, Jembrana Regency, Bali Province, which is one of the CSR program locations of PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai. This study employed a descriptive qualitative approach using naturalistic inquiry, which requires humans as research instruments (Abdussamad et al., 2021). The descriptive qualitative approach explains the existing research without manipulating the variables being studied, by conducting direct interviews (Bahri, 2017 in Hanyfah et al., 2022). Simultaneously, examining natural social actions emphasizes how people interpret and understand their experiences to comprehend social reality, enabling individuals to solve their own problems (Mohajan, Haradhan, 2018 in Yuliani, 2018). The key informants in this research are members of the Banu Giri Lestari Forest Farmer Group, staff of the Forest Management Unit of West Bali, and the Head of Yehembang Kangin Village, selected using purposive sampling techniques. Data collection techniques include a series of participatory observations, in-depth interviews, and documentation (Marshal & Rossman, 1999 in Fadli, 2021). The primary and secondary data are then analyzed through the processes of reduction, presentation, and verification of data.

C. RESULT AND DISCUSSION

Forest encroachment in Jembrana Regency has been occurring since the reform era in 1998 when the community faced economic and political crises (Ruriyani, 2019). The community began engaging in “ngawen” activities or forest encroachment to convert forests into plantations with short-term crops. This was exacerbated by illegal logging activities, as seen in the forest areas of Yehembang Kangin Village. Some residents of Yehembang Kangin Village have engaged in these pathological activities, such as felling bayur trees to sell and use as furniture and building materials.

The bayur tree, with the Latin name *Pterospermum javanicum*, is renowned for its sturdy and strong wood, similar to teak wood (Hidayat, 2014). The bayur tree can be found in Indonesia’s tropical rainforests, ranging from Java, Bali, Sulawesi, NTT, and Kalimantan (LindungiHutan, 2022). The bayur tree is believed to be capable of growing up to a height of approximately 40 meters with a diameter reaching 120 cm (Kasmudjo et al, 2006). According to data from the IUCN Red List, the conservation status of the bayur tree is at a low-risk level, meaning its commercial use is still permitted by the government (Khairi, 2021). However, the intensity of illegal logging activities in the Jembrana Regency has begun to decrease. This change occurred following a proclamation by the Regent of Jembrana, which offered a reward of IDR 2,000,000 for anyone providing information on illegal logging activities in Jembrana Regency forests (Suriyani, 2022).

This proclamation was a response to the Regent of Jembrana's concern following the natural disasters of flash floods and landslides that occurred in Jembrana Regency in 2018. These disasters caused more significant damage than previous floods. This natural disaster phenomenon raised awareness among various parties about the need to protect upstream ecosystems. Following up on this, the Forest Management Unit of West Bali (UPTD KPH Bali Barat) invited the Village Forest Management Institution (LPHD) to assist in monitoring and protecting the protected forest areas in the Jembrana Regency.

This call to action was also heeded by the Banu Giri Lestari Forest Farmer Group, which committed to more responsible forest management. In the past, members of the Banu Giri Lestari Forest Farmer Group engaged in environmentally unfriendly forest encroachment activities. However, over time, these activities have declined as the community has become aware of the importance of preserving nature to sustain their livelihoods. This drive for change underpins the formation of the Banu Giri Lestari Forest Farmer Group, consisting of 58 members.

PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai is a state-owned enterprise (BUMN) affiliated with the Sub Holding Commercial & Trading PT Pertamina (Persero), operating under the Aviation business unit for the Jatimbalinus area since 1992. PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai focuses on downstream operations, responsible for serving both civilian and military airline consumers in the I Gusti Ngurah Rai International Airport area, providing aviation fuel such as avtur and avgas.

As a limited liability company, PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai is obligated to implement social and environmental responsibility practices as compensation for its operational business activities affecting the surrounding community and environment. This obligation aligns with the company's commitment to adhering to governmental regulations as outlined in Law No. 40 of 2007 on Limited Liability Companies, Government Regulation No. 47 of 2012 on Social and Environmental Responsibility of Limited Liability Companies, and Minister of State-Owned Enterprises Regulation No. PER-1/MBU/03/2023 on Special Assignments and Social and Environmental Responsibility Programs of State-Owned Enterprises (BUMN). This commitment also takes into account the standards set forth in ISO 26000 Guidance on Social Responsibility, AA1000 Stakeholder Engagement, and the Sustainable Development Goals (SDGs) as guiding references for implementing the company's business sustainability strategy through CSR programs.

Corporate Social Responsibility, often referred to as CSR, represents the good practices of companies in fulfilling their social and environmental responsibilities. The emphasis on the importance of implementing CSR programs has become a legal strategy to protect public interests over corporate interests. Consequently, PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai has formulated an internal CSR policy that targets program development in areas designated as Ring 1, 2, and 3. This policy serves as a guideline for developing programs that go beyond mere charity. It aims to create long-term positive impacts on society and the environment through empowerment, capacity building, and environmental conservation activities.

PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai has eight CSR programs, one of which is located in the Ring 3 development area, specifically in Yehembang Kangin Village, Mendoyo District, Jembrana Regency. The company supports the Indonesian government's commitment to forest management through social forestry as an effort to address global climate change and reduce greenhouse gas effects. Therefore, the company implements a strategic approach of awareness, capacity building, and empowerment for the program beneficiaries in Yehembang Kangin Village. This approach is further strengthened by activities that foster bonding, bridging, and expanding relational networks to support the program's sustainability.

Yehembang Kangin Village possesses various biodiversity potentials located in RTK 19 West Bali forest area, within the Yeh Embang RPH region of UPTD KPH of West Bali. This area has been a site of social forestry partnership management between the Banu Giri Lestari Forest Farmer Group and UPTD KPH Bali Barat from 2018 to 2023. This collaboration is documented in the Forest Partnership Cooperation Agreement between the Banu Giri Lestari Forest Farmer Group and UPTD KPH Bali Barat, signed on September 19, 2018, in Gilimanuk Subdistrict, Melaya District, Jembrana Regency, Bali Province. It is also reinforced by the issuance of the Minister of Environment and Forestry Decree No: SK.8879/MENLHK-PSKL/PKPS/PSL.0/12/2018 concerning the Recognition and Protection of Forest Partnership.

The UPTD KPH of West Bali played a crucial role in facilitating the collaboration between PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai and the Banu Giri Lestari Forest Farmer Group in 2023. Recognizing the excellent potential for biodiversity development and community empowerment in the area, the company took the initiative to establish a Memorandum of Understanding (MoU) on the Development and Empowerment of the Yehembang Kangin Social Forestry Program. This MoU was signed by the Aviation Fuel Terminal Manager of Ngurah Rai and the Village Head of Yehembang Kangin, witnessed by the Regent of Jembrana, UPTD KPH of West Bali, and the Banu Giri Lestari Forest Farmer Group. This marked the beginning of the company's commitment to bonding and bridging the shared interests in forest management protection over the next approximately five years.

The company guides the Banu Giri Lestari Forest Farmer Group by enhancing awareness of the importance of conserving protected forest areas and the biodiversity within them through the development of social forestry programs. According to Government Regulation No. 23 of 2021, social forestry is a sustainable forest management system conducted within state forests or privately owned/customary forests by local communities or indigenous people to improve welfare, environmental balance, and socio-cultural dynamics. This is implemented in the form of village forests, community forests, people's plantation forests, customary forests, and forestry partnerships.

The company strengthens program guidance through regular Focus Group Discussions (FGD) as a medium to uncover facts related to the obstacles and challenges faced by the community. These discussions help outline a collective annual work plan. Furthermore, the company enhances the group's capacity by introducing agroforestry practices developed within the social forestry area. This includes the selection of non-short-lived plants such as fruit trees, including durian, guava, and coffee. The group's institutional framework will also be reinforced in terms of organizational and financial management. This aims to maintain the cohesiveness of the Banu Giri Lestari Forest Farmer Group in utilizing forest resources wisely and responsibly, in alignment with the principle of "Tri Hita Karana". The teaching of "Tri Hita Karana" is the manifestation of human happiness through a harmonious relationship between humans and God (*Parahyangan*), humans and humans (*Pawongan*), and humans and nature (*Palemahan*) (Setiawan, 2022). In this doctrine, humans are the central point and subject in its implementation in daily life

In terms of economic empowerment, the company began constructing Non-Timber Forest Products (NTFP) warehouses in 2023 to support the group's business development. The NTFP warehouse functions as a central storage and sales hub for the harvests of the Banu Giri Lestari Forest Farmer Group members. It is hoped that this facility will enable the group to coordinate direct sales of their harvests to consumers without relying on intermediaries. Additionally, in the second year of the program's implementation, the company strengthened its baseline study by conducting biodiversity research in collaboration with consultants from PT Properindo Enviro Tech. The aim is to identify and describe the biodiversity of flora and fauna in the conservation area of the Yehembang Kangin protected forest. The results of these identifications and descriptions will also serve as a data set to assist the company in formulating more sustainable biodiversity management policies and strategies.

According to the 2022 Short-Term Forest Management Plan (RPHJPd) data of UPTD KPH of West Bali, the protected forest area under the agency's supervision hosts a diverse range of flora and fauna. In total, there are 204 species of birds, 16 species of herpetofauna, and 12 species of mammals identified. The population of some of these fauna species, as noted by UPTD KPH of West Bali, is declining due to hunting and killing activities, as these animals are perceived as pests by the community managing gardens or crops. In the RPH Yeh Embang area alone, 21 types of flora have been identified, including candlenut, bayur, teak, nyantuh, gempinis, teep, kutat, dadap, juwet, tangi, pule, kejimas, kwanitan, hoo, iseh, gmelina, banana, cocoa, durian, mahogany, and salam.

Furthermore, there is a potential water source in the core block area of the Yehembang Kangin protected forest, providing clean water for the village inhabitants. This water source is currently managed independently by the Yehembang Kangin Village Government through the BUMDES Abdi Rahayu business unit in cooperation with the Banu Giri Lestari Forest Farmer Group under the supervision of UPTD KPH of West Bali. Thus, it can be said that the forest plays a crucial role in the life of the Yehembang Kangin community, serving as a source of livelihood and environmental services. Therefore, collaboration among stakeholders is needed to engage community members still involved in harmful activities to join the integrated forest conservation efforts within the Banu Giri Lestari Forest Farmer Group. In its guidance, PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai also encourages the emergence of local heroes and their regeneration as agents of change for wise forest self-management, while maintaining the local wisdom of the community

The development of the social forestry program implemented by PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai promotes reforestation efforts and forest area management based on empowerment. In 2023, the company assisted in the form of 6,000 coffee seedlings, 200 nutmeg seedlings, 200 avocado seedlings, and 200 durian seedlings. The aim is to replace short-lived garden plants and simultaneously increase forest cover in Yehembang Kangin Village. This also supports the acceleration of forest functions as environmental service providers in water cycle regulation efforts. Additionally, the Banu Giri Lestari Forest Farmer Group has taken the initiative to replant kluwek and kwanitan trees to restore previously cut tree stands. Moreover, the group has planted durian, avocado, mangosteen, and candlenut trees through self-seeding with the "tanem tuwuh" (plant to grow) planting pattern, meaning "plant once, benefit for a lifetime".

The implementation process of the program certainly requires active participation from the group to collaboratively develop and maintain the forest in Yehembang Kangin Village. The company encourages the Banu Giri Lestari Forest Farmer Group to be bold and critical in voicing their ideas and suggestions to create innovations and alternative solutions in program implementation. The company also continuously fosters the dynamics of strengthening the group's social capital through a series of communal activities to facilitate the implementation of the social forestry program in Yehembang Kangin Village. The synergy of collaborative cooperation between the company and the local government must be maintained to achieve sustainable regional development, taking into account environmental quality improvement, the group's economic enhancement, the increase in civilized forest management capacity, and the practice of collectively protecting forest ecosystems.

D. CONCLUSION

Yehembang Kangin Village is one of the villages in Jembrana Regency, Bali Province, which possesses a protected forest area under the supervision and protection of the UPTD KPH of West Bali. This protected forest area has been managed by the Banu Giri Lestari Forest Farmer Group under a forest management partnership agreement based on social forestry practices with the UPTD KPH of West Bali from 2018 to 2023. The implementation of social forestry practices is considered an alternative solution for reforestation and more sustainable

forest area management. Generally, the forest areas in Jembrana Regency have experienced deforestation due to illegal logging and “ngawen” (forest encroachment) since 1998. Previously, the residents of Yehembang Kangin Village, before joining the Banu Giri Lestari Forest Farmer Group, had engaged in the illegal logging of forest trees, including the bayur tree, which was a primary commodity for building materials and furniture.

This situation was exacerbated by the practice of “ngawen” or encroaching on forests to create plantations with short-lived crops. However, the Banu Giri Lestari Forest Farmer Group is now aware of the importance of the forest for the collective well-being, both spiritually, environmentally, and economically. Therefore, the farmers’ group has begun to adopt the “tanem tuwuh” planting pattern. The role of PT Pertamina Patra Niaga Aviation Fuel Terminal (AFT) Ngurah Rai, as a state-owned enterprise, is to provide social and environmental responsibility support to the Banu Giri Lestari Forest Farmer Group, particularly in developing social forestry based on agro-tourism and more sustainable forest management. This is aimed at improving the quality and quantity of biodiversity within the protected forest area of Yehembang Kangin Village.

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