

Contribution of Forest Farmer Groups in Land Management through the Agroforestry System

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Abstract: This study examines the contribution of Forest Farmer Groups (FFGs) to land management through agroforestry systems in two schemes: Social Forestry and Non-Social Forestry. Using a descriptive qualitative approach, data were collected through field observations, in-depth door-to-door interviews, and documentation of 29 members of the Ajisaka KTH, 67 members of the Tanjungjaya KTH, and 25 members of the Bunter KTH. The results of the study show that agroforestry has become an alternative livelihood strategy through crop diversification, such as corn, cassava, bananas, ginger, turmeric, and coffee, which are planted among teak trees managed by Perhutani and PTPN. In the Ajisaka KTH, which operates under the Social Forestry scheme, legal access and institutional recognition strengthen collective awareness, community solidarity, and provide additional income. However, agriculture is still considered a side business. Meanwhile, KTH Tanjungjaya and Bunter, which lack strong legal standing, are more vulnerable but demonstrate adaptive strategies through profit-sharing systems, wage systems, and additional ventures such as balsa seedling production and honeybee farming. Both schemes demonstrate that agroforestry not only increases household income but also strengthens food security, social empowerment, and ecological sustainability. Thus, agroforestry is not merely an agricultural technique but a socio-economic tool capable of balancing livelihood needs and environmental conservation.

Keywords: agroforestry, forest farmer groups, social forestry

Abstrak: Studi ini menganalisis kontribusi Kelompok Tani Hutan (KTH) dalam pengelolaan lahan melalui sistem agroforestri pada dua skema, yaitu Perhutanan Sosial dan Non Perhutanan Sosial. Dengan menggunakan pendekatan deskriptif kualitatif, data dikumpulkan melalui observasi lapangan, wawancara mendalam dari rumah ke rumah, serta dokumentasi terhadap 29 anggota KTH Ajisaka, 67 anggota KTH Tanjungjaya, dan 25 anggota KTH Bunter. Hasil penelitian menunjukkan bahwa agroforestri telah menjadi strategi mata pencaharian alternatif melalui diversifikasi tanaman, seperti jagung, singkong, pisang, jahe, kunyit, dan kopi, yang ditanam di antara pohon jati yang dikelola oleh Perhutani dan PTPN. Pada KTH Ajisaka yang beroperasi dalam skema Perhutanan Sosial, akses hukum dan pengakuan kelembagaan memperkuat kesadaran kolektif, solidaritas komunitas, serta memberikan tambahan pendapatan, meskipun pertanian masih dianggap sebagai usaha sampingan. Sementara itu, KTH Tanjungjaya dan Bunter yang tidak memiliki dasar hukum yang kuat lebih rentan. Namun menunjukkan strategi adaptif melalui sistem bagi hasil, sistem upah, serta usaha tambahan seperti produksi bibit balsa dan budidaya lebah madu. Kedua skema tersebut menunjukkan bahwa agroforestri tidak hanya meningkatkan pendapatan rumah tangga, tetapi juga memperkuat ketahanan pangan, pemberdayaan sosial, dan keberlanjutan ekologis. Dengan demikian, agroforestri bukan sekadar teknik pertanian, melainkan juga alat sosial-ekonomi yang mampu menyeimbangkan kebutuhan penghidupan dan pelestarian lingkungan.

Kata Kunci: Agroforestri, Kelompok Tani Hutan (KTH), Perhutanan Sosial

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1. Introduction

Forests are one of the assets that few other countries possess. Data from the Ministry of Environment and Forestry (KLHK) indicate that Indonesia's forests cover a land area of 125.76 million hectares, equivalent to 62.97% of the country's total land area. This number has certainly decreased over the last few decades, particularly during a period of significant exploitation and land clearing, which resulted in a decline in forest areas (Satria Ardhi, 2023). Forests are one of the strategic natural resources that serve as a vital ecological, economic, and social resource for people living in forest areas. In Indonesia, the state forest area is managed mainly by Perhutani and *Perseroan Terbatas Perkebunan Nusantara* (PTPN). However, forest villagers' access to these resources is often limited, resulting in low levels of welfare (Bordón et al., 2018). This condition has prompted the development of various policies that open up space for community participation, one of which is the social forestry program. This program provides legal access to forest farmer groups (KTH) for one form of social forestry practice that is widely applied by the community: the agroforestry system, also known as intercropping. Agroforestry allows the planting of multiple types of crops on the same land, including forestry crops, food crops, and horticultural crops. This system is considered capable of increasing household income while maintaining the ecological function of the forest (Lasco et al., 2014). In this context, forest farmer groups play an essential role as community institutions that manage, organize, and supervise agroforestry practices on accessed land.

In West Java, especially in Ciamis Regency and Banjar, several KTHs have utilized Perhutani and PTPN land through agroforestry patterns. For example, KTH Ajisaka in Purwaha Village gained access through a social forestry scheme, while KTH Tanjungjaya and KTH Bunter accessed land from PTPN with a non-social forestry pattern. These three groups utilize the land to grow a variety of agricultural commodities, including corn, cassava, sweet potatoes, bananas, ginger, turmeric, coffee, chili peppers, and vegetables. This pattern is applied through various management systems, ranging from individual land division to collective work with a profit-sharing system, and to a wage system involving other laborers. However, there are interesting dynamics to this management pattern. On the one hand, the agricultural activities undertaken can provide additional household income. However, most farmer group members still consider this business a secondary source of income, rather than their main livelihood. On the other hand, the existence of regulations from Perhutani and PTPN that require communities to maintain teak trees as staple crops poses its own challenges in agroforestry management. This situation illustrates the complex relationship between the economic interests of the community, environmental conservation, and government regulations on forest management.

Based on this background, this study focused on analyzing the contribution of Forest Farmer Groups in land management through agroforestry systems. The analysis is divided into two broad categories, namely social forestry (KTH Ajisaka) and non-social forestry (KTH Tanjungjaya and KTH Bunter). This research is expected to make theoretical contributions to the study of rural sociology and forestry policy, while also providing practical benefits for strengthening KTH institutions and developing sustainable land management strategies in state forest areas.

This study used a descriptive qualitative approach to understand the contribution of the Forest Farmers Group (KTH) in land management through an agroforestry system. The research locations include three farmer groups, namely KTH Ajisaka (Social Forestry scheme), as well as

KTH Tanjungjaya Village and KTH Bunter Village (non-Social Forestry). Before data collection, researchers conducted initial observations (field exploration) and reading activities together with an academic team from UIN Sunan Gunung Djati Bandung and Kyoto University, Japan. This activity aimed to strengthen theoretical understanding and field context.

Primary data was obtained through in-depth interviews using the door-to-door method with farmer group members. From KTH Ajisaka, 29 out of 74 members became informants; from KTH Tanjungjaya, 67 out of 100 members; and from KTH Bunter, 25 out of 82 members. Interviews covered the themes of land management systems, agricultural yields, economic contributions, and patterns of cooperation with Perhutani/PTPN. In addition, data was obtained through direct observation of agrarian activities and documentation in the form of group records and harvest reports. To maintain validity, triangulation of sources and methods was employed, along with discussion of research results with a team of collaborators. In this way, the research is expected to produce valid and credible findings, providing a comprehensive picture of the challenges and opportunities associated with land management through agroforestry systems in both Social Forestry and non-Social Forestry schemes, particularly in relation to the economic, social, and ecological contributions of forest village communities.

2. Result and Discussion

2.1 Forest Farmer Group (KTH) Social Forestry (PS)

2.1.1 PS Profile and Land Management System

KTH Ajisaka is located in Siluman Village, Purwaharja Village, Purwaharja Subdistrict, Banjar City, which was established as one of the forms of forest village community institutions that obtained legal access from Perhutani through the Social Forestry program. KTH Ajisaka was inaugurated in 2021, comprising 74 members registered in the Decree (SK), and 29 individuals were involved as informants in this study.



Picture 1. Research atmosphere at KTH Ajisaka members
(Source: Personal Documentation, 2025)

As seen in the picture, KTH members in Ajisaka, who are registered in the SK, are not only male; many female members also participate in agroforestry here. This access allows the community to manage state forest land sustainably, without compromising the primary function of the area as a teak production forest. The pattern applied is agroforestry or intercropping, where members plant food crops, horticulture, and plantation commodities between teak trees, which are the main crops.



Picture 2. *Agroforestry* or Intercropping on KTH Ajisaka land
(Source: Personal Documentation, 2025)

As seen in the picture, the definition of Agroforestry or Intercropping is a land use system that combines forest plants with crops, with specific provisions and distances following the height of the forest. (Rimbawati et al., 2018).



Picture 3. Timber, Robusta Coffee, and Durian crops
(Source: Personal Documentation, 2025)

At KTH Ajisaka, Perhutani provides provisions for crop rules. For instance, the first start (short teak) can only be planted with short-stem crops, such as secondary crops. After starting to grow taller, it is allowed to plant woody trunk trees, including coffee and durian. Land management is carried out with various systems. Some members choose to work the land independently, with the results being entirely privately owned. Some use a collective work scheme with a profit-sharing system with other group members or outside of KTH, where profits are divided according to the contribution of labor and capital. On the other hand, some members employ others through a wage system, ensuring that the land remains productive even when they are not directly involved. The diversity of these systems reflects the internal socio-economic dynamics that are adapted to the capacity, needs, and strategies of each farming family. Furthermore, the existence of rules from Perhutani that require members to protect teak trees also has consequences. (Asper KBKPH Selogender Ence Sunarya, 2024). For some members, this obligation is seen as a form of attachment to state institutions, which limits their complete freedom to manage the land. But for others, this obligation is understood as a social contract that fosters collective awareness that land management is not only oriented towards short-term economics, but also towards long-term sustainability. This aligns with the findings. (Bordón et al., 2018) Social forestry does not merely open access, but also fosters a new form of co-management between the community and the state.

Thus, the profile of KTH Ajisaka reveals that social forestry is not only a formal platform for utilizing land, but also an arena of social interaction where rules, management strategies, and economic interests are negotiated. From the perspective of rural sociology, this shift signifies a transition from top-down to more participatory community-state relations, although it remains characterized by power asymmetry.

2.1.2 Contribution of Agroforestry to the Household Economy

Economically, the results of the agroforestry system managed by KTH Ajisaka are generally used to meet household needs. Food crops, such as corn, cassava, and sweet potatoes, are mostly consumed directly, while high-value commodities like coffee, chili, bananas, and ginger are sold to the local market. For some members, these sales can provide sufficient additional income. At KTH Ajisaka, it was recorded that the contribution of agroforestry to total household income ranged from 35% to 60%, corresponding to a value of approximately Rp 1,000,000 to Rp 2,000,000 per month, especially when commodity prices were stable. However, the majority of members still consider this activity as a side business. Most forest village households rely on occupations outside the agricultural sector for their primary income, such as laborers, traders, or service workers. This shows that although agroforestry can increase revenue, its contribution is not significant enough to replace the primary source of income. This finding is consistent with the study. (Fisher et al., 2018) This indicates that social forestry programs in Indonesia primarily serve as a source of additional income rather than a transformation of the household economy.

However, it cannot be ignored that the diversification of crops grown through agroforestry systems has created economic resilience for families. Although the selling value is not always high, the existence of various commodities makes farming families more resilient to market and climate fluctuations. This is in line with (Lasco et al., 2014) This confirms that agroforestry is not only an agronomic strategy but also a tool for community adaptation to climate change and economic uncertainty. Additionally, intercropping practices offer opportunities for the younger generation in forest villages to remain connected to the agricultural sector. Although many have chosen jobs in other sectors, their limited involvement in agroforestry still fosters a sense of attachment to their homeland. In the long run, this has the potential to become a form of social capital that supports the sustainability of forest village agriculture.

2.1.3 Social Dimension, Social Capital, and PS Member Empowerment

The institution of KTH Ajisaka plays an essential role in strengthening the social dimension of forest village communities. KTH members not only gain access to land but also a platform to interact, negotiate, and learn together. Group meetings are held every three months, cooperation is fostered through a profit-sharing system, and a commitment to protecting teak trees creates an environment that promotes the growth of social solidarity. This reinforces the role of KTH as a platform for empowerment, rather than just an administrative forum. Empowerment can also be seen in the increasing capacity of members to participate in managing the land. Involvement in group discussions fosters critical awareness that access to land is not only an economic issue, but also related to environmental sustainability and social legitimacy. In this case, KTH Ajisaka acts as a school of democracy at the village level, where people learn to organize themselves, make collective decisions, and negotiate with state institutions. (Gunawan et al., 2022). Furthermore, the empowerment that comes from participation also creates a new identity: transitioning from being an individual farmer to being part of a community with a collective mission. This is important from a sociological perspective because collective identity becomes social capital that can increase the community's capacity to face various challenges, both economic and environmental.

2.1.4 Challenges and Opportunities

Despite the considerable benefits, KTH Ajisaka also faces several challenges. First, limited capital and market access have not fully optimized the production and marketing of agricultural products. High-value products such as coffee and ginger have not been able to penetrate a wider distribution chain. Second, the status of farming, which is still considered a side business, causes the intensity and innovation of land management to be underutilized because farmers must divide their time between farming and other jobs. Thirdly, the large number of pests on farmland, such as wild boars, monkeys, and other small pests, means that farmers often suffer crop losses because these pests have damaged their crops.

However, behind these challenges lies a great opportunity. The agroforestry system applied has the potential to be aligned with the green economy policy, which is now part of the sustainable development agenda. Suppose KTH Ajisaka receives technical support in the form of cultivation training, access to capital, and a wider marketing network. In that case, its contribution will not only increase family income but also strengthen the position of forest village communities in the national development framework.



Picture 4. Local institution KTH Ajisaka
(Source: Personal Documentation, 2025)

As seen in the picture, the experience of KTH Ajisaka demonstrates that social forestry can serve as a replication model for other forest villages. By integrating economic, social, and environmental aspects, agroforestry practices are proven to create a balance between community needs and ecological sustainability. This is in line with the argument of (Schusser et al., 2015) The success of communities in managing forests depends on a combination of strong local institutions, external support, and adequate economic incentives.

2.2 Non-Social Forestry (SF) Forest Farmers Group (KTH)

2.2.1 PS Profile and Land Management System

KTH Tanjungjaya Village, located in Tanjungjaya Village, Cisaga Subdistrict, Ciamis Regency, and KTH Bunter Village, situated in Bunter Village, Sukadana Subdistrict, Ciamis Regency, are two farmer groups that have obtained access to cultivated land. Unlike KTH Ajisaka, which falls under the Social Forestry scheme, these two groups are classified under the non-Social Forestry scheme, making their position more fragile in terms of legality. Their management rights are temporary, with the primary obligation to protect teak and rubber trees, which are the main crops planted by the Government.



Picture 5. Land Condition of KTH Tanjungjaya Village
(Source: Personal Documentation, 2025)



Picture 6. Land Condition of KTH Bunter Village
(Source: Personal Documentation, 2025)

As seen in the picture, the community is allowed to plant various seasonal crops between the teak trees, but has no certainty of long-term rights to the land. For example, the KTH of Tanjungjaya Village experienced uncertainty when PT Perkebunan Negara (PTPN) planned to conduct reforestation of rubber plants, as reforestation would require all land to be vacated without exception. However, the opposite happened to Bunter Village KTH; they were not affected by the eviction of reforestation because this KTH system was only inaugurated after reforestation in 2023, whereas Tanjungjaya Village KTH was inaugurated before reforestation, namely in 2021.

In terms of membership, the Tanjungjaya Village KTH had a larger membership of 100 people, as it was combined with the local Women Farmers Group (KWT), comprising 67 people who were willing to participate as research respondents. Meanwhile, the Bunter Village KTH had 82 members, the majority of whom were male, and 25 people became research informants. This data shows that the level of community involvement is relatively high, although the condition of land legality has not yet provided complete certainty. This confirms that the existence of KTH is still considered necessary by forest village communities as a collective means to gain access to land, even without formal recognition from the state. The management systems in the two KTHs are relatively diverse. Most members obtain land through an individual sharing system, where each person is responsible for managing their own portion of the land. However, there is also a collective management pattern with a profit-sharing system, where two or more members work together to cultivate the land, and the results are shared based on the agreement. Additionally, another pattern that emerged was the use of labor under a daily wage system. The diversity of these patterns reflects the community's flexibility in adjusting livelihood strategies according to the socio-economic conditions of each household.

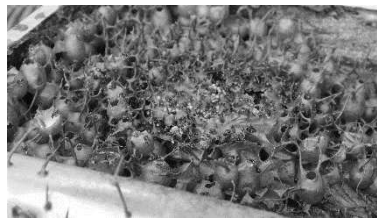
2.2.2 Contribution of Agroforestry to the Household Economy

Economically, the yields from the intercropped lands of KTH Tanjungjaya and Bunter villages are generally used to fulfill family food needs. Corn, cassava, yams, and bananas are primarily consumed directly as additional staple food sources, while some are sold. Higher-value crops, such

as chili, coffee, ginger, turmeric, and vegetables, are sold to traditional markets or intermediaries. These sales provide an additional income stream, although most members view this activity as a secondary source of income.



Picture 7. Balsa Tree seed sowing at KTH Bunter Village
(Source: Personal Documentation, 2025)



Picture 8. Cultivation of Forest Bees (Odeng) at KTH Bunter Village
(Source: Personal Documentation, 2025)

However, compared to the other KTHs, as seen in the picture, the KTH of Bunter Village has the most potential and progress because they do not only focus on Agroforestry, but they have other agricultural businesses such as selling Balsa tree seedlings starting from the seeding process of >3000 seeds which are planted and sold after the seedlings are 30 cm in size for Rp.3000 per tree. In addition to cultivating balsa trees, they also raise forest bees that produce honey for sale, generating an extra income.

However, field findings still show that the average KTH member in Tanjungjaya Village and Bunter Village continues to have a primary job outside the agricultural sector, such as being a factory laborer, trader, or casual daily worker. Therefore, the intensity of land management tends to be low, resulting in limited productivity. In this case, the function of intercropping land is more as a buffer for the household economy. For example, when the price of necessities increases or when the primary income is insufficient, agricultural products from KTH land serve as a safety net, providing food for personal consumption. KTH Tanjungjaya and KTH Bunter showed a more significant increase, with the average monthly income ranging from Rp 2,000,000 to Rp 4,000,000. The contribution of agroforestry to total household income ranged from 60% to 85%. However, despite the modest financial contribution, the existence of cultivated land is still essential. Firstly, it helps reduce household expenditure by allowing for self-provision of food. Secondly, the possibility of increasing economic value exists if agricultural products can be further processed or marketed through wider distribution channels. Thirdly, because the existence of land fosters a sense of social security, where people feel that they still have access to productive resources even though the scheme is not formalized. This aligns with the findings (van Noordwijk, 2021) that agroforestry in the context of forest village communities often serves as an instrument of food security and subsistence economy, rather than as the primary source of capital accumulation. In other words, the economic contribution of non-Social Forestry KTHs is more of a stabilization function than a transformation function.

2.2.3 Social Dimension, Social Capital, and Empowerment of Non-PS Members

KTH Tanjungjaya and KTH Bunter also play a significant social role. The existence of these groups allows the community to build local institutional mechanisms. Although these institutions are not as robust as those in the Social Forestry scheme, KTH still maintains an organizational structure, deliberation forums, and basic internal rules. This shows that forest village communities have the capacity to organize themselves, even when their legal position is relatively weak. According to the research results, KTH meetings are held every 3 months; however, interaction and discussion among KTH members occur almost daily, as they frequently meet in the field. Community empowerment through non-social forestry at KTH is organic and pragmatic. Members are not involved in official government training or mentoring programs; however, the process of daily interaction in land management teaches them to manage their time, share responsibilities, and maintain solidarity. In other words, empowerment arises not from external interventions but rather from naturally evolving collective practices. Institutional capacity is a crucial factor that determines the success of forest farmer groups in managing land through agroforestry systems.

Previous research confirms that strong institutions function not only as administrative platforms, but also as social mechanisms capable of building trust, solidarity, and shared rules that bind all members. Widiyanto (2019) In the context of this study, the formal institutions at KTH Ajisaka facilitate the establishment of a more structured coordination and decision-making system, thereby encouraging members to protect the land and comply with Perhutani's rules actively. In contrast, in the non-Social Forestry institutions at KTH Tanjungjaya and Bunter, operations tend to run more informally. Yet, they still play a significant role in regulating work patterns, profit-sharing systems, and conflict resolution among members.

The strength of these local institutions also demonstrates that empowering forest village communities depends not only on physical access to land, but also on the group's success in building effective internal governance. Institutional strengthening can enhance the community's chances of securing external support from local governments, NGOs, and the private sector, thereby improving the group's bargaining position in the agricultural product value chain. Thus, strengthening institutional capacity is a key element in bridging the economic needs of forest village communities with the ecological sustainability of the forest itself.

Furthermore, the relationship with government institutions, both Perhutani and PTPN, reflects asymmetrical power relations. Government institutions act as landowners, while the community is only a manager who must follow the rules. However, it is precisely in this unequal relationship that a new form of empowerment emerges: the community learns to negotiate space, maintain access, and build social legitimacy. This finding corroborates Larson's (2022) opinion that local empowerment often occurs through informal channels, as communities adapt to the limitations of formal structures. In this context, KTH Tanjungjaya and Bunter function as a forum for social negotiation. They are not only an economic tool, but also a means to strengthen their identity as "forest village communities" who have moral rights over the land they manage. This collective identity is essential because it strengthens social cohesion and increases bargaining power with external parties.

2.2.4 Challenges and Opportunities

Although many positive contributions have been made above, non-Social Forestry KTHs face serious challenges. First, in terms of legality, the position of this group is very vulnerable. The absence of a formal legal umbrella makes their land access entirely dependent on government policy. Suppose the Government ever decides to revoke the permit. In that case, the community will suddenly lose access to agricultural land and suffer significant losses if the crops have not yet reached harvest age. This differs from the Social Forestry scheme, which guarantees management rights for a period of 35 years. Second, from an economic perspective, agricultural products are still sold in raw form at low prices. Members do not yet have access to broader markets or adequate post-harvest technology.

As a result, although the potential for high-value crops is quite significant (coffee, ginger, chili), the added value obtained is still minimal because the raw price on the market tends to be relatively cheap compared to the finished cost. Third, from a social perspective, the low intensity of management, as farming is often considered a side business, has the potential to weaken group solidarity in the long run. If only a small number of members are genuinely committed to working the land, then the existence of the KTH institution could be threatened by the fragmentation of individual interests. This is in line with the complaints of many group members from the research, namely that they complain about the numerous pests around the farmland, such as wild boar, monkeys, and other small pests, which often result in considerable losses due to these pests. Therefore, they feel the need for other work to maintain household income.

However, behind these challenges lie also considerable opportunities. First, the existing agroforestry practices can serve as a starting point for entering the Social Forestry scheme in the future. If the community can demonstrate its success in maintaining teak trees and utilizing the land sustainably, the chances of receiving formal recognition will increase. Secondly, the presence of high-value plants and animals opens the possibility of developing superior commodities for forest villages. With the support of local government, NGOs, or academic partners, commodities such as coffee, chili, and ginger can be developed through quality improvement, regional branding, and broader market access. In addition, corn, cassava, and sweet potatoes can serve as the village's primary source of food security, and forest bee cultivation can have high economic value if honey is sold on the market. Third, non-Social Forestry KTH can be used as a social laboratory to understand how communities adapt to the limitations of legality. This experience can offer policymakers valuable lessons on how to enhance the capacity of forest village communities within a limited legal framework. Thus, despite their non-formal status, KTH Tanjungjaya and Bunter still have a strategic role in the economic and social empowerment of forest village communities. They are proof that access to land, although limited, can build significant collective dynamics.

This research demonstrates that the presence of forest farmer groups, both in Social Forestry and Non-Social Forestry schemes, makes a significant contribution to land management and the empowerment of forest village communities. The Social Forestry scheme, as seen in KTH Ajisaka, tends to provide access certainty, strengthen institutions, and foster collective awareness to maintain a balance between economic utilization and forest sustainability. Meanwhile, KTH Tanjungjaya and Bunter Villages, under the Non-Social Forestry scheme, exhibit different dynamics, where land access is more fragile legally, yet still a necessary means for the community

to obtain additional income, strengthen solidarity, and maintain their social identity as a forest village community. Both categories demonstrate that the agroforestry system is not only an agronomic strategy, but also a socio-economic instrument capable of providing space for empowerment, although the level of sustainability and certainty of management rights remains a challenge to be addressed.

3. Conclusion

This research demonstrates that Forest Farmer Groups (FFGs), both in Social Forestry and Non-Social Forestry schemes, make significant contributions to land management through agroforestry systems. In the Social Forestry scheme (KTH Ajisaka), the existence of a formal institution with legal access from Perhutani strengthens management certainty, fosters collective awareness of forest preservation, and creates opportunities for household economic improvement, even though it is still considered a secondary business. Meanwhile, non-Social Forestry schemes (KTH Desa Tanjungjaya and KTH Desa Bunter) show different dynamics. Although the legal position is more fragile, land access still plays a vital role as a source of livelihood, a means of strengthening social solidarity, and shaping the collective identity of forest village communities. Thus, the agroforestry system is not just an intercropping agricultural strategy, but a socio-economic instrument capable of balancing economic needs, food security, and environmental conservation. The main challenges still faced are limited capital, markets, land legality, and pest threats, while opportunities lie in the development of superior commodities, green policy support, and strengthening local institutions.

For future research, it is essential to conduct a more in-depth study of the economic contribution of agroforestry using a quantitative approach to obtain a more precise picture of its impact on household income. In addition, an interdisciplinary approach that integrates the perspectives of sociology, ecology, and political economy is also needed, so that the study's results can make a more comprehensive contribution to policy development and the empowerment of forest village communities in Indonesia.

References

- Asper KBKPH Selogender Ence Sunarya. (2024). *Sistem Tumpangsari Tarik Minat Petani Hutan*. Perhutani.Cp.Id. <https://www.perhutani.co.id/sistem-tumpangsari-tarik-minat-petani-hutan/>
- Bordón, M. R., Montagna, J. M., & Corsano, G. (2018). An exact mathematical formulation for the optimal log transportation. *Forest Policy and Economics*, 95, 115–122. <https://doi.org/10.1016/j.forpol.2018.07.017>
- Fisher, M. R., Moeliono, M., Mulyana, A., Yuliani, E. L., Adriadi, A., Kamaluddin, Judda, J., & Sahide, M. A. K. (2018). Assessing the new social forestry project in Indonesia: recognition, livelihood, and conservation? *International Forestry Review*, 20(3), 346–361. <https://doi.org/10.1505/146554818824063014>
- Gunawan, H., Yeny, I., Karlina, E., Suharti, S., Murniati, Subarudi, Mulyanto, B., Ekawati, S., Garsetiasih, R., Pratiwi, Sumirat, B. K., Sawitri, R., Heriyanto, N. M., Takandjandji, M., Widarti, A., Surati, Desmiwati, Kalima, T., Effendi, R., ... Nurliana, A. (2022). Integrating

- Social Forestry and Biodiversity Conservation in Indonesia. *Forests*, 13(12), 2152. <https://doi.org/10.3390/f13122152>
- Larson, A. M. H. M. (2022). *Routledge Handbook of Community Forestry*.
- Lasco, R. D., Delfino, R. J. P., & Espaldon, M. L. O. (2014). Agroforestry systems: helping smallholders adapt to climate risks while mitigating climate change. *WIREs Climate Change*, 5(6), 825–833. <https://doi.org/10.1002/wcc.301>
- Rimbawati, D. E. manggala, Fatchiya, A., & Sugihen, B. G. (2018). Dinamika Kelompok Tani Hutan Agroforestry di Kabupaten Bandung. *Jurnal Penyuluhan*, 14(1). <https://doi.org/10.25015/penyuluhan.v14i1.17223>
- Satria Ardhi. (2023). *Kementerian Lingkungan Hidup dan Kehutanan Ungkap Rumitnya Masalah Hutan Indonesia*. Ugm.Ac.Id. <https://ugm.ac.id/id/berita/kementerian-lingkungan-hidup-dan-kehutanan-ungkap-rumitnya-masalah-hutan-indonesia/>
- Schusser, C., Krott, M., Yufanyi Movuh, M. C., Logmani, J., Devkota, R. R., Maryudi, A., Salla, M., & Bach, N. D. (2015). Powerful stakeholders as drivers of community forestry — Results of an international study. *Forest Policy and Economics*, 58, 92–101. <https://doi.org/10.1016/j.forpol.2015.05.011>
- Van Noordwijk, M. (2021). Agroforestry-Based Ecosystem Services: Reconciling Values of Humans and Nature in Sustainable Development. *Land*, 10(7), 699. <https://doi.org/10.3390/land10070699>
- Widiyanto, A. (2019). Factors influencing farmers' decisions in community-based forest management program, KPH Ciamis, West Java. *Indonesian Journal of Forestry Research*, 6(1). <https://doi.org/10.20886/IJFR.2019.6.1.1-16>