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Performance of Social Forestry Implementation at UPTD KPH IX Panyabungan

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ABSTRACT

Social forestry (PS) is a form of sustainable forest management within state forest areas where local communities act as the leading actors to improve welfare, ecological balance, and socio-cultural dynamics. Although PS has been promoted to reduce poverty, increase local income, and strengthen forest conservation, many groups still face challenges in management, compliance, and financial sustainability. At the UPTD KPH IX Panyabungan, several social forestry groups have obtained legal approval but continue to struggle with fulfilling regulatory performance indicators, particularly in business development, area management, and financial contributions to the state (PNBP). This research was conducted in the North Sumatra Forest Management Unit Regional IX Panyabungan, involving four active social forestry groups (KPS): KTH Permata Belantara and KPS Sampean Jaya (HKm), KPS Globe Mangrove Indah (HD), and KPS Koperasi Rizki Jaya (HTR), selected from a total of seven groups at the site. This study aims to analyze the performance of KPS as PS approval recipients. The research employed a qualitative approach using field observations, in-depth interviews, and document analysis, with evaluation criteria and indicators based on the Regulation of the Minister of Environment and Forestry No. 9/2021. The novelty of this study lies in evaluating both the economic impacts and compliance performance of KPS after PS approval, while most previous studies mainly emphasized ecological or participation aspects. The results show that KPS fulfilled institutional indicators and generated additional income: KTH Permata Belantara (Rp. 31.9 million/year), KPS Sampean Jaya (Rp. 17.75 million/year), and KPS Gubeg Mulyoharjo Indah (Rp. 36.96 million/year). They also received capital support and planted 18,293 trees over three years. However, optimization is still needed in area management, business development, and non-tax state revenue (PNBP) payments. Thus, stronger institutional support, capacity building, and monitoring are required to ensure that PS not only meets administrative targets but also delivers measurable improvements in community welfare and forest sustainability.

Keywords: Social Forestry, Forestry farmer group (KPS), Social forestry unit business

1. Introduction

Currently, the Social Forestry (PS) program is a top priority in driving the forestry sector to provide communities with access to social and economic rights from forest areas. This program is implemented using a concept aimed at increasing community participation and involvement in the management of natural

resources in Indonesia. Based on the latest data, social forestry approval has reached 6.09 million hectares involving more than 1.2 million households until 2023 (KLHK, 2023). Specifically, in North Sumatra Province, approval has been granted to 204 groups covering 155,236 hectares, with 77,435 households involved (BPS Sumut, 2023). This program is crucial because, according to BPS data, the population of people within and around forest areas totals around 32,447,851 people, with approximately 3,319 villages located inside the forests, of which 3,153 are considered underdeveloped (BPS, 2019). The surrounding communities depend on forest-based income, making it a priority in efforts to empower the local economy around the forest (Mulyana and Moeliono, 2022).

Appearance of social forestry groups does not merely stop at the acceptance of the social forestry approval letter (SK persetujuan perhutanan sosial). Rather than that, after it formed the social forestry farmer groups (KPS), they must comply with various criteria and indicators as stipulated in the Regulation of the Minister of Environment and Forestry No. 9 of 2021. Compliance with these rules is essential to ensure the success of PS programs in enhancing economic, social, and environmental aspects (Wulandari et al., 2021; Maryudi et al., 2020). Recent studies also highlight that institutional strengthening and compliance are the main determinants of sustainability in social forestry (Arwida et al., 2023; Pratama & Wulandari, 2022). It is expected that KPS groups will grow and thrive, enhancing economic, social, and environmental aspects.

This research was conducted in the North Sumatra Forest Management Unit (FMU) Regional IX Panyabungan, which is one of 15 FMUs in the province. The site covers ± 282,480 hectares of forest area across Mandailing Natal Regency. At the time of research, seven KPS (social forestry groups) had been established, consisting of five HKm schemes, one HD scheme, and one HTR scheme. From these, four active KPS were selected as research samples: KTH Permata Belantara (HKm scheme, Bulusoma Village, Batang Natal Sub-District), KPS Sampean Jaya (HKm scheme, Tarlola Village, Batang Natal Sub-District), KPS Globe Mangrove Indah (HD scheme, Kunkun Village, Natal Sub-District), and KPS Koperasi Rizki Jaya (HTR scheme, Kampung Baru and Simpang Koje Villages, Lingga Bayu Sub-District). These groups were intentionally chosen because they represent three central PS schemes (HKm, HD, HTR) and were the only ones actively operating, allowing for a comparative evaluation of performance.

The problem at this location that requires research is the lack of a comprehensive evaluation regarding the growth and compliance of Social Forestry Farmer Groups (KPS) with the Minister of Environment and Forestry Regulation No. 9 of 2021. Although social forestry approval has been granted and groups have been formed, there is insufficient understanding of how these groups perform institutionally, economically, and environmentally in the field. Furthermore, previous studies have focused mainly on ecological aspects or community participation, leaving a gap in quantitative evidence related to economic impacts and compliance performance at the KPH IX Panyabungan site. This gap hinders effective policy-making and the optimization of social forestry benefits for local communities. Therefore, this study aims to analyze the growth of KPS and their compliance with the Regulation of the Minister of Environment and Forestry No. 9 of 2021, focusing on institutional, economic, and environmental performance. The contribution of this study lies in filling the gap left by previous research, which has primarily emphasized ecological aspects or community participation (Maryudi et al., 2020; Wulandari et al., 2021), by providing quantitative evidence on the economic impacts and compliance performance at the KPH IX Panyabungan site.

2. Method

2.1 Research Location

This research was conducted from November 2023 to April 2024. The research location was intentionally chosen to include three schemes of social forestry in the North Sumatra Forest Management Unit Regional IX Panyabungan, totalling four groups (KPS). Two KPS are located in Batang Natal District, namely KTH Permata Belantara (HKm scheme) at Tarlola Village and KPS Sampean Jaya (HKm scheme) at Bulusoma Village. One KPS is located in Globe Mangrove Indah (HD scheme) at Kunkun Village, Natal Regency, and KPS Koperasi Rizki Jaya (HTR scheme) located in Kampung Baru and Simpang Koje Villages, Lingga Bayu District. These groups were selected because they represent three central social forestry schemes (HKm, HD, and HTR), were among the only ones actively operating during the study period, and provided adequate variations in institutional and business performance needed for comparative analysis. Similar approaches in

selecting active and representative PS groups have been applied in previous studies (Arwida et al., 2023; Pratama & Wulandari, 2022). The research location map can be seen in Figure 1

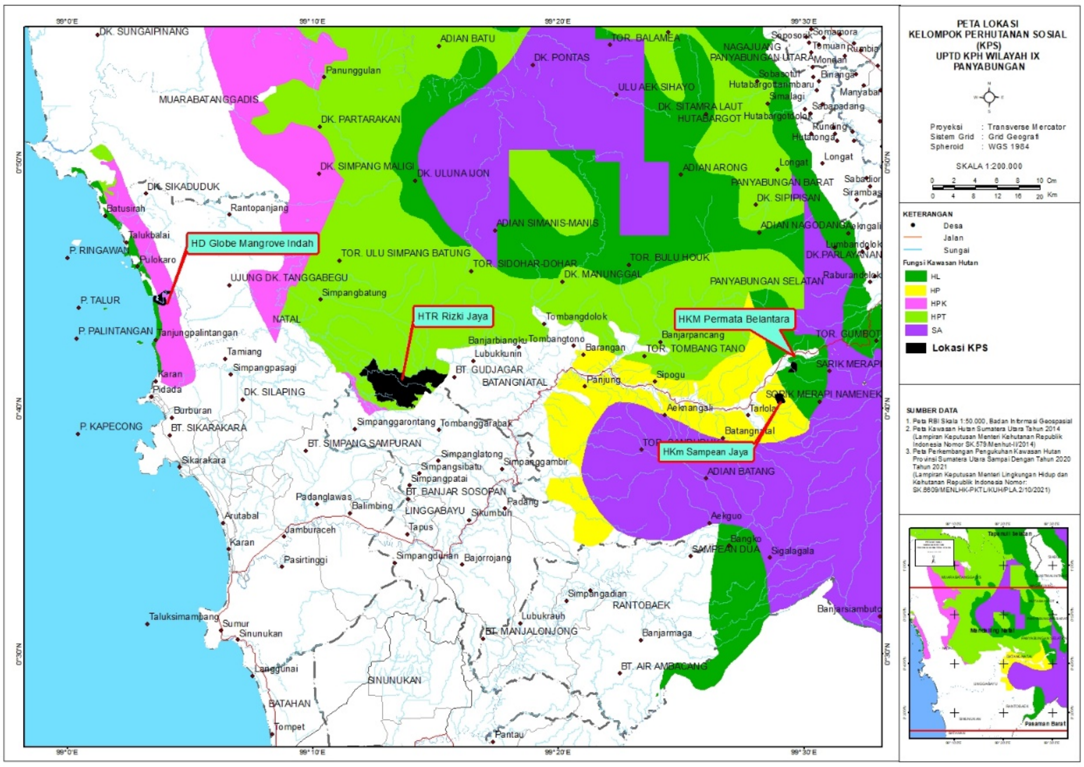

Figure 1. Research location

2.2 Data Collection Methods

Data collection in this study was conducted using three methods:

1. Literature study, involving the review of activity reports, previous research, and relevant documents related to the implementation of social forestry.
2. In-depth interviews were conducted directly with key informants using a structured questionnaire (Appendix 1). The interviews aimed to gather detailed and contextual information from various stakeholders involved in social forestry.
3. Field observations, where the researchers directly observed the activities and behavior of respondents in managing social forestry areas.

The sampling technique used was purposive sampling, targeting key informants consisting of the management board of Social Forestry Groups (KPS), facilitators, and relevant government agency officials. A total of 12 respondents were involved in this study, including 6 KPS administrators, 2 KPS facilitators, and four representatives from related institutions. The selection of this number was based on the availability of informants directly involved in the implementation and support of social forestry in the research location. This approach ensured the research focused on actors with direct experience in managing social forestry schemes, consistent with practices in community-based forestry research (Arwida et al., 2023; Sutarto et al., 2021).

2.2 Data Analysis

The primary and secondary data collected were analyzed using a qualitative descriptive method. This method involved systematic, factual, and accurate assessment of the characteristics and relationships between the phenomena studied, enabling a comprehensive understanding of the social forestry management context.

The performance of each Social Forestry Group (KPS) was evaluated based on aspects outlined in the Ministry of Environment and Forestry Regulation No. 9 of 2021 concerning Social Forestry Management. These aspects include:

1. Area/ecological management (forest management)
2. Institutional/social management (institutional structure)
3. Business/economic management (business development)
4. Business development and partnerships
5. Impact of social forestry business units (KUPS)
6. Payment of non-tax state revenue (PNBP)
7. Conflict resolution mechanisms

Each aspect is further broken down into detailed criteria and indicators (see Table 1). Table 1 was compiled based on the Regulation of the Minister of Environment and Forestry No. 9 of 2021 and serves as a reference for evaluating the effectiveness and completeness of social forestry implementation.

In addition, a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis was conducted to formulate development strategies for KPS. This analysis was based on performance data and qualitative findings from interviews and field observations. The SWOT method systematically identified internal and external factors affecting KPS performance, followed by scoring, weighting, and strategy mapping using the SWOT quadrant model.

This methodology followed the framework by David & David (2016) in Ruhimat (2021) and Humphrey in Fristasya et al. (2021), including Internal Factor Evaluation (IFE), External Factor Evaluation (EFE), and strategy formulation through the Quantitative Strategic Planning Matrix (QSPM). Criteria and indicators have been used to evaluate the implementation of social forestry, as seen on Table 1.

Table 1. Criteria and indicators for evaluating the implementation of social forestry

No.	Aspect criteria	Indicators
1.	Area management/Ecology (*Forest Management*)	a. Remarking the boundaries of the area for social forestry approved b. Potential goods inventory c. Designation of areas for both utilization and protection purposes d. Designation of cultivated areas, social forest farmer groups e. Mapping an area for specific purposes f. Arrange a social forestry management planning (RKPS) g. Arrange an annual management planning (RKT)
2.	Institutional management/Social (*Institutional set-up*)	a. Legality of forest farmer groups (KTH) b. Bylaws/articles of association (AD/ART) KTH c. Legality of social forestry groups (KPS) d. Meeting activity of social forestry groups KTH/KPS e. Completeness of Organization
3.	Business management/Economy (*Business Development*)	a. Establishing the social forestry unit business/KUPS b. Classification of social forestry unit business/KUPS c. Type and potential of business or main products/KUPS d. Institutional capacity building/KUPS e. Legality of unit business /KUPS f. Utilization and protection purposes in the area of social forestry g. Business plan h. Legality of products KUPS i. Regional market of product KUPS
4.	Business development and partnership	a. Support of productive economic tools b. Increasing value of products c. Market promotion of products d. Partnership /collaboration investment

No.	Aspect criteria	Indicators
		e. Capital funding
5	Impact of social forestry business unit (Impact of KUPS)	a. Economic impacts b. Environmental impacts c. Social impacts
6	Payment of non-tax state revenue (PNBP)	a. Presence of forest product information system (SIPUHH) b. The value of non-tax state revenue has been paid
7	Resolution of conflict	a. Actor of conflict b. Cause of conflict c. Type of conflict d. Frequency of conflict e. Method to resolve conflict

4. Result & Discussion

3.1 Performance Evaluation of the Area Management Aspect

Area management involves a series of pre-conditioning activities conducted to support the implementation of Social Forestry activities aimed at optimizing the Utilization of forest resources (Supriyanto, 2018). According to Table 2, the activities of arranging a Social Forestry Management Planning (RKPS) and Annual Management Planning (RKT) have been implemented in all KPS; however, activities such as re-marking the boundaries of the social forestry area, inventorying potential goods, and mapping for specific purposes are still not implemented. Similar findings were also reported by Sari et al. (2022) in West Sumatra and Rahman et al. (2023) in South Kalimantan, indicating that most social forestry groups in Indonesia face challenges in boundary marking and resource inventory due to limited technical capacity and funding. These studies support the observation that social forestry groups tend to prioritize planning documents (RKPS, RKT) but struggle in field implementation.

To provide more precise analysis, each indicator in Table 2 can be evaluated using a simple scoring system: 0 = Not Implemented, 1 = Partially Implemented, and 2 = Fully Implemented (Maryudi & Sahide, 2023). Based on this system, all groups show a score of 2 for RKPS and RKT, but remain at a score of 0 for the other indicators. This suggests that while planning is well-documented, field execution of ecological management activities is still minimal.

Table 2. Analysis of area management

Indicators	HKm Permata Belantara	HKm Samusta Jaya	HD Lembaga Desa GMI	HTR Rizky Jaya
Remarking the boundaries of the area for social forestry approved	Not implemented (Score 0)	Not implemented (Score 0)	Not implemented (Score 0)	Not implemented (Score 0)
Potential goods inventory	Not implemented (Score 0)	Not implemented (Score 0)	Not implemented (Score 0)	Not implemented (Score 0)
Designation of areas for both utilization and protection purposes	Not implemented (Score 0)	Not implemented (Score 0)	Not implemented (Score 0)	Not implemented (Score 0)
Designation of cultivated areas, social forest farmer groups	Not implemented (Score 0)	Not implemented (Score 0)	Not implemented (Score 0)	Not implemented (Score 0)
Mapping an area for specific purposes	Not implemented (Score 0)	Not implemented (Score 0)	Not implemented (Score 0)	Not implemented (Score 0)
Arrange a social forestry management planning (RKPS)	Has implemented (Score 2)	Has implemented (Score 2)	Has implemented (Score 2)	Has implemented (Score 2)
Arrange an annual management work planning (RKT)	Has implemented (Score 2)	Has implemented (Score 2)	Has implemented (Score 2)	Has implemented (Score 2)

According to Table 2, only two out of seven indicators have been implemented by KPS, which are arranging social forestry management planning and annual work planning. The other indicator of area management has not been implemented yet for all KPS. The lowest performance is shown in this aspect, according to the effort KPS on area management, which is caused by a lack of KPS knowledge in mapping the area and unfamiliarity

with GPS to remark boundaries of the area. Remarking boundaries is used to clearly define a location's status and area management (Fisu, 2019). According to the informant's statement, they have drafted RKT and RKPS because they were guided by the facilitator and KPH staff from Regional IX Panyabungan. Based on the view of the data in Table 2, the area has a risk because there are no indicators to protect the area within its boundaries. KPS would find it difficult to determine the direction of area development. If this continues, there will be uncertainty and stagnation on their lands. Therefore, an active role is needed from KPH to involve the social forest group in implementing any area management indicator.

3.2 Performance of Institutional Management

Table 3. Analysis of institutional management

Indicators	HKm Permata Belantara	HKm Sampean Jaya	HD Globe Mangrove Indah	HTR Rizki Jaya
1. Legality of forest farmer groups (KTH)	Complete	Complete	Complete	Complete
2. Bylaws/articles of association (AD/ART) KTH	Complete	Complete	Complete	Complete
3. Legality of social forestry groups (KPS)	Environmental and Forestry Ministry Approval	Environmental and Forestry Ministry Approval	Environmental and Forestry Ministry Approval	Environmental and Forestry Ministry Approval
4. Meeting activity of social forestry groups KTH/KPS	Rare	Rare	Rare	Rare
5. Completeness of group administrations	Taxpayer-Id (NPWP), Bank account, guest book	Taxpayer-Id (NPWP), Bank account, guest book	Taxpayer-Id (NPWP), Bank account, guest book	Taxpayer-Id (NPWP), Bank account, guest book

Based on the data analysis of institutional management, all of KPS have obtained legal status from the Ministry of Environment and Forestry, there are articles of association (AD/ART), and other organizational requirements such as Taxpayer Identification Number (NPWP), bank account, and visitor logbook. However, according to information obtained, the groups do not regularly conduct meetings due to an insufficient attendance rate by members of KPS at activity meetings. The absence of members causes awareness to be low. According to Istiqomah (2021), the reasons group members do not attend meetings include being on the farming side, having to rest after work throughout the day, another need, being sick, and not being interested in attending. Therefore, facilitating KPS is needed. Mentoring provided to the community is another effort to strengthen local institutional capacity. Mentors can come from various sources, including the Community Forest Management Working Group (Pokja PPs), local NGOs, extension workers, universities, research institutions, and local government (Puspitasari, 2019).

3.3 Performance of Business Management/Economy

Table 4. Analysis of business management/economy

Indicators	HKm Permata Belantara	HKm Sampean Jaya	HD Globe Mangrove Indah	HTR Rizky Jaya
1. Establishing the social forestry unit business/KUPS	2 KUPS formed	3 KUPS formed	Not formed	5 KUPS formed
2. Classification of social forestry unit business/KUPS	Silver	Silver	Blue	Blue

Indicators	HKm Permata Belantara	HKm Sampean Jaya	HD Globe Mangrove Indah	HTR Rizky Jaya
3. Type and potential of business or main products/KUPS	Lemon grass farm Fruit farm	Coffee farm Rattan Frankincense	Sylvofishery (mangrove crabs); Ecotourism of mangrove; Mangrove nursery; Processed food business ingredients, fruits of the mangrove	Agroforestry; Rattan; Resin; Fruit farm; Sylvopastura
4. Institutional capacity building/KUPS	Training on processing lemongrass into soap Training on the packaging of lemongrass oil	Training on the grafting technique of the coffee tree	Comparative study of crab farming at Langat regency	No data's
5. Legality of social forestry business unit /KUPS	Approval by Forest Management Unit Regional IX (Score: 2)	Approval by Forest Management Unit Regional IX (Score: 2)	Approval by Forest Management Unit Regional IX (Score: 2)	Approval by Forest Management Unit Regional IX (Score: 2)
6. Utilization and protection purposes in the area of social forestry	Agroforestry fruit plantation with lemongrass	Agroforestry fruit plantation with coffee, Utilization of non-timber forest product rattan, frankincense	Mangrove crab fattening, Ecotourism of mangrove	Utilization of non-timber forest products, rattan, and resin
7. Business plan	No Data's	No Data's	No Data's	No Data's
8. Legality of products KUPS	No Data's	PIRT	No Data's	No Data's
9. Regional market of product KUPS	Local, Sumbar	Local	Sumut, sumbar	Local

This is table 4. Outlines various aspects of social forestry implementation across different units, including the establishment of units, types of businesses or products, capacity building, legality, Utilization of forestry areas, business planning, legality of products, and regional market presence. Based on Table 4, all KPS see that KUPS has formed. Classification of KUPS is mostly Silver and Blue, with product types varying from agroforestry to fisheries, depending on the KPS. Training efforts are evident across most KPS, with a focus on enhancing skills relevant to their operations. Each KPS tends to focus on local markets, with some extending to nearby regions. Started their activities before obtaining permits, have shown considerable growth even without intensive mentoring interventions. Conversely, for KPS that begin collective efforts after obtaining permits, intensive and high-quality mentoring support is crucial to ensure optimal Utilization of the social forestry area. Each KPS has different focuses and stages of development in terms of their social forestry unit businesses (KUPS), institutional capacity building, Utilization of forest areas, legality, business plans, and regional markets for their products. The data indicates varying levels of progress and specialization among the different KPS entities. This comparison highlights the diversity in approaches and focuses among different social forestry units in Indonesia, reflecting their unique local contexts and strategies for sustainable forest management and community development.

3.4 Business Development and Partnership

Table 5. Analysis of business development and partnership

Indicators	HKm Permata Belantara	HKm Sampean Jaya	HD Globe Mangrove Indah	HTR Rizky Jaya
1. Productive Economic Tools from Government	Distillation tools (3 unit) Soap mold (1 unit)	Coffee processing machine (2 units), Harvesting equipment of frankincense (1 set)	No data's	No data's

Indicators	HKm Permata Belantara	HKm Sampean Jaya	HD Globe Mangrove Indah	HTR Rizky Jaya
2. Increasing value of products	Product packaging	Product packaging	No data's	No data's
3. Market promotion of products	Exhibition of forest products event	Exhibition of forest products event	Exhibition of forest products event	No data's
4. Partnership /collaboration investment	No data's	No data's	No data's	No data's
5. Capital funding	No data's	No data's	No data's	No data's
6. Business Facilitator	Forest facilitator	Forest facilitator	Forest facilitator	Forest facilitator

These indicators in Table 5 highlight efforts and resources allocated by each KPS toward enhancing their economic activities, promoting their products, and utilizing government-provided tools to increase productivity. Productive economic tools from the government were received by HKm Permata Belantara, including distillation tools and soap moulds. In contrast, HKm Sampean Jaya received coffee processing machines and harvesting equipment for frankincense. To increase the value of products, both HKm Permata Belantara and Sampean Jaya focus on product packaging. Market promotion of products. All KPS except Koperasi Riski Jaya have participated in exhibitions of forest products events. There is no specific data provided for any of the KPS about partnership/collaboration investment, Capital funding, and Business Facilitator. To improve performance, KPS should collaborate with the government of the village. Village-owned enterprises can be combined with a social forestry business unit, allowing their businesses to operate together and increase the revenue of village communities more widely. If the village can increase the economic and social level index through the social forestry scheme village forest, it could indirectly influence the Village Development Index (VDI) level, which is a goal of sustainable village development (Fitriana, Z.M., 2023).

3.5 Impact of Social Forestry Business Unit

Table 6. Impact of the social forestry business unit

Name of KPS	Economic impact	Environmental impact	Social impact	Quantitative Weighting (0–2)
Permata Belantara	Direct economic impact: increasing members' income from lemongrass oil sales. Indirect economic impact: raising income for local communities involved in the lemongrass oil production process.	Increasing land cover from agroforestry plantations of fruit farms such as durian, avocado, mango, jengkol, petai, and cinnamon.	Employment absorption from lemongrass oil production and fruit farm agroforestry models. Decreasing cases of encroachment and illegal logging, while strengthening "Gotong royong" as a form of local wisdom.	2 (Optimal implementation)
Sampenan Jaya	Direct economic impact: increasing members' income from coffee, fruit farms, and non-timber forest product sales. Indirect economic impact: raising income for local communities involved in coffee, fruit farm, and non-timber forest product processing.	Increasing land cover from agroforestry plantations of fruit farms such as durian, avocado, mango, habo rambutan, kemiri, and sugar palm.	Employment absorption from lemongrass oil and fruit farm agroforestry activities. Decreasing cases of encroachment and illegal logging, while strengthening "Gotong Royong" as a form of local wisdom.	2 (Optimal implementation)

Name of KPS	Economic impact	Environmental impact	Social impact	Quantitative Weighting (0–2)
Globe Mangrove Indah	Direct economic impact: increasing members' income from fattening crab sales. Indirect economic impact: raising income for local communities involved in capturing crabs in mangrove forests.	Increasing land cover from mangrove planting activities.	Employment absorption from crab fattening, decreasing cases of encroachment and illegal logging in mangrove forests, while strengthening "Gotong royong" as a form of local wisdom.	1 (Partial implementation)
Koperasi Risky Jaya	Both direct and indirect impacts cannot yet be determined, as the KPS has not started full operations.	Not yet determined.	Not yet determined.	0 (Not implemented)

The quantitative weighting results indicate that Permata Belantara and Sampenan Jaya have reached the optimal implementation phase (score 2). This is evidenced by measurable contributions to direct and indirect income generation, the expansion of land cover through agroforestry plantations, and substantial social impacts, including job creation, reduced cases of encroachment and illegal logging, and the reinforcement of "Gotong royong" as a form of local wisdom. Globe Mangrove Indah is in the partial implementation phase (score 1). Although this group has shown significant economic contributions through crab fattening and created jobs for local communities, as well as supported mangrove reforestation efforts, the overall scope remains narrow and limited compared to the agroforestry-based initiatives of the previous two groups. Meanwhile, Koperasi Risky Jaya remains in the initial phase (score 0), as no measurable economic, environmental, or social impacts have yet been demonstrated. This is because operational activities have not fully started, making it difficult to evaluate outcomes at this stage.

Overall, applying this quantitative, phase-based evaluation provides a clearer picture of each group's progress and allows direct comparisons between groups. This approach aligns with recent studies that highlight the importance of using multi-criteria, weighted indicators to monitor and assess the performance of social forestry programs in Indonesia.

Table 7. Additional revenue average, economic impact from the social forestry business unit

	HKm Permata Belantara	HKm Sampean Jaya	HD Globe Mangrove Indah	HTR Rizky Jaya
Main product	Lemongrass oil	Coffee bean	Crab	-
Monthly product (Kg)	20	20	280	0
Monthly revenue (Rp)	3,500,000	1,350,000	2,800,000	0
Annual revenue (Rp)	29,400,000	15,450,000	33,600,000	0
Annual revenue from other sources (Rp)	2,500,000	2,300,000	3,960,000	0
Annual revenue Total (Rp)	31,900,000	17,750,000	36,960,000	0

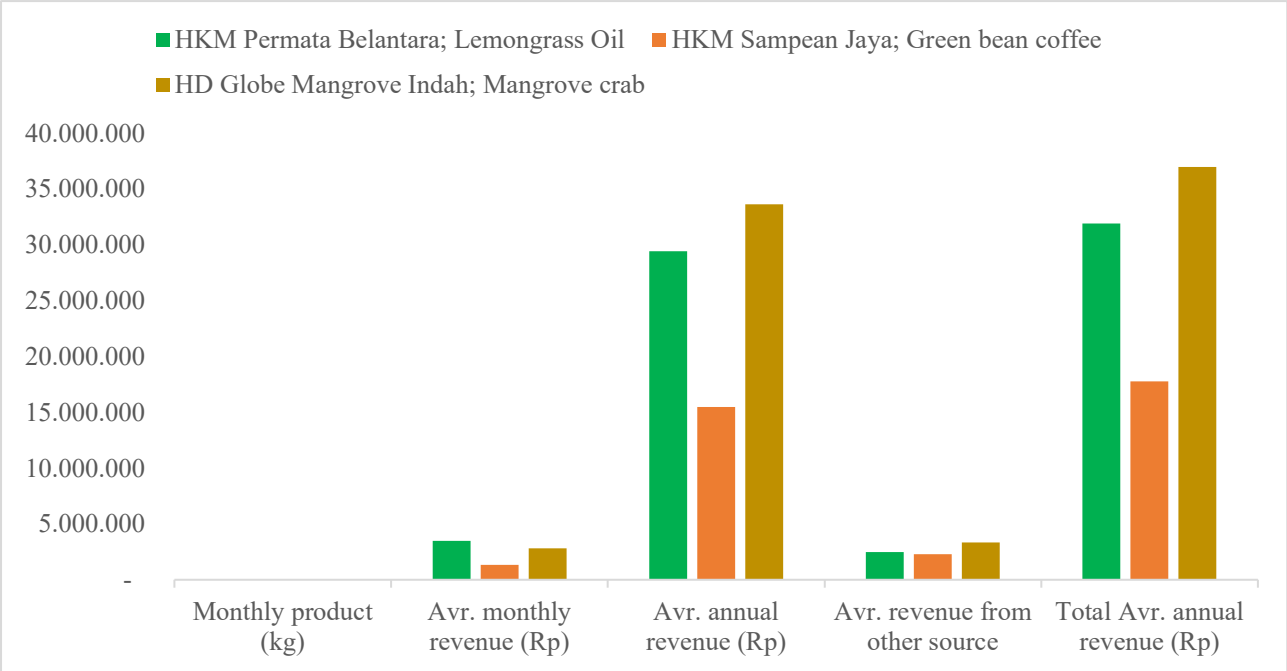

Figure 2. Graphical average production and revenue of KPS

According to Table 7, HKm Permata Belantara generates revenue primarily from lemongrass oil, with an annual total income of approximately IDR 31,900,000. HKm Sampean Jaya derives its revenue from coffee bean production, totaling IDR 17,750,000 annually. HD Globe Mangrove Indah focuses on crab fattening, achieving an annual revenue of IDR 36,960,000. At the same time, HTR Rizky Jaya does not yet have available data for its main products, including monthly production and revenue, indicating limited or unreported activities. These figures demonstrate the economic contributions of each Social Forestry Group (KPS) to local communities through agricultural and forestry-based products. Revenue comparison shows that Globe Mangrove Indah has the highest annual income among the groups, followed by Permata Belantara (lemongrass oil) and Sampean Jaya (coffee beans). In terms of diversification, Globe Mangrove Indah also generates income from multiple sources, indicating resilience and broader livelihood support. By contrast, Rizky Jaya has not yet generated measurable revenue, highlighting the need for future development and support. These findings align with previous studies emphasizing that economic performance in social forestry is highly dependent on product diversification, market access, and institutional capacity (Rahman et al., 2023; Wulandari & Inoue, 2022). Strengthening product value chains and providing targeted assistance can enhance revenue streams and ensure the long-term sustainability of social forestry enterprises

3.6 Payment of Non-Tax State Revenue

Table 8. Payment of non-tax state revenue

	HKm Permata Belantara	HKm Sampean Jaya	HD Globe Mangrove Indah	HTR Rizky Jaya
1. Payment of non-tax state revenue (PNBP)	No data's	No Data's	No Data's	No Data's
2. Amount of non-tax state revenue (PNBP) paid	No Data's	No Data's	No Data's	No Data's

The quantitative revenue comparison indicates that Globe Mangrove Indah achieves the highest annual revenue (IDR 36,960,000), primarily from crab fattening, reflecting strong diversification and economic resilience. Permata Belantara follows with IDR 31,900,000 from lemongrass oil, while Sampean Jaya earns

IDR 17,750,000 annually from coffee bean production. In contrast, Rizky Jaya has not yet generated measurable income, as its operations remain in the initial stage. This distribution highlights the importance of product diversification and market access in sustaining social forestry enterprises. Groups with broader product bases, such as Globe Mangrove Indah, show stronger financial performance and community impact, while groups with single-product dependency remain more vulnerable. These findings are consistent with recent research, which emphasizes that economic sustainability in social forestry is determined by diversification strategies, institutional capacity, and integration into value chains (Rahman et al., 2023; Wulandari & Inoue, 2022). Supporting weaker groups like Rizky Jaya with capacity building, technical guidance, and market facilitation could improve long-term outcomes

Table 9: Analysis of the resolution of conflict

	HKm Permata Belantara	**HKm Sampean Jaya**	**HD Globe Mangrove Indah**	**HTR Rizki Jaya**
Actor of conflict Indicators	None (0)	None (0)	None (0)	None (0)
Cause of conflict	None (0)	None (0)	None (0)	None (0)
Type of conflict	None (0)	None (0)	None (0)	None (0)
Frequency of conflict	None (0)	None (0)	None (0)	None (0)
Method to resolve conflict	None (0)	None (0)	None (0)	None (0)
Conflict-free score (sum of weights)	5 (100%)	5 (100%)	5 (100%)	5 (100%)
Conflict status phase	Fully Conflict-Free	Fully Conflict-Free	Fully Conflict-Free	Fully Conflict-Free

Table 9 indicates that there are no conflicts in any of the categories listed for these entities. Based on the data in Table 7, no conflict was found, especially in the four schemes of social forestry in this research. According to observation data, the land that serves as the location for this social forestry research has been continuously managed for generations, so the potential for conflict is almost non-existent. This is a positive development because it indicates that the process of managing community forests can proceed harmoniously and without significant disruptions, allowing for a continued focus on sustainable and effective forest resource management and development. Contrary to Pangi's opinion (2020), Tenure conflicts appear to occur in almost all forest management units (KPH), especially in production forest management units. This research indicates that conflicts arise not only due to communities accessing areas illegally but also because Forest Management Units (KPH) have not effectively fulfilled their functions. Several contributing factors include inadequate law enforcement, a lack of understanding about the areas involved, and insufficient community empowerment.

3.7. SWOT Analysis

This analysis method was also described in the research methodology section to ensure consistency in analytical approaches. SWOT analysis was used to evaluate the internal and external strategic factors influencing each Social Forestry Group (KPS). This method facilitates a comprehensive understanding of each group's potential and challenges, enabling the identification of suitable development strategies. The SWOT approach includes the use of Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) matrices, which are commonly applied in forest policy and community-based forest management studies (Rangkuti, 2020).

Based on the conditions found in the social forestry groups in the UPTD KPH Region IX Panyabungan, a development study of the Social Forestry Groups (KPS) was conducted using a SWOT analysis by identifying strategic factors from both internal and external environments. This method was selected because it allows for a structured evaluation of the strengths, weaknesses, opportunities, and threats faced by each KPS group. SWOT analysis is effective for determining the appropriate strategic direction for group development, particularly in diverse and dynamic local contexts (Rangkuti, 2020). These factors were then compiled into an

Internal Factor Evaluation (IFE) matrix and an External Factor Evaluation (EFE) matrix and combined with a strategic mapping process to identify a Preferred Strategy, as presented in Table 10

Table 10. SWOT Analysis

External Factor / **Internal Factor**	***Strength (S)***	***Weakness (W)***
	1. KPS has complete legal documentation 2. KPS has legal approval for PS for 35 years 3. KPS has land designated for business use 4. Natural forest products such as rattan, honey, resin, etc., are still available and distributed throughout the PS area. 5. In general, the PS group villages are situated along the Trans-route road 6. Has been provided with support in the form of Productive Economic Tools (AEP) 7. KPS has been provided with MPTS (Multi-Purpose Tree Species) seedling support 8. Has a KUPS and has already been facilitated 9. Has prepared the RKT and RKPS 10. KPS has flagship products	1. Low solidarity and willingness among members 2. Centralized management concentrated in a few administrators 3. Members are less active and have low motivation 4. Lack of skills and knowledge within the group to utilize permits 5. Difficulty in obtaining business capital 6. Does not yet have a Business Plan
Opportunity (O)	**Strategy S-O**	**Strategy W-O**
1. PS is a priority for the Provincial Forestry and Environment Agency (Dinas LHK) and Ministry UPTs in North Sumatra. 2. Growth in social media use among the community 3. Assistance in the form of productive economic equipment 4. KTH training provided by BDLHK 5. Products cultivated by KTH are generally marketable 6. Support from local government and national figures to advance farmers in Madina (e.g., Todung M. Lubis, Darmin Nasution) 7. Many coffee shops and mini markets are opening in the regency capital 8. Development of marketplaces and online marketing 9. MSME (Micro, Small, and Medium Enterprise) exhibitions are held at the district and provincial levels 10. Assistance from Forestry Extension Officers	1. Submitting activity proposals to support KUPS 2. Utilizing Non-Timber Forest Products (NTFPs), such as rattan harvesting, to increase income and non-tax state revenue (PNBP) 3. Intensifying the maintenance of planted seedlings received as assistance 4. Maximizing the use of productive economic equipment that has been provided 5. Utilizing social media and online marketplaces as platforms for product promotion and marketing	1. Activating the role of all members in every activity 2. Attending various training programs 3. Exploring partnerships with MSMEs for the Utilization of AEP and product marketing

Threat (T)	**Strategy S-T**	**Strategy W-T**
1. Market prices of the developed products fluctuate 2. Land conversion into oil palm plantations 3. Public perception that government activities are project-based (short-term or temporary) 4. If the evaluation results from the government that issued the PS approval are poor, the approval can be revoked 5. Productive economic equipment that is not utilized correctly can be withdrawn and redirected to another KPS 6. Product diversification is still limited	1. Improving the quality of KUPS products 2. Enhancing the management aspects of area governance and business operations of PS	2. Improving institutional and KUPS management

4. Conclusion

Reviewing KPS on PNBP (Non-Tax State Revenue) payments aspect, the data obtained in Table 6 shows that none of the groups have ever made PNBP payments for products utilized from NTFP (Non-Timber Forest Products) production. Although all KPS have produced or collected NTFP, there is no data on PNBP payments. The data in the table indicate that one of the KPS, namely HKm Sampean Jaya, has been registered and has an SIPUHH (Forest Product Administration System) for NTFP. For all the PS groups mentioned (Permata Belantara Sampean Jaya, HD Globe Mangrove Indah, HTR Rizki Jaya), there is no information regarding the amount of PNBP that has been paid. All groups are still in the "not yet" status for PNBP payments. Based on PNBP for each forest product utilized, KPH (Forest Management Unit) is considered unable to provide adequate facilitation and oversight, highlighting the need for increased institutional capacity and better inter-agency coordination (Wulandari et al., 2023; Sari & Nugroho, 2022; Pratama & Dewi, 2023; Lubis et al., 2024). This situation emphasizes the importance of strengthening KPH roles in assisting social forestry groups, particularly in fulfilling PNBP obligations from NTFPs, as supported by recent studies (Sari & Nugroho, 2022; Lubis et al., 2024).

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