Social Forestry and Rural Transformation: Tracing Socio-Economic Changes in West Kurau Village, Central Bangka Regency

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Abstract

The Social Forestry (PS) program has become a strategic policy in encouraging community-based rural transformation. This study aims to measure the impact of the implementation of PS on social and economic changes in the community in West Kurau Village, Central Bangka Regency. Using a quantitative approach with a survey method of 105 respondents, the analysis was carried out through *the Paired Sample t-Test* on indicators of participation, public relations, local institutions, income, economic opportunities, and employment. The results of the study showed a significant increase after the implementation of the social forestry program, consisting of social indicators including increased community participation from an average score of 2.59 to 3.38, community relations from a score of 2.9 to 3.50, and local institutions from a score of 2.6 to 3.52. Meanwhile, economic indicators include income increasing from an average score of 3.18 to 3.63, economic opportunities from an average score of 3.17 to 3.27, and employment increasing from 2.74 to 4.14. Based on the Paired sample test, all social indicators showed a significance value of 0.000 ($p< 0.05$) and an economic indicator of significance value of 0.000 ($p < 0.01$), indicating that there was a statistically significant difference between the conditions before and after the program. This transformation reflects the role of PS as an instrument of community-based empowerment. This study emphasizes the importance of strengthening local institutions and policy sustainability through a participatory approach. These findings provide an empirical contribution to the social forestry literature as well as relevant policy implications for community-based natural resource management.

Keywords: Social Forestry, Rural Transformation, Community Empowerment, Village Economy, Local Institutions

Introduction

Social Forestry (SF) is a state policy strategy to restore community access and control over forest resources. Since its inception within the framework of Agrarian Reform by the Government of Indonesia, this program has become a locomotive for community-based agrarian transformation, covering more than 6 million hectares and 8,000 forest farmer groups by 2024 (Mulyana & Moeis, 2022). Not only in Indonesia, but similar dynamics are also seen in the Southeast Asian region. Baladad (2025) in his research emphasized that the agroecology and seed sovereignty movement in Southeast Asia reflects how village communities make natural resource management a key strategy for socio-economic and ecological transformation.

Rural areas around forests often experience double marginalization, both in terms of economy and political representation. Limited access to land, capital, and infrastructure exacerbates structural inequality. Social Forestry, which gives the right to manage forest areas to communities, is aimed at addressing the problem. Chao's (2024) research on the Papua region highlights that this transformation is not only economic, but also touches on the ecological and cultural aspects of the community, showing how indigenous and local communities struggle to maintain their living space in the expansion of commodities such as palm oil.

Empirically, Social Forestry has shown positive results in various regions in increasing income, preserving the environment, and empowering local institutions (Iman & Arifin, 2024; Yum et al., 2024; Lawasi, 2022; Rosmaladewi, 2022). However, its implementation is often faced with limited capacity of village management institutions, territorial boundary conflicts, and disconnections between regulations and social realities. Bepari (2025) in his research in India shows that negotiations between communities and the state in forest management often reflect latent conflicts about identity, access, and sustainability, a phenomenon that is also beginning to be seen in the context of Social Forestry in Indonesia.

West Kurau Village, located in Central Bangka Regency, is one of the coastal villages that has obtained a Social Forestry permit since 2016 through the Community Forest (HKm) scheme. Despite the legality of the management, the effectiveness of the program in driving substantial social and economic change still leaves critical questions. Some of the main challenges in these villages include economic dependence on forest products that have not been optimally managed, weak local institutions, and low involvement of vulnerable groups in decision-making.

Most research on Social Forestry is still macro and policy-based. Micro-studies at the village level that are able to describe the dynamics of participation, social conflicts, and economic impacts contextually are still very limited (Lawasi, 2022). This is a significant research gap. Studies such as those conducted by Rachmawan et al. (2021) and Veriasa et al. (2023) have paved the way, but have not touched specific domains such as the West Kurau context.

Through a cross-disciplinary approach and global reading, Social Forestry in Indonesia is in line with the international trend towards *decentralized forest governance*. This is evident in various initiatives of indigenous and local peoples in South and Southeast Asia who are remanaging their ecological spaces for social, ecological, and political purposes (Baladad,

2025; Chao, 2024). Thus, the study in West Kurau can be positioned as part of the narrative of community-based global rural transformation.

This research is motivated by the importance of evaluating the real impact of Social Forestry programs at the village level, especially in areas with community-based resource management that are still minimally studied. Through an empirical approach, this study highlights the social and economic changes that occur as a result of the implementation of the program, so that it is expected to enrich the academic discourse on rural transformation while making a real contribution to the formulation of policies that are more adaptive, inclusive, and based on local contexts.

The research focus includes the impact of social forestry programs on community participation, social relations, and strengthening local institutions as social indicators. Meanwhile, in the economic aspect, the research highlights changes in income, new economic opportunities, and increased employment. Theoretically, the findings of this study are expected to expand understanding of the relationship between natural resource governance and rural socio-economic transformation. Meanwhile, practically, the results of this study can be a strategic input for local governments and other stakeholders to strengthen the implementation of Social Forestry through a more participatory, equitable, and aligned approach with local needs and potential. Thus, the community-based forest governance model that has proven effective in West Kurau Village can be replicated in other regions with similar socio-ecological characteristics, both in Indonesia and at the global level.

Research Method

This study uses **a quantitative** approach with **a survey** method**,** which aims to measure the impact of the Social Forestry program on social and economic changes in the community in West Kurau Village, Central Bangka Regency. The quantitative approach was chosen because it allows the measurement of social and economic variables in an objective, measurable, and statistically analyzable manner (Sugiyono, 2022). The location of the research was determined purposively in West Kurau Village, Koba District, Central Bangka Regency, Bangka Belitung Islands Province. This village is one of the locations that has obtained forest management permits through the Community Forest (HKm) scheme since 2016 and actively runs the Social Forestry program. The research has been carried out from March to June 2025.

The population in this study is all communities that are directly or indirectly involved in the Social Forestry program in the village. The number of respondents in this study was **105 people** who were selected using **the purposive sampling** technique**,** which is a sampling technique based on certain criteria that are relevant to the purpose of the study. The criteria for respondents are as follows: 1) Aged between 25 and 65 years, 2) have been domiciled in West Kurau Village since at least 2014, 3) know and/or be involved in Social Forestry activities directly, and 4) Willing to be a research respondent.

Data were collected using a **structured questionnaire** with a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. The questionnaire includes social variables, including indicators of community participation, public relations, and local institutions. Meanwhile, the economic variables of income, economic opportunities, and

employment were adjusted to the focus of the research. In addition, field observations were carried out to support contextual understanding of respondents and locations. Validity and reliability tests were carried out on the questionnaire instruments before the main data collection. Validity was tested with Pearson's correlation (r), while reliability was tested with Cronbach's Alpha coefficient. The instrument is declared valid and reliable if the r-calculated value > the r-table and Cronbach's Alpha > 0.6. Data were analyzed **descriptively, quantitatively**, and **inferentially.** Descriptive analysis was used to see the frequency distribution and the tendency of respondents' responses to each indicator. Meanwhile, to determine the significant difference between the conditions **before and after** the Social Forestry program, the **Paired Sample t-Test** with a significance level of 5% ($\alpha = 0.05$) was used.

$$t = \frac{\bar{D}}{\frac{S_D}{\sqrt{n}}}$$

Decision Making Criteria: (1) Based on the t-calculated value: if the absolute value of t-calculate $\geq$ t-table, then H_0 is rejected, which means that there is a significant difference between the two conditions tested. If the absolute value of t-is calculated < t-table, then H_0 is accepted, which means that there is no significant difference. (2) Based on *p-value*: if p-value is < α (0.05), then H_0 is rejected, indicating that the difference found is statistically significant, and if the p-value is $\geq \alpha$ (0.05), then H_0 is accepted, indicating that the difference is not statistically significant.

Results And Discussion
Respondent Characteristics
The characteristics of KTH Earthquake 01 members describe information regarding gender, age, last education, main job, monthly income, length of residence, respondents' knowledge of the Social Forestry Program, and their participation in the Social Forestry program in West Kurau Village.

Table 2
Respondent Characteristics

Category	Features	People (person)	(%)
1. Gender	Male	76	72.38
	Female	29	27.62
2. Age	<27	11	10,48
	27-36	33	31,43
	37-46	36	34,29
	47-56	20	19,04
	>56	5	4,76
3. Education	Elementary School	7	6.67
	Junior High School	23	21.9
	Senior High School	63	60.0
	College	12	11.43
4. Main Occupations	Honorer/ASN	11	10.48
	Housewives	8	7.62
	Private Employees	9	8.57
	Fisherman	29	27.62
	Farmer	24	22.86
	Merchant	16	15.23

	Village Apparatus	3	2.85
	Self employed	3	2.85
5. Revenue Per Month	<1.000.000	8	7.62
	1.000.000–2.500.000	19	18.1
	2.500.000–5.000.000	46	43.81
	>5.000.000	32	30.48
6. Long Residence	< 10	3	2,85
	11–20	23	21,9
	>20	79	75,23

Source: Processing data, 2025

Table 2 shows the distribution of respondents by gender, showing that men dominate participation, which is 72.38%, while women only contribute 27.62%. As many as 65.72% of respondents were in the productive age group (26–45 years), indicating that program participation was dominated by individuals who were at the peak of physical and economic ability. Although its contribution is relatively more limited than other age groups. Young age (<27 years) represented only 10.48% of respondents, which indicates relatively low participation. This can be attributed to the high mobility of young people or a lack of interest in forestry programs. The education level of the majority of respondents was high school equivalent (60%), followed by junior high school (21.90%) and university (11.43%). The low number of respondents with basic education (SD, 6.67%) indicates that there is relatively good functional literacy among the community, which has the potential to support the effectiveness of program implementation.

Most of the respondents worked as fishermen (27.62%) and farmers (22.86%), indicating a high dependence on natural resources. The involvement of these professional groups shows a strong synergy between community livelihoods and the goals of social forestry programs. Other jobs that are quite significant include traders (15.23%), private employees, civil servants, and village officials. These findings support the assumption that community-based forest management is more effective when it is aligned with local economic conditions.

Respondents with a monthly income between IDR 2,500,000–5,000,000 dominated (43.81%), followed by those with an income above IDR 5,000,000 (30.48%). This shows that most respondents are in the middle economic category, which has sufficient financial capacity to support sustainable forest management. As many as 75.24% of respondents have lived in West Kurau Village for more than 20 years. The long duration of the stay reflects a significant social and emotional attachment to the region and the accumulation of local knowledge.

Social and Economic Changes in Social Forestry Programs
The Social Forestry Program has a real impact on the social dynamics of the community in West Kurau Village. This can be seen in **Figure 1**, which shows an increase in scores on various social indicators after the implementation of the program. These improvements include aspects of participation in forest management, involvement in decision-making, strengthening local institutions, and improving public relations. In addition, there is a reduction in the level of conflict and an increase in the sense of community in community. These findings confirm that community involvement in forest governance through a participatory approach can produce positive and sustainable social change at the local level.
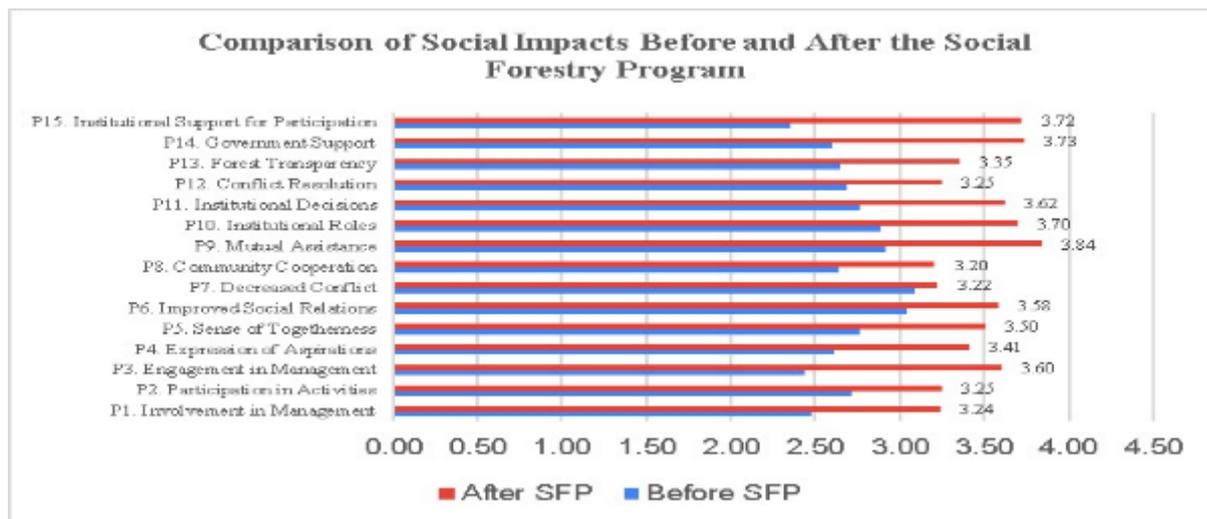
Figure 1. Social Conditions Before and After the Implementation of the Social Forestry Program

To strengthen these findings, a paired sample t-test was conducted on each social indicator, before and after the implementation of the program based on community participation, public relations, and the role of local institutions. Table 3 Paired *Sample T Test* Results of Social Forestry Program Social Indicators.

Table 3

Results of the Paired Sample T Test of Social Indicators in the Social Forestry Program

No	Social Indicators	*Mean Before*	*Mean After*	t count	df	Sig. (2-tailed)
1	Community Participation	2.59	3.38	-18.55	104	.000
2	Social Relations	2.9	3.50	-21.23	104	.000
3	The Role of Local Institutions	2.6	3.52	-4.009	104	.000
	Information:	Sig. (2-tailed) $\leq$ 0,05 = Tolak H_o				

Source: Processing data, 2025

Table 3. The test results showed that most of the changes had a high level of statistical significance ($p < 0.05$), indicating that the differences between the conditions before and after the program did not occur by chance, but rather as a direct result of the intervention of the Social Forestry Program. The results of the analysis showed a significant increase in community participation after the implementation of the Social Forestry program. The average value of participation increased from 2.59 to 3.38 ($p = 0.000$). This shows that the program has been successful in encouraging community involvement in collective activities, deliberation, decision-making, and direct forest resource management. Increased community participation after the implementation of the program shows that a community-based approach can increase citizen involvement in forest governance. This is in line with the findings of Buthelezi et al. (2025), which emphasize the importance of participatory-based forest rehabilitation approaches to enhance social responsibility and sustainability. Active participation is in line with Osewe et al. (2025), who in a study on the Karura Forest showed

that citizen involvement in the planning and implementation of conservation programs can increase the benefits of local ecosystems and people-to-people relationships.

Public relations indicators showed significant improvement, with an average score increasing from 2.9 to 3.5 (p = 0.000). Reflecting the strengthening of social relations between villagers, including in the form of cross-group collaboration, solidarity in regional management, and intensification of community communication. This can be understood as a form of social capital development as a result of collective and consensus-based forest management. Improved social cohesion and decreased conflicts after the program indicate that the presence of collaborative structures, such as the Social Forestry Program, is able to build mutual trust and interdependence among residents. This is relevant to *social capital theory* (Putnam, 2000), as well as confirmed in a study in Kenya by Rotich et al. (2025) regarding community-based forest fire management.

The average score on the role of local institutions increased from 2.6 to 3.52 (p = 0.000). It shows that the role of local institutions such as forest farmer groups, village governments, and customary institutions has been revitalized. They not only become facilitators of technical activities but also become a liaison between the community and external stakeholders, such as the government and NGOs. These changes are important for the sustainability of community-based forest governance. Local institutions became more active and gained public trust and government support. This supports Ribot's (2004) theory about the importance of decentralization in natural resource management. In addition, the findings of Pokhrel et al. (2025) on community forest management in California confirm that the success of programs often depends on the active role of local organizations in facilitating cross-sectoral cooperation.

In addition to having an impact on the social aspect, the Social Forestry Program also provides significant changes to the economic condition of the community in West Kurau Village. This can be seen in **Figure 2,** which shows an increase in public perception scores on various economic indicators after the implementation of the program. Indicators such as income stability, market access, involvement in forest ventures, and employment opportunities have seen consistent improvements.
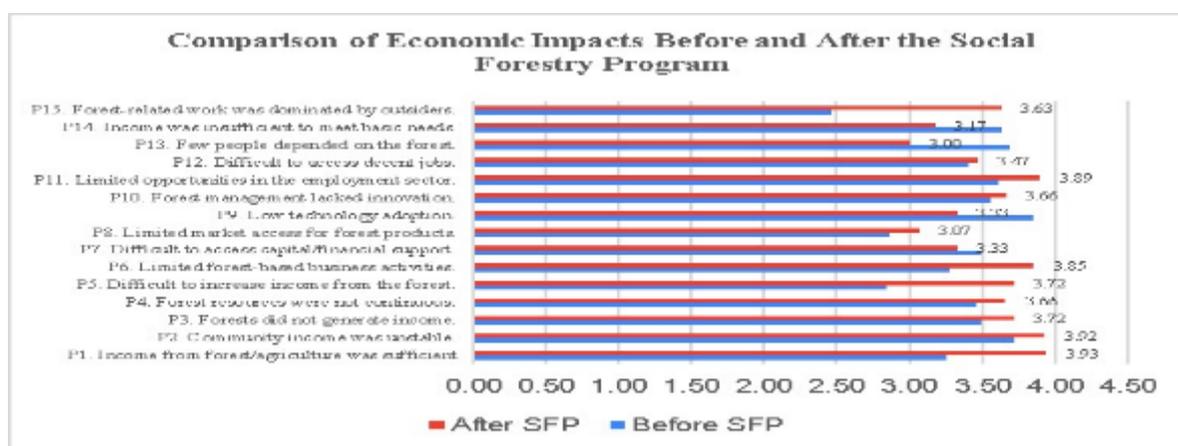

Figure 2. Economic Conditions Before and After the Implementation of the Social Forestry Program

This increase indicates that communities are beginning to feel the economic benefits directly from community-based forest management, such as through the use of non-timber forest products, agroforestry activities, and additional income from the ecotourism sector and local production. To ensure the validity of these findings, a statistical paired sample t-test was carried out, which shows that most of the score changes are statistically significant (p < 0.05), so it can be concluded that the Social Forestry Program plays an important role in encouraging sustainable economic improvement of forest communities' households. Table 4 is the result of the *Paired Sample T Test of the* condition of economic indicators in the Social Forestry Program.

Table 4
Results of the Paired Sample T Test of Community Economic Indicators in the Social Forestry Program

No	Economic Indicators	*Mean Before*	*Mean After*	t hitung	df	Sig. (2-tailed)
1	Income	3,18	3,63	-13,42	104	.000
2	Economic Opportunities	3,17	3,27	-3,58	104	.001
3	Employment	3,14	3,28	-4,24	104	.000
Information:		Sig. (2-tailed) ≤ 0,05 = Tolak H_o				

Source: Primary data processing, 2025

Table 4. The test results showed a significant difference between the conditions before and after the program, with a *significance value of 0.000 (p < 0.05).* The increase in the average income score from 3.18 to 3.63, a large *t-value* (-13.42) indicates a structural transformation of the community's source of income. In line with the research of Iman & Arifin (2024), Social Forestry with the Village Forest scheme provides communities with legal rights to manage land in State Forest areas and provide social, economic, and ecological benefits. In addition, Fisher *et al*. (2018) state that social forestry programs directly improve community welfare through active involvement in community-based forest management activities.

The level of economic opportunity increased from a score of 3.17 to 3.27 (*t = -3.58; p = 0.001*), indicating that the program has expanded business space based on non-timber forest products (NTFPs), ecotourism, mangrove cultivation, and the use of environmental services. Furthermore, research by Rochmayanto et al. (2019) shows that social forestry through the Village Forest scheme can introduce a more inclusive forest management model and benefit the community, both economically and ecologically. By introducing and encouraging ecotourism management, mangrove cultivation, and the use of environmental services, the program can reduce people's dependence on forest-damaging activities, such as tree felling, while still increasing their income.

The employment indicator experienced the most significant increase, from 3.14 to 3.28 (*t = -4.24; p = 0.000*). This program encourages the opening of various new types of jobs, ranging from field workers, area guards, craftsmen, to ecotourism service actors. Mutaqin *et al*., (Mutaqin et al., 2022) explain that community involvement in social forestry schemes can open up new labor intensive job opportunities, thus making a direct contribution to reducing unemployment and increasing local productivity.

Conclusion and Recommendations

This research shows that the Social Forestry program in West Kurau Village has a positive impact on the social and economic dimensions of the community. Socially, there has been a significant increase in the level of community participation, public relations, and the role of local institutions. Economically, this program contributes to the creation of new jobs, the diversification of non-timber forest products-based businesses (NTFPs), and the increase of local economic opportunities. Although there was a small decrease in the average income score, it indicates a shift in the economic structure from exploitation-based to sustainability-based. The role of local institutions as mediators between the community and external stakeholders is key to the successful implementation of the PS. Thus, PS is not only an instrument of legal forest management but also a driving force for sustainable rural socio-economic transformation.

To increase the effectiveness and sustainability of the Social Forestry program in West Kurau Village, several strategic steps are suggested. First, strengthening local institutions needs to be prioritized through technical training, governance, and business management so that village institutions and KTH are more adaptive to challenges. Second, expanding the participation of vulnerable groups such as women and youth must be carried out to ensure inclusivity and equitable distribution of benefits. Third, the diversification of the local economy based on NTFPs, ecotourism, and environmental services needs to be strengthened with the support of training, market access, and capital. Fourth, it is important that local context-based participatory evaluation mechanisms be developed to ensure that programs remain responsive to community needs. Thus, Social Forestry can function optimally as an instrument of rural social and economic transformation.

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