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Gender in Social Forestry Progam (Case of LMDH Wono Lestari Burno Village Senduro Sub-District Lumajang District)

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Abstract: Social Forestry data 2015-2019 shows that out of 712,560 households, 94% of family heads are male and only 6% are female. LMDH Wono Lestari has successfully optimized this program by involving the community and Social Forestry Business Group (KUPS). However, no data is showing the low access, involvement, and gender equality in forest management in Social Forestry areas. This study aims to analyze the roles of men and women in productive activities in gender-based Social Forestry management. The research was conducted in Burno Village, LMDH Wono Lestari involving 71 respondents consisting of married couples determined using purposive sampling. The results showed that gender has a significant role in social forestry management. Men and women contribute significantly to productive activities, with each having different expertise and local knowledge. This research makes an important contribution in filling the gap in the literature regarding the role of women in Social Forestry schemes, especially in relation to household economic welfare. Unlike previous studies that generally only highlight women's involvement quantitatively or administratively, this research explores in-depth the forms of women's contribution in productive activities, decision-making, and gender division of labor both inside and outside the domestic sphere.

Keywords: Burno Village; Gender; Productive activities; Social forestry; Social forestry business groups (KUPS)

Introduction

The Social Forestry Program is a forest management approach that involves the community in the use of natural resources while maintaining their sustainability. The aim is to provide direct economic benefits to the community through management rights and reduce conflicts related to land rights and forest ownership (Tamara et al., 2020). However, its implementation still faces challenges, especially in the aspect of gender equality. Although women should have equal opportunities to participate in economic activities, they often face cultural constraints and mindsets that limit their access to the utilization of forest products (Pertiwi et al., 2021). According to 2020 Katadata Insight Center data, only about 5% of Social Forestry Business Groups (KUPS) have women members (Bangdakemendagri, 2022), indicating the need to increase women's involvement in forest management.

Recent studies highlight the importance of women's involvement in Social Forestry, with their access to non-timber forest products associated with household economic resilience. Households with women who have access to non-timber forest products, such as honey and medicinal plants, tend to have more stable economies (Fitriani et al., 2021; Rahmawati et al., 2024). However, despite positive evidence, barriers remain in the implementation of policies that support women. Puspitasari et al. (2023) pointed out inequalities in access to training, funding, and land ownership for women. Therefore, stronger affirmative policies are needed to increase the involvement of men and women in Social

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Forestry and improve their household economic welfare. This study aims to explore the contribution of women in Social Forestry to household economic welfare, as well as examine policies that can encourage their participation, given that women's roles are often overlooked in previous studies.

Method

The research was conducted from July to August 2024. The research object was located in Burno Village, Senduro District, Lumajang Regency, East Java, Indonesia. This village has the Wono Lestari Forest Village Community Organization, which is the focus of the research. which is the focus of the research (Figure 1).

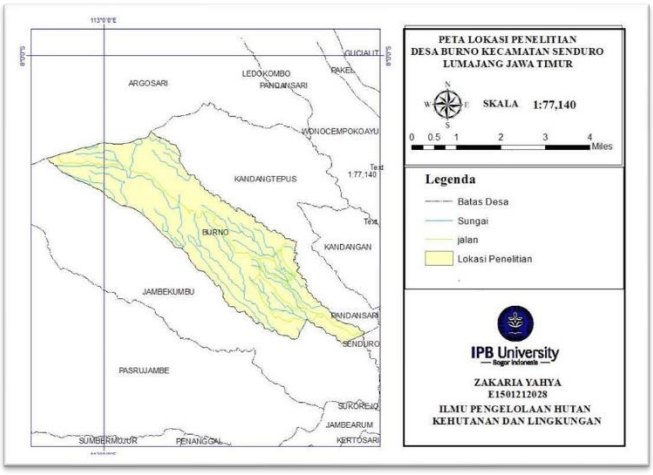

Figure 1. Research location

Materials and Tools

The tools used in this study were stationery, recording devices, and cameras. Tools for data analysis were Microsoft Excel, questionnaires, and interview guides. Research materials consisted of questionnaire data, interview data, village profiles, and reports.

Data Collection Methods

This research collected two types of data: primary and secondary data. Primary data was obtained directly, while secondary data was obtained indirectly from existing sources. According to Creswell (2017), primary data provides deeper insights than secondary data, as it is collected according to the research's needs. In contrast, secondary data is information that has been collected and processed by others for different purposes.

The data collection method used is descriptive qualitative. This method is often used to explore in-depth information about social phenomena, culture, or human behavior that cannot be measured quantitatively. The descriptive method aims to provide a systematic description of the social phenomenon under study. In addition to data collection, this method also includes data interpretation to understand the broader context (Sari, 2023). Data were collected through interviews, observation, and documentation, then analyzed with thematic coding to identify patterns of participation, access barriers, and women's economic contributions. Despite having the same opportunities.

Results and Discussion

Overview of the Research Site

Burno Village is located in Senduro Sub-district, Lumajang District, East Java, at coordinates 8°3' South latitude and 113°2' East longitude. The village is on the western slope of Mount Semeru with a diverse topography, ranging from highlands to mountain slopes, with an altitude of around 700-900 meters above sea level. The climate in Burno Village is cool and humid, with an average temperature of 20-25°C, and high rainfall during the rainy season (November-April). The village is inhabited by approximately 4,521 people spread across six hamlets: Krajan I, Krajan II, Gondang, Karananyar, Tugu, and Mlambing, with 36 RT and 6 RW. Burno Village is also managed by the Wono Lestari Forest Village Community Organization (LMDH), which manages 940 hectares of land dominated by resin, sengon, and pine trees. This LMDH operates within the framework of social forestry with the aim of improving the welfare of the local community. LMDH Wono Lestari is involved in the Social Forestry scheme with the Forestry Partnership Recognition and Protection (Kulin-KK) scheme that started in 2018 and transformed into Community Forest (HK) in 2023, although the related decree is still in process. This LMDH is also nationally recognized as a successful example of community-based forest management. The success is reflected in the management of four Social Forestry Business Groups (KUPS) that focus on community empowerment, including the Dairy Cattle KUPS, the Farm Product Processing KUPS, and the Social Forestry Business Group.

Respondents Characteristics (Gender)

A total of 71 men and 71 women consisting of married couples were actively involved in various activities, both on the land and in decision-making. Based on the theory of gendered access and control (Agarwal, 1997), there are still different roles in the field that reflect structural inequality; men tend to be involved in physical labor and strategic decision-making, while women more often take on roles in planting, maintenance, and processing. While women have access to land, control over land use and benefits often remains with men. This difference indicates that

equal involvement in numbers does not necessarily reflect equality in influence and decision-making.

Respondent Characteristics (Age of Respondent)

Based on Table 1, in the age group of respondents, the dominant number of men was in the age range of 43-53 years, as many as 26 people or 36.6% of the total 71 people. This shows that most of the men involved in the activities are at a productive age, approaching peak career age. Meanwhile, for women, the largest age group was in the age range of over 64 years, as many as 23 people or 32.4% of the total 71 women. The dominance of women over the age of 64 indicates that their involvement is in the post-productive stage, which is limited in terms of physical, training and economic access. This age imbalance weakens women's economic role and increases dependence on men. The low participation of young women also hampers the regeneration of roles in economic development. Therefore, cross-age participation and strengthening women's capacity needs to be encouraged to support more inclusive welfare (Quisumbing, 2020). This finding is in line with gender theory, which also states that elderly women have an important role in maintaining the sustainability of local wisdom-based agricultural and forestry practices (Agarwal, 2001). This shows that women's roles are not always visible in physical or economic aspects, but remain significant in social and ecological dimensions.

Table 1. Distribution of respondents by age

Age	Male		Female	
	Total	%	Total	%
21-31	2	2.8	0	0
32-42	8	11.3	18	25.6
43-53	26	36.6	17	23.9
54-64	25	35.2	13	18.3
>64	10	14.1	23	32.4
Total	71	100	71	100

Respondent Characteristics (Education Level)

Based on Table 2, the most dominant level of education for men and women was senior high school, 50.7% for men (36 people) and 45.1% for women (32 people). The results of information found at the research location were that many men and women aged 50 years and above had elementary and junior high school education. Those aged 50 years and below had more high school graduates and fewer went on to university because they were looking for work experience or internships in fields that support the environment or agriculture. Diiro et al. (2019) Limited access to education, especially among older generations, limits economic opportunities such as formal employment and training. For women, this results in lower participation in decision-making and access to resources. This inequality widens the gender economic gap, so increasing gender-based literacy and training is important.

Table 2. Distribution of Respondents Based on Education Level

Last education level	Male		Female	
	Total	%	Total	%
Elementary School	16	22.5	20	28.2
Junior High School	15	21.1	16	22.5
Senior High School	36	50.7	32	45.1
Bachelor/S-1	4	5.6	3	4.2
Total	71	100	71	100

Characteristics of Respondents (Family Dependents)

The distribution of the number of family dependents in the Wono Lestari LMDH respondents was dominated by the medium category (4-5 people) at 60.6%. Prasetyo et al. (2021) found that the more family members, the lower the per capita income, which has an impact on quality of life. However, in the context of LMDH, the moderate number of dependents can actually be a source of additional labor that supports forest production and management activities.

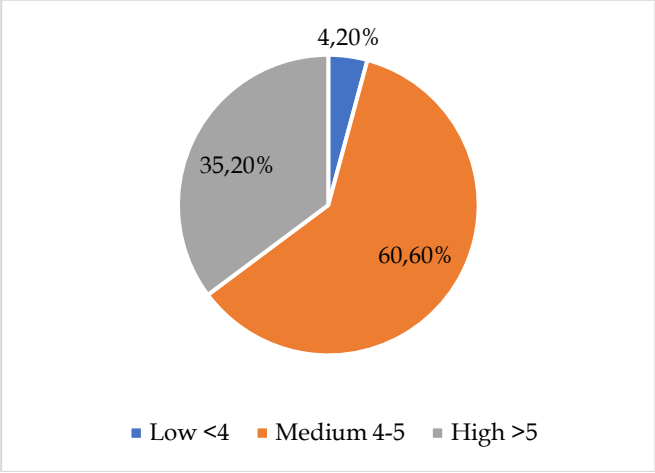

Figure 2. Respondents by number of family members

Land Area

Licensing of forest utilization businesses or holders of forest area borrow-to-use permits with an area of ≤ 5 hectares (ha) for each family, the regulations are regulated in Law Number 11 of 2020 concerning Job Creation, and more specific implementation rules are contained in Government Regulation (PP) Number 23 of 2021 concerning the Implementation of Forestry in Chapter IX regulates the utilization of forest areas by communities or small business groups including the ≤ 5 ha per family scheme.

Figure 3 shows that land ownership of more than 1 Hectare (Ha) is the highest, at 47.88%. Social forestry can

reduce dependence on extractive activities and increase the resilience of local economies to shocks (Rahman et al., 2022).

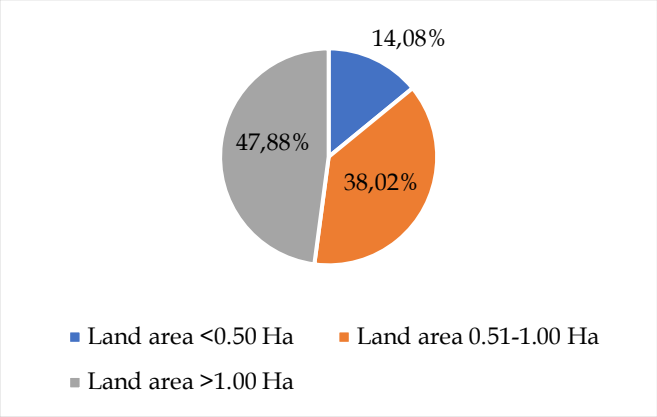

Figure 3. Distribution of respondents by size of cultivated land in forest areas

The Main Job of the Respondent

The main job of the respondent is a job where a person spends more time on one job, then the job is classified as the main job (Citra et al., 2020). Figure 4 shows that the main occupation with the highest percentage of men is farming, at 71.80%. This indicates that most men are directly involved in agricultural activities as their main source of livelihood. On the other hand, for women, the highest percentage is working as a trader, at 27%. This is in line with research by Mutmainah (2020), the role of women, which was previously only considered limited to the domestic sphere (taking care of the household), has now undergone a significant change, extending to the fulfillment of economic needs. Women's involvement in the public sector is becoming increasingly important. This is inseparable from the demands for economic improvement.

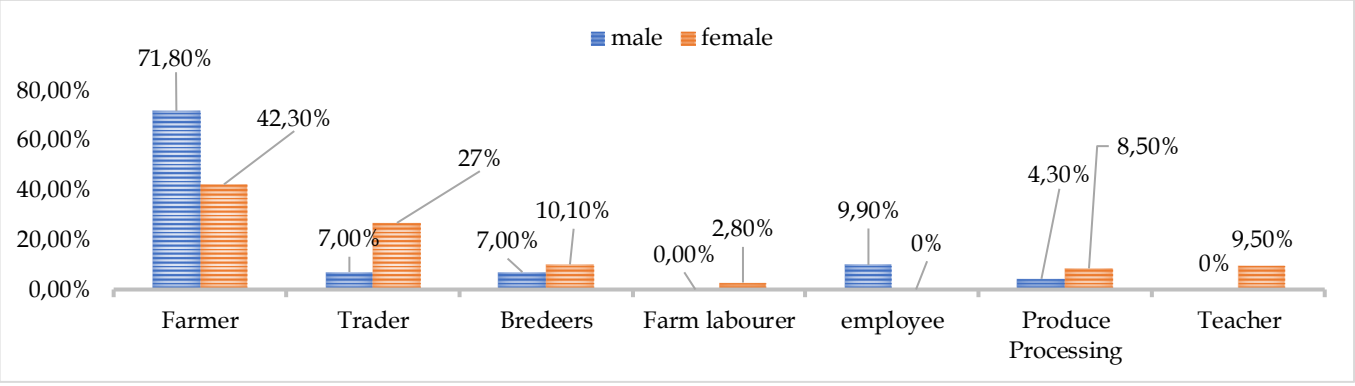

Figure 4. Distribution of respondents based on their main occupation

Side Job

Side jobs usually exist because the income earned from the main job is insufficient to meet the needs of daily life, or side jobs exist because there is still time left after doing the main job (Citra et al., 2020). Minister of Environment and Forestry Regulation (Permen LHK) No. 9 of 2021 emphasizes the importance of gender equity in social forestry management. However, its implementation still faces challenges. Data shows that women only account for about 13.95% of members in community forest management bodies, and their involvement is often limited to administrative roles or non-strategic activities.

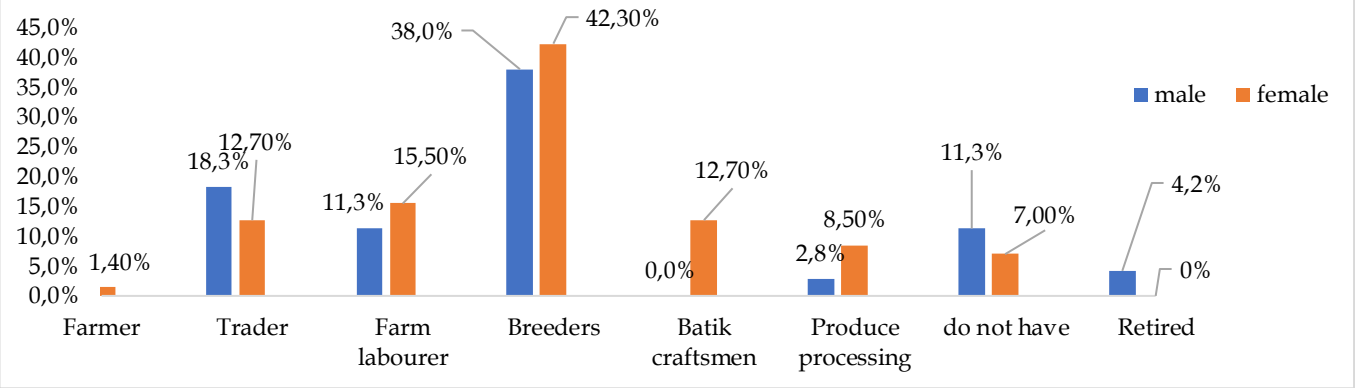

Figure 5. Distribution of respondents based on side jobs

Figure 5 shows that the side occupation of male respondents is dominated by the type of work as a breeder at 38.0%. Meanwhile, female respondents were dominated by breeders at 42.30%. Research results from Sholeh et al. (2021), farmers in Pakong Village do side jobs to increase income. They work in the livestock sector, trade (stalls, street vendors), farm laborers, and services. This strategy helps maintain household economic stability. Research by Ramadhani et al. (2023) shows that when women are facilitated to actively participate in forest management, their contribution needs to be gender responsive approach needs to be an integral part of Social Forestry design and implementation. Therefore, to increase their participation in the Social Forestry program, affirmative policies need to be developed that include women's needs-based training, increased access to productive resources, and the development of gender-responsive policies.

Farming Experience

Figure 6 shows that the respondents' longest farming experience is in the range of 41-50 years, where 35.80% of male farmers have significant experience in this field, compared to 28.20% of female farmers. This difference indicates a gap in access and opportunities for women to be sustainably involved in agricultural practices, including in the context of Social Forestry.

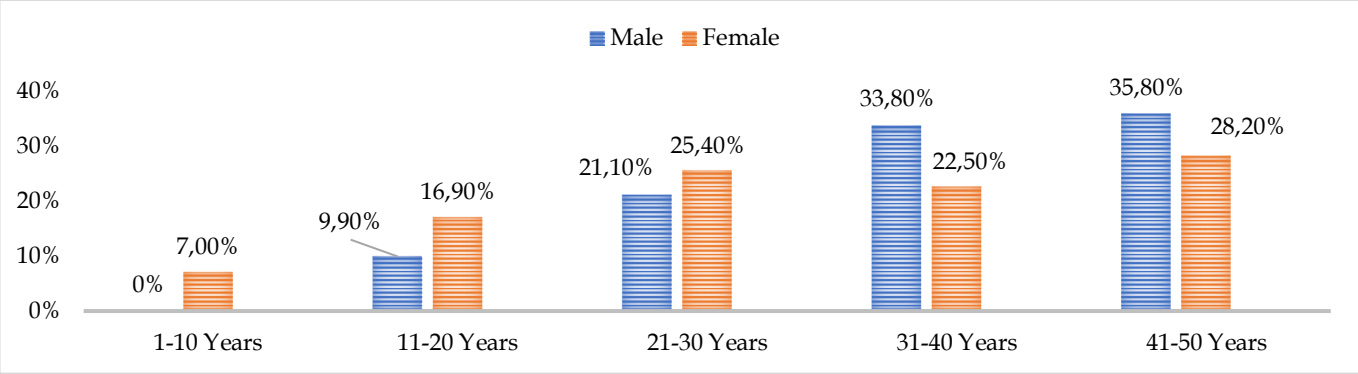

Figure 6. Distribution of respondents based on farming experience

The study by Herawati et al. (2020) emphasizes that strengthening Women's capacity and leadership in forest farmer groups contribute greatly to program sustainability and fairer benefit distribution. Therefore, the integration of gender perspective in policy formulation and implementation of Social Forestry is very important.

Household Decision Making

Table 3 presents the involvement of husbands and wives in decision-making related to productive activities, showing a clear division of roles between men and women. Decision-making by men is most dominant in planting activities, at 41.5%. Women are more involved in decision-making related to household expenses, at 44.4%. Although women are active in planting activities, they often have no say in major decisions related to land management, even though they have greater control over household expenditure. This inequality hinders the optimization of women's contribution in agriculture, even though various studies show that women's participation in economic decision-making contributes positively to family welfare (Puspitawati et al., 2018). In the context of the changing structure of agriculture in Indonesia, women even tend to lose control over household resources and decisions (Windarti, 2020), which can exacerbate socio-economic inequality. Therefore, increasing women's participation in productive decision-making and strengthening gender equality within households is crucial to fostering more inclusive productivity and economic well-being.

Table 3. Household Decision Making

Type of activity	Husband	%	Wife	%	Together	%	Total	%
Land preparation	38	26.8	12	8.5	92	64.8	142	100
Seedling procurement	41	28.9	56	39.4	45	31.7	142	100
Determination of plant species	27	19.0	57	40.1	58	40.8	142	100
Planting	59	41.5	16	11.3	67	47.2	142	100
Maintenance	50	35.2	21	14.8	71	50.0	142	100
Fertilization	37	26.1	16	11.3	89	62.7	142	100
Harvesting	45	31.7	22	15.5	75	52.8	142	100
Determination of production cost	31	21.8	50	35.1	61	43.0	142	100

Type of activity	Husband	%	Wife	%	Together	%	Total	%
sales	39	27.5	12	8.5	91	64.1	142	100
Household expenditure	28	19.7	63	44.4	51	35.9	142	100
Non-land work	46	32.4	24	16.9	72	50.7	142	100
Harvesting	45	31.7	22	15.5	75	52.8	142	100
Determination of production cost	31	21.8	50	35.1	61	43.0	142	100
sales	39	27.5	12	8.5	91	64.1	142	100
Household expenditure	28	19.7	63	44.4	51	35.9	142	100
Non-land work	46	32.4	24	16.9	72	50.7	142	100

Table 4. Average Allocation of Working Time According to Gender Division in Social Forestry Management

Activities	Allocation of working time (man-days)			
	Family labor		Non-family labor	
	male	female	male	female
Main Crops (sengon, pine, resin)				
Maintenance	6.3	1.8	3.5	1.9
Fertilization	4.5	2.5	3.0	1.8
Harvesting	2.6	1.1	3.0	0
Sub-total	13.3	5.4	9.5	3.7
Intercropping				
Land preparation	8.75	2.5	7,0	4.4
Seed procurement	0.5	0.5	0.4	1.1
Planting	3.0	2.5	5.0	2.5
Maintenance	3.75	2.5	3.0	3.8
Fertilization	2.25	2.5	2.0	2.5
Harvesting	3.0	1.0	2.0	1.9
Sub-total	21.25	11.5	19.4	16.1
KUPS Aktivities				
Product Processing KUPS	0.9	2.5	0	0
Taro KUPS	8.7	12.4	10.1	17.5
Batik KUPS	0	7.4	0	0
Dairy Cow KUPS	6.5	3.3	0	0
Sub-total	10.2	22.6	10.1	17.5
Total	43.45	39.5	39.0	37.3

Based on Table 4, in the main activities of sengon, pine, and resin plants, the highest labor intensity is found in maintenance activities carried out by male family labor, reaching 6.3 man-days. Harvesting activities have a lower labor intensity compared to maintenance and fertilization activities. For activities such as land preparation, seed procurement, and planting, the intensity is low because most of them were completed in 2022. Putri (2020), women's participation in the main activities is still limited, considering that women are usually involved in work that does not require heavy physical labor. The Indonesian government through Permen LHK No. 9 of 2021 has encouraged gender mainstreaming in social forestry by ensuring equal access and participation for men and women. However, implementation still faces challenges, with women representing only about 13.95% of forest management body members and generally involved in administrative or non-strategic roles. In intercropping activities, the highest labor expenditure was recorded in land preparation activities, where male labor contributed 8.75 man-days, higher than female labor which contributes an average of 2.5 HOK per month. In the Social Forestry Business Group (KUPS) activities, male family labor dominates in the Talas KUPS with a contribution of 8.7 man-days. Women's participation was also quite significant, reaching 12.4 man-days per month, while the involvement of non-family labor reached 17.5 man-days, indicating a fairly high participation in this activity. This is in line with the findings of Mawuntu et al. (2020) who stated that men tend to take part in heavy physical work, while women are generally responsible for lighter work.

Work Wages

The work system in LMDH Wono Lestari, daily wages are set at Rp110,000 per day or 8 full working hours. However, in general, women only work half a day in forest management activities, so the wage received is Rp55,000 per day. In contrast, men usually work full-time and earn a full daily wage of Rp110,000. This difference reflects variations in gender roles in work time allocation, where women tend to contribute for shorter durations than men. According to Lestari (2019), household tasks such as cooking, cleaning, and childcare require a lot of time and energy, reducing the time that can be allocated to productive work such as managing land. Prabowo et al. (2023) emphasized that involving men in the promotion of gender equality is also important to change social norms that place domestic responsibilities solely on women.

Land Preparation

Land preparation for damar, sengon and pine trees was not carried out in 2024 because it was already done in 2022. Alternatively, farmers plant intercrops such as coffee, banana and cardamom to increase land productivity. These intercrops not only increase income before the main trees are ready to harvest, but also help soil fertility and reduce erosion. In addition, intercrops provide crops that can be harvested more quickly, increasing the stability of farmers' incomes. By increasing biodiversity, intercrops also help maintain ecosystem sustainability and reduce the risk of economic

losses (Sahuri et al., 2017). Affirmative policies such as quotas for women's participation in Social Forestry Business Groups (KUPS), gender-based mentoring, and provision of supporting facilities such as childcare during training, can increase participation and strengthen social justice in forest management (Hastuti et al., 2021). By encouraging equal participation, the program will not only be more inclusive but also more socially and economically sustainable.

Procuring Seedlings

Seedlings for crops such as coffee, banana and cardamom are obtained by self-seeding or buying seedlings. Self-seeding provides greater control and lower costs, but requires time and expertise. According to Dewi (2022), self-seeding provides greater control over the seedling process, allowing farmers to select improved varieties that suit their environmental conditions. In addition, the costs incurred for self-seeding tend to be lower, as farmers can use seeds from the previous harvest. However, this process requires time and expertise in seed handling and initial plant care, which may be a constraint for some farmers (Arifin, 2023). On the other hand, buying seeds from trusted sources is often more practical and time-saving, especially for crops that require specialized breeding techniques, such as coffee and cardamom. Purchased seedlings have also usually gone through a selection and acclimatization process, so they have a higher chance of growing well in the desired location (Iskandar, 2024).

Planting

Main crops such as coffee, banana, cardamom, and other intercrops are planted with appropriate spacing and depth to ensure optimal growth. Planting is done in the rainy season and late summer to support good growth. Harris (2002) Planting holes made according to the size of the seedling roots can increase the chances of the plant to survive and develop well, thus affecting the productivity of the plant.

Maintenance

Plant maintenance is done by replacing dead plants, weeding, and pruning branches. Crops such as coffee, banana, cardamom and empon-empon require proper maintenance to ensure optimal growth and quality yields. For bananas, maintenance should include weeding and disease control to keep the fruits from damage (Santosa, 2022). Cardamom also requires attention in terms of fertilization and pest control to increase essential oil production in the seeds (Haryanto 2021). Meanwhile, tubers and empon-empon need to be well maintained, including proper irrigation management, to support good root growth and maximum yields (Widodo, 2024). The same goes for vegetable ferns, which require intensive care to maintain leaf quality and ensure lush growth (Syafrudin, 2023).

Fertilization

Fertilization is done with different frequencies for each plant. Pine, sengon, and resin plants are fertilized once every 6 months, especially on young plants. Fertilization with NPK fertilizer and organic fertilizer aims to improve soil fertility and plant competitiveness against weeds (Sukma, 2023). While fertilization activities in social forestry businesses, family labor contributes 2.25 to 2.5 working hours per month, indicating their active role in land maintenance. Meanwhile, non-family labor also contributes significantly, between 2.0 and 2.5 working hours per month. This reflects the division of workload between family members and outside workers, and shows that fertilization is one of the important stages that requires the involvement of various parties to ensure the success of plant growth.

In this context, it is important to criticize and strengthen affirmative policies to ensure not only access, but also control of women over forest resources. Going forward, the integration of gender approaches in program design as well as institutional capacity building are key to creating social and ecological justice in Social Forestry schemes (Wong et al., 2020).

Harvesting

Harvesting is done for a variety of crops, including pine, resin, banana and cardamom. Harvesting of sengon wood, pine and resin is carried out in 2022, while in 2024 the focus is on pine resin harvesting. Banana and cardamom harvesting is carried out according to the season and plant conditions, with the harvest sold to the market or used for other products such as banana chips. Empon-empon plants such as ginger, turmeric, and kencur are harvested once a year, and cardamom is harvested twice a year.

In harvesting activities, the allocation of working hours shows a fairly diverse participation between family and non-family labor. Male workers from the family spend the most time with an average of 3.0 man-days, followed by male workers from outside the family who recorded 2.0 man-days. Meanwhile, women from the family contribute 1.0 hour, and women from outside the family contribute 1.9 man-days. This data shows that men, both from within and outside the family, still play a dominant role in the harvesting process.

The Ministry of Environment and Forestry (MoEF) through the Directorate General of Social Forestry and Environmental Partnership (PSKL) develops affirmative programs to encourage women's involvement in forest farmer groups (KTH) as well as in access to capital and training. Nonetheless, a study by by Safitri (2023) shows

that the policy implementation still faces challenges, such as cultural resistance, lack of facilitation from field instructors, and limited digital literacy among women members of KTH. Therefore, capacity building and gender-sensitive approaches in program implementation need to be continuously strengthened so that the role of women in Social Forestry is not only symbolic, but also substantive.

Dairy Cattle KUPS

Data shows that all working hours on dairy farms come from family labor, with men contributing 6.5 man-days and women 3.3 hours. This is in line with the approach of the Ministry of Environment and Forestry (KLHK, 2022), which emphasizes the need for equal involvement of women and men in sustainable forest management.

Batik KUPS

The data shows that all working hours in KUPS batik production come from female family labor, with a contribution of 7.4 man-days, without the involvement of male or female labor from outside the family. This reflects that batik production in KUPS is entirely done by family members, especially women. Rahmawati et al. (2024), the government also needs to strengthen regulations or special programs that require women's representation in every stage of the program, from planning to evaluation. Because it can be seen from the history of forestry that women are minimally involved in the productive sector.

Processing of KUPS Products

The processing activities of the Social Forestry Business Group (KUPS) products, the distribution of working hours shows the dominance of women from the family as the main labor, which is 2.5 man-days, compared to men from the family who only allocate 0.9 man-days. Meanwhile, there is no involvement from outside the family labor, both men and women. This pattern reflects that women take part in the division of labor and dominate not only men. The study by Ramadhani et al. (2023), emphasizes that gender mainstreaming in forestry policy needs to be accompanied by monitoring that focuses on real results, not just administrative involvement.

Taro KUPS

Data on working hours in Taro KUPS activities show that women, both from the family and outside the family, have a higher contribution of working time than men, at 12.4 man-days and 17.5 man-days, compared to 8.7 hours and 10.1 hours for men. This reflects the central role of women in agricultural activities and community-based enterprises, particularly in taro crop management, which is often associated with household consumption and small-scale processing. In addition, gender-related studies in social forestry show that the greater the recognition of women's roles, the greater the efficiency and sustainability of forest farmer groups and community agriculture (Kartodihardjo et al., 2022).

Conclusion

This study highlights the importance of gender equality in the management of Social Forestry, demonstrating that although women are actively involved in various productive activities, they continue to face barriers in access, control, and decision-making. The main contribution of this research lies in its detailed examination of the roles and challenges faced by women, providing an empirical foundation for the formulation of gender-responsive policies. Practically, the findings of this study can be used to develop more inclusive policies, such as establishing quotas for women's representation in social forestry institutions, offering gender-responsive technical and leadership training, and providing support systems such as childcare facilities. These policies are crucial for enhancing women's substantive participation, promoting social justice, and strengthening the sustainability of forest management.

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Conflicts of Interest

The authors declare no conflict of interest in this research.

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