

THE EFFECT OF FARMERS' PARTICIPATION, THE ROLE OF FACILITATORS AND THE ROLE OF GOVERNMENT ON SOCIAL FORESTRY PERFORMANCE

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THE EFFECT OF FARMERS' PARTICIPATION, THE ROLE OF FACILITATORS, AND THE ROLE OF GOVERNMENT ON SOCIAL FORESTRY PERFORMANCE. This study aims to determine the effect of farmer participation, the role of facilitators, and the role of government on social forestry performance, and to determine the role of farmer group performance in mediating the effect of farmer participation, the role of facilitators, and the role of government on social forestry. This research uses a mixed-method approach that combines quantitative and qualitative research. The research instrument used was a questionnaire compiled with a five-point Likert scale. The sample size in this research was 198 respondents who were farmer groups holding social forestry permits, facilitators, and the Walanae Forest Management Unit. Data were analyzed using the SEM-PLS method with the help of Smart PLS software version 3.0. The results showed that farmer participation and the role of facilitators had a positive and significant effect on the performance of farmer groups and social forestry. Directly, the role of government did not have a significant effect on the performance of farmer groups, but had a positive and significant effect on the performance of social forestry. There is a tendency for the role of government to be more influential through other mechanisms. The performance of farmer groups can mediate the participation of farmers, the role of facilitators, and the role of government in improving the performance of social forestry. The benefits of this research not only contribute to improving the performance of social forestry, but also to the development of more inclusive, sustainable, and community-based forest management, so it is expected to be used as a recommendation for relevant parties in efforts to improve the performance of social forestry.

Keywords: Farmer participation, the role of facilitators, the role of government, social forestry performance.

PENGARUH PARTISIPASI KELOMPOK TANI, PERAN PENDAMPING DAN PERAN PEMERINTAH TERHADAP KINERJA PERHUTANAN SOSIAL. Penelitian ini bertujuan untuk mengetahui pengaruh partisipasi petani, peran pendamping dan peran pemerintah terhadap kinerja perhutanan sosial serta mengetahui peran kinerja kelompok tani dalam memediasi pengaruh partisipasi petani, peran pendamping dan peran pemerintah terhadap kinerja perhutanan sosial. Penelitian ini menggunakan pendekatan metode campuran yang menggabungkan penelitian kuantitatif dan kualitatif. Instrumen penelitian yang digunakan adalah kuesioner yang disusun dengan skala likert lima poin. Ukuran sampel dalam penelitian ini berjumlah 198 responden yang merupakan kelompok tani pemegang izin perhutanan sosial, pendamping dan Kesatuan Pengelolaan Hutan Walanae. Data dianalisis menggunakan metode SEM-PLS dengan bantuan perangkat lunak Smart PLS versi 3.0. Hasil penelitian menunjukkan bahwa partisipasi petani dan peran pendamping berpengaruh positif dan signifikan terhadap kinerja kelompok tani dan perhutanan sosial. Secara langsung peran pemerintah tidak berpengaruh secara signifikan dengan kinerja kelompok tani tetapi berpengaruh positif dan signifikan terhadap kinerja perhutanan sosial. Ada kecenderungan peran pemerintah lebih berpengaruh melalui mekanisme lain. Kinerja kelompok tani dapat memediasi partisipasi petani, peran pendamping, dan peran pemerintah dalam meningkatkan kinerja perhutanan sosial. Manfaat penelitian ini tidak hanya berkontribusi pada peningkatan kinerja perhutanan sosial, tetapi juga pada

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pengembangan pengelolaan hutan yang lebih inklusif, berkelanjutan, dan berbasis masyarakat sehingga diharapkan dapat dijadikan sebagai rekomendasi bagi para pihak terkait dalam usaha meningkatkan kinerja perbutanan sosial.

Kata kunci: Partisipasi petani, peran pendamping, peran pemerintah, kinerja perbutanan sosial

I. INTRODUCTION

Social Forestry is a system of sustainable forest management in state forest areas or private forests/customary forests carried out by communities around the forest (Damanhuri, 2021; Laksemi et al., 2019; Salim et al., 2018; Syahputra, 2021; Moeliono et al., 2023). The aim of social forestry is to provide legal rights/permits to local community groups to manage previously inaccessible state forests, with the aim of economic, ecological, and social improvement (Mahardika et al., 2021; Puspitasari et al., 2019; Sumanto, 2009; Herrawan et al., 2022). The social forestry program in Indonesia includes 5 (five) schemes, namely: Village Forest Management, Community Forest, Community Plantation Forest, Customary Forest, and Forestry Partnership. During the 2015-2019 period, the government allocated 12.7 million hectares of land for the social forestry program (Suhartini, 2009), and starting in 2023, it is targeted to have 7,380,000 ha of legal access land with the addition of 23,400 social forestry facilitators. Until 2030, it is targeted that 17,000 social business groups and partnerships will be developed through the social forestry program. These groups are expected to accommodate underprivileged communities around the forest to develop and ultimately improve their welfare. Until January 2024, the number of management permits for social forestry was 9,719 units involving 1,287,710 families with an area of 6,447,102.42 ha. For South Sulawesi Province, the national target was 473,401 ha, which was realized until the end of 2023, covering an area of 217,174.83 ha. The number of permits that have been issued is 924 permits, consisting of 92 village forest management business permits, 419 community forest utilization business permits, 378 community plantation forest utilization business permits, 26 forestry partnerships, and 9 customary forests. The

number of social forestry permits in Soppeng Regency is 5 village forest management business permit schemes, 9 community forest utilization business permit schemes, and 4 community plantation forest utilization business permit schemes. (South Sulawesi Provincial Forestry Service, 2024).

Since the social forestry program was launched in 2015, until now it has not provided satisfactory results. This is due to the weak support of central and regional government policies (Affandi et al., 2019; Shaleh et al., 2019; Hermin et al., 2021; Rahayu et al., 2024), low human resource capacity (Harahap et al., 2021; Harimbawan et al., 2022; Sami, 2020), and the amount of business and capital, as well as the use of product processing technology, have not had a significant impact (Josy & Moeis, 2022). The lack of synergy between social forestry support programs, the number and budget of companions, institutional management challenges, and the quality of community human resources are the primary challenges to social forestry (Fitria et al., 2021; Mulyani et al., 2023; Mutaqin et al., 2022; Nandini et al., 2022; Salaka et al., 2020; Zulkarnain, 2021).

Referring to the Regulation of the Minister of Environment and Forestry No. 9 of 2021, the key actor in the implementation of the social forestry program is the government, while the main actor is the holder of the social forestry permit. In the theory of the relationship between principal and agent or agency theory, the government is positioned and plays a role as a principal (permit giver), while the facilitator and local community or customary law community are positioned as agents (receivers or executing permits) whose relationship is bound by an agreement or contract. In this contract, the agent has a normative, legal, or moral obligation to work best for the principal (Quinn, 2013). These actors have different

interests and powers and will behave according to their interests and powers (Reed et al., 2009).

Many studies on social forestry only focus on one aspect, such as the importance of farmer participation (Fatarin Lukito et al., 2023; Laksemi et al., 2019; Marasabessy, 2018; Nita Andelia Mandasari, 2016; Rochmayanto et al., 2006; Suhartini, 2009), the role of facilitators (Hardhiyanti, 2022; Mulyani et al., 2023), and the role of government (Firdaus, 2020; Fitria et al., 2021; Sami, 2020). However, this study takes a more comprehensive approach by combining the variables of farmer participation, the role of facilitators, and the role of government in one analysis. This study reveals the effect of farmer participation, the role of facilitators, and the role of government indirectly on the performance of social forestry through the performance of farmer groups first. Analysis of this mediation relationship has rarely been discussed in previous literature, which tends to see the direct effect between these factors and social forestry performance without delving deeper into the performance of farmer groups as an important component in the success of the program.

Research related to correlation analysis of farmer participation, the role of assistants, and the role of government with SEM modeling (Structural Equation Modeling) through a Partial approach Least Square (PLS) which is a statistical tool that aims to analyze the relationship between variables is still minimally done, it is considered important to conduct this study because it will be known which variables affect the performance of social forestry both directly and indirectly so that it can be mapped which variables should be intervened to maximize the performance of social forestry. In addition, the use of the SEM method plays a role in testing whether the performance of farmer groups significantly mediates the relationship between farmer participation, the role of assistants, and the role of government with social forestry performance. This means that SEM can measure how much the performance of farmer groups contributes to strengthening or

weakening the effects of these variables. Thus, SEM is able to handle complex models, analyze latent variables, test direct and indirect effects, and provide an evaluation of the overall model suitability. With SEM, researchers can gain a more comprehensive understanding of how each factor affects the performance of social forestry and provide strong empirical evidence to support research conclusions. The benefits of this study are benefits of this research are not only to contribute to the improvement of social forestry performance, but also to the development of more inclusive, sustainable, and community-based forest management, so that it is expected to serve as a recommendation for relevant parties in an effort to improve social forestry performance.

II. MATERIAL AND METHOD

A. Research sites

This research was conducted in Soppeng Regency (119° 42' 23.16" to 120° 26' 27.17" East Longitude and 3° 39' 48.82" to 4° 32' 46.46" South Latitude) with a distance of 180 km from the provincial capital of South Sulawesi and can be reached in 5 hours. Soppeng Regency is included in the working area of Forest Management Unit (FMU) Walanae, which is located in Soppeng Regency, South Sulawesi Province, Indonesia. The working area of FMU Walanae has a management area of 64,592 Ha, consisting of protected forest covering an area of 39,396 Ha, permanent production forest covering an area of 11,035 Ha, and production forest covering an area of $\pm 14,161$ Ha. The elevation range is 2 - 1500 m above sea level. The distribution of the number of social forestry permits that have been issued in Soppeng Regency is in 10 villages, including Pesse Village, Bila Village, Maddulang Village, Lalabata Rilau Village, Bulue Village, Tampaning Village, Patampanua Village, Mattabulu Village, Sering Village, and Umpungeng Village. The livelihoods of the people in Soppeng Regency are dominated by agricultural activities, with the main crop being rice and other side crops

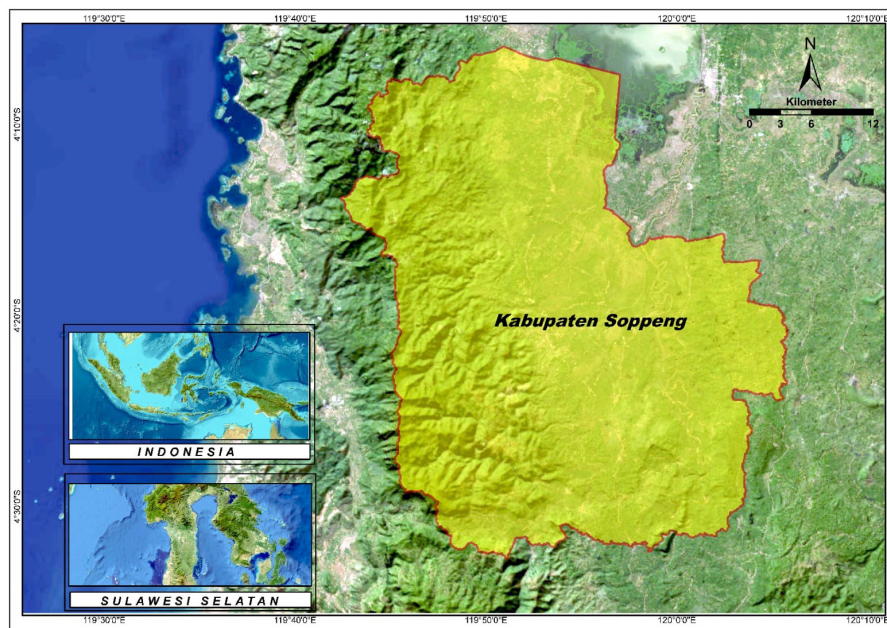


Figure 1. Map of research locations in Soppeng Regency, South Sulawesi Province, Indonesia

Table 1. Number of research respondents

No	Element	y
1.	Chairman, secretary, and treasurer (18 permit holders x 3 = 54 people)	54
2.	Members holding permits (18 permit holders x 3 people = 54 people)	54
3.	Chairperson of the social forestry business group = 72 people	72
4.	Head of Forest Management Unit = 1 person	1
5.	Head of Forest Protection and Community Empowerment Section = 1	1
6.	person	12
7.	Facilitators = 12 people	4
	Local Champion Companions = 4 people	
	Total	198

such as corn, soybeans, and green beans. Plantation commodities include candlenuts, cocoa, coconut, and cashew nuts. Apart from agriculture, the majority of people in Soppeng Regency raise cattle as their main livestock. A map of the research location can be seen in Figure 1.

B. Population and research sample

The population in this research is the number of farmers managing social forestry permits in Soppeng Regency, totaling 2,906 families spread across 3 sub-districts and 8 villages/sub-districts, consisting of 5 village forest management business Permit schemes, 9

community plantation forest utilization business permit schemes, and 4 community plantation forest utilization business permit schemes.

Respondents were selected purposively and included core group administrators, farmers who were actively involved and understood all stages of social forestry management, social forestry facilitators, the Head of Walanae Forest Management Unit, and the Head of Forest Protection and Community Empowerment Section of the Walanae Forest Management Unit. In addition, several local champion companions were included as respondents. These are local individuals who actively support social forestry implementation by

facilitating community initiatives, encouraging sustainable forest management practices, and assisting farmer groups in developing social forestry enterprises. Data were processed using a Likert scale to classify categories of farmer participation, the role of facilitators, the role of government, and the performance of social forestry. The total number of respondents interviewed was 198 people. The distribution of respondents is presented in Table 1.

C. Research variables

The variables used in this study were obtained from the results of field observations and literature studies from various studies/research that represent the relationship with the research topic. Based on this, the variables in this study are a combination of various variables used so that the results of the analysis in the study are more comprehensive.

The variables used in this study consist of exogenous variables (independent) and endogenous variables (dependent variables). Exogenous variables are farmer participation (X1), the role of facilitators (X2), and the role of government (X3). Endogenous variables are farmer group performance (Y1) and social forestry performance (Y2). The definition, parameters, and measurement categories of each variable, along with their measurement indicators, are as follows (Tables 2 to 6).

1. Farmer participation (X1) is the determination of the attitude and involvement of each individual's desires in the situation and conditions of their organization, so as to ultimately encourage the individual to participate in the achievement of the organization's goals, and take part in every shared responsibility (Syafii, 2002).
2. The role of facilitator (X2) is the role carried out by facilitators as a liaison with the community who run the business with external parties (Rumampuk et al., 2021)
3. The role of government (X3) is a government unit that is responsible for carrying out government duties (Firdaus, 2020)
4. Farmer Group Performance (Y1) is an assessment of farmer groups in institutional management, area management, and business management (Permenhut, 2018)
5. Social Forestry Performance (Y2) is an assessment (evaluation) activity intended to analyze to what extent physical and non-physical activities in the management of social forestry land in the short, medium, and long term have been in accordance with the mutual agreement between the parties (Pemerintah Republik Indonesia, 2021).

Table 2. Indicators definition, parameters, and categories of farmer participation measurements (Syairozi et al., 2019).

Indicator/Code	Definition	Parameter	Measurement Scale
Planning/PP1	Intensity of respondent involvement in social forestry planning	The value of respondent presence in social forestry planning	Ordinal scale
Implementation/PP2	Intensity of respondent involvement in the implementation of social forestry	Respondent activity values in implementing social forestry	Ordinal scale
Monitoring and evaluation/PP3	Intensity of respondent involvement in monitoring and evaluation in social forestry	The value of respondent attendance in monitoring and evaluation in social forestry	Ordinal scale
Services (Labor)/PP4	The intensity of respondents' involvement in the form of labor in social forestry activities	Respondent intensity value in the form of labor in social forestry activities	Ordinal scale

Indicator/Code	Definition	Parameter	Measurement Scale
Ideas/PP5	The intensity of respondent involvement in the form of ideas/concepts/thoughts in social forestry activities	The value of respondents' presence in the form of ideas/concepts/thoughts in social forestry activities	Ordinal scale
Material/PP6	The intensity of respondent involvement in the form of materials in social forestry activities	The value of respondents' presence in the form of materials in social forestry activities	Ordinal scale

Table 3. Indicators, definitions, parameters, and measurement scales of the variables of the role of the facilitator's role in social forestry (Rumampuk et al., 2021)

Indicator	Definition	Parameter	Measurement Scale
Enabling/ Pend_1	Facilitator activities to provide motivation and opportunities to respondents in social forestry activities	Respondents' assessment of the intensity of facilitator activities in facilitating social forestry activities	Ordinal scale
Reinforcement/ Pend_2	Facilitator activities to provide education and training to respondents in social forestry	Respondents' assessment of the intensity of facilitator activities in social forestry education and training	Ordinal scale
Protection/ Pend_3	Facilitator activities to provide advice to respondents and other stakeholders in bridging the interests of forest farmer groups and other stakeholders related to social forestry activities.	Respondents' assessment of the intensity of facilitator activities to provide advice to respondents and other stakeholders in bridging the interests of forest farmer groups and other stakeholders related to social forestry activities.	Ordinal scale
Supporters/ Pend_4	Facilitator activities for the development of respondents' businesses in social forestry activities	Respondents' assessment of the intensity of facilitator activities in supporting social forestry activities	Ordinal scale

Table 4. Indicators, definitions, parameters, and measurement scales of government role variables (Rochmayanto et al., 2006)

Indicator	Definition	Parameter	Measurement Scale
Regulator/ Pem_1	Government activities to create social forestry rules and mechanisms	Respondents' assessment of the intensity of government activities to create social forestry rules and mechanisms	Ordinal scale
Dynamycator/ Pem_2	Government activities to encourage respondents to participate in social forestry activities	Respondents' assessment of the intensity of government activities in socialization, mentoring, training, and field visits in social forestry activities	Ordinal scale
Facilitator/ Pem_3	Government activities become a driving force through funding in providing capital.	Respondents' assessment of the intensity of government activities through funding in providing capital according to farmers' needs.	Ordinal scale

Table 5. Indicators, definitions, parameters, and measurement scales for farmer group performance variables (Permenhut, 2018)

Indicator	Definition	Parameter	Measurement Scale
Manage area/ KK1 KK2 KK3 KK4	Intensity of respondent involvement in managing the area	Respondents' activities in managing the area. Activity: Territorial boundary layout Working block Social Forestry work plan Identification of potential	Ordinal scale
Manage institutions/ KL_1 KL_2 KL_3 KL_4	The intensity of respondents' involvement in managing forest farmer group institutions	Respondents' activities in managing institutions Activity: Organizational structure Articles of association/Bylaws Group meeting Cadre formation	Ordinal scale
Manage business/ KU_1 KU_2 KU_3 KU_4	The intensity of respondents' involvement in managing forest farmer group businesses	Respondents' activities in business management Activity: Business products Local marketing Business meeting Cooperation	Ordinal scale

Table 6. Indicators, definitions, parameters, and measurement scales of performance variables of social forestry (Pemerintah Republik Indonesia, 2021)

Indicator	Definition	Parameter	Measurement Scale
Administrative Aspects/ AP	Availability of social forestry planning documents	Availability of planning documents Activity: Legality of documents, planning, activities	Ordinal scale
Economic Aspects/ AE1 AE2 AE3	Intensity of realization of activities from an economic aspect	Realization of activities from an economic aspect Activity: Forest Resource Governance Management of timber forest products, non-timber forest products, and environmental services Utilization of natural resources and access to financial institutions and markets	Ordinal scale

Indicator	Definition	Parameter	Measurement Scale
Ecological Aspects/ AEK1 AEK2 AEK3 AEK4	Intensity of realization of activities from an ecological aspect	Realization of activities from an ecological aspect Activity: Area functions are maintained Land cover improvement Diversity of types of forest resource products Improvement of hydrological conditions	Ordinal scale
Social Aspects/ AS1 AS2 AS3	Intensity of realization of activities from social aspects	Realization of activities from a social aspect Activity: Group/community welfare Institutional strengthening Conflict Resolution	Ordinal scale

D. Data processing and analysis

This research uses a mixed-method approach that combines quantitative and qualitative research. Quantitative methods are used to analyze the effect of farmer participation, the role of facilitators, and the role of government as latent research variables and farmer group performance as an intervening variable to achieve social forestry performance, for which the Structural Equation Modeling (SEM) method used Partial Least Squares (PLS) software version 3.0. Qualitative methods are used to explain accurate and in-depth information to support verification and to draw conclusions. The data sources used are primary data sources, collected through in-depth interviews using a questionnaire tool, and secondary data obtained from literature studies and documentation studies produced by agencies that are related to research objectives, such as the Walanae forest management unit, the Central Bureau of Statistics, village governments, the Environment and Forestry Service, local governments, and so on.

The answer format in the questionnaire uses a Likert scale (Likert Summated Rating) with five answer alternatives, each answer alternative is scored as follows: a) very high/strongly supports the statement given a score of 5; b) high/supports the statement given a score of 4;

c) moderate given a score of 3; d) low supports the statement given a score of 2; e) very low/strongly does not support the statement given a score of 1.

Model evaluation in PLS consists of two stages, namely the evaluation of the outer model or the measurement model, and the evaluation of the inner model or the structural model (structural measurement). Outer model evaluation is the process of assessing the quality of latent variable measurement through indicators related to SEM analysis. Inner model evaluation is the process of assessing the effect of latent constructs. Inner model evaluation focuses on hypothesis testing involving the effect between latent constructs that have been measured well by their indicators (after outer model validation).

Evaluation of the outer model (measurement model) aims to determine the validity and reliability of latent variables and measuring variables. Validity tests are interpreted by looking at several things, including: convergent validity by looking at the Loading Factor and Average Variance Extracted (AVE) values, and discriminant validity by looking at the Fornell-Lacker and Cross Loading values. The reliability test is interpreted with the Composite reliability and Cronbach's Alpha values. The loading factor is used to assess the ability of each indicator to measure the variable to be

measured, so that a strong indicator is obtained to measure the variable. The loading factor value ≥ 0.7 is said to be ideal, meaning that the indicator is valid to measure the construct it forms. Convergent value measures the magnitude of the loading factor of each latent variable. Loading factors above 0.70 are highly recommended; however, loading factors above 0.50 can still be tolerated as long as the model is still in the development stage. The next test is to see the AVE value. The model requirement has good validity if the latent variable has a latent AVE > 0.5 . AVE value describes the amount of variance or diversity of manifest variables that a latent construct can have. The third discriminant validity test is by looking at the value of Fornell-Larcker. The requirement for a model to have good discriminant validity is that the correlation between the variable and the variable itself is not smaller than the correlation value between the latent variable and other latent variables. The fourth discriminant validity test is to look at the cross-loading value. A good cross-loading value is if the correlation value of the indicator with the variable itself is not greater than the correlation value between the indicator value and other variables. The measure of cross-loading is by comparing the correlation of the indicator with its construct

and the construct from other blocks (Hair et al., 2017)

Reliability is a coefficient value that indicates the level of data consistency. A study is said to be reliable if there is similarity in the data at different times. A measure that states a variable is said to be reliable if the variable has composite reliability and a Cronbach's Alpha value greater than 0.5.

Evaluation of the inner model (structural model) is carried out to see the relationship between latent constructs. Measures that can be used to evaluate the structural model (inner model) are R-square (R^2), Q-Square Predictive Relevance (Q^2), and Model Fit. The R^2 value is the coefficient of determination on the endogenous construct and the path parameter coefficient. R^2 is used to measure the predictive power of structural models. R^2 explains the influence of exogenous latent variables on whether endogenous variables have a substantive influence. The R^2 value is estimated between 0 and 1. The qualitative interpretation of Q^2 values is 0 (low influence), 0.25 (medium influence), and 0.50 (strong influence). The structural model of the effect of farmer participation, the role of facilitators, and the role of government on social forestry performance can be seen in Figure 2. The research hypothesis is that farmer

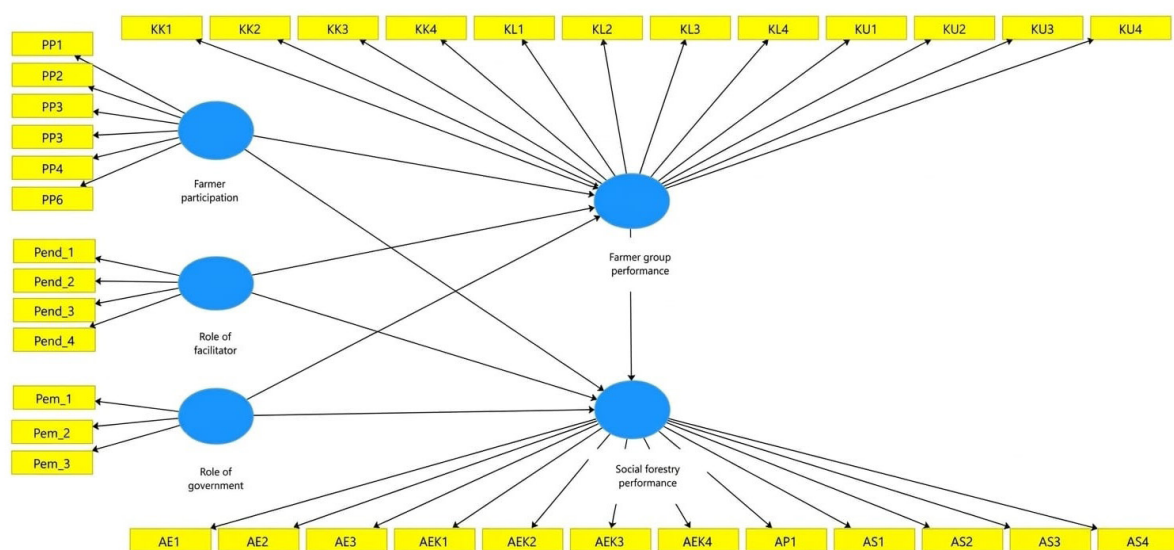


Figure 2. Relationship between the Conceptual Model of Farmer Participation, the Role of Facilitators, the Role of Government, and Social Forestry Performance

participation, the role of facilitators, and the role of government have a significant effect both directly and indirectly on social forestry performance.

III. RESULT AND DISCUSSION

A. Result

1. Outer Model Evaluation (Measurement Model)

The results of the outer model in Figure 3 show that several indicators are not valid to be used as a measure of the value of the

factor loading variable because they have a value of <0.7 , including indicators: PP6 (farmer participation in material form) with a value of 0.523; Social forestry performance AS1 (improving the welfare of groups/communities/villages/related parties)) with a value of 0.328, and social forestry performance AS4 (gender sensitivity) with a value of 0.263. These three indicators were removed from the measurement model, and remeasurement was done until they were valid, as shown in Figure 4 below:

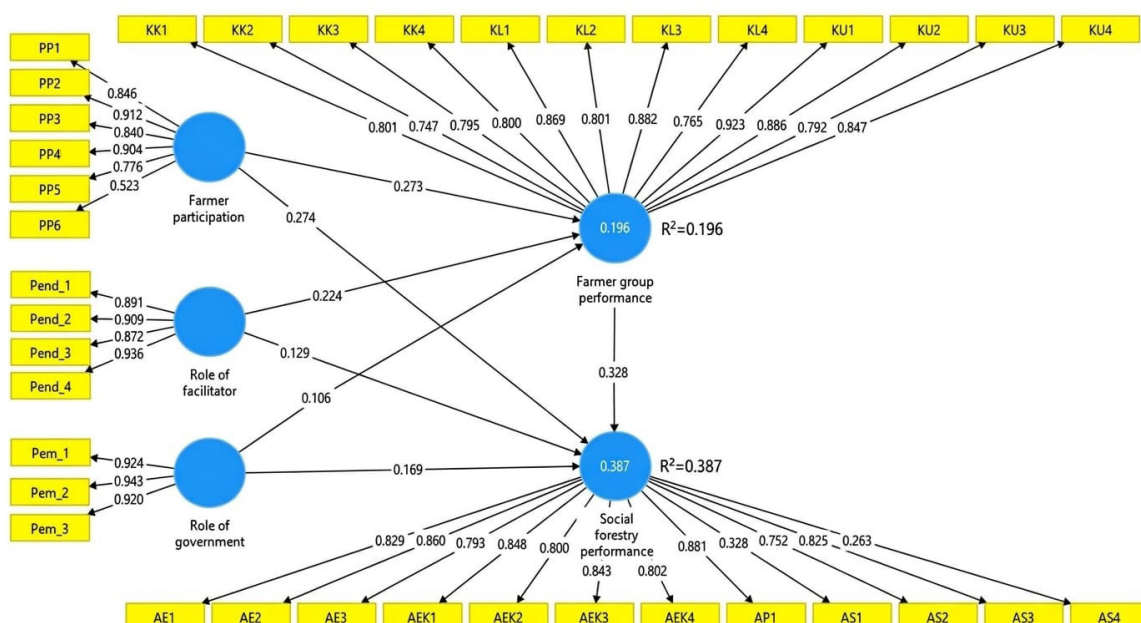


Figure 3. The initial measurement of the relationship between farmer participation, the role of facilitators, the role of government, and social forestry performance

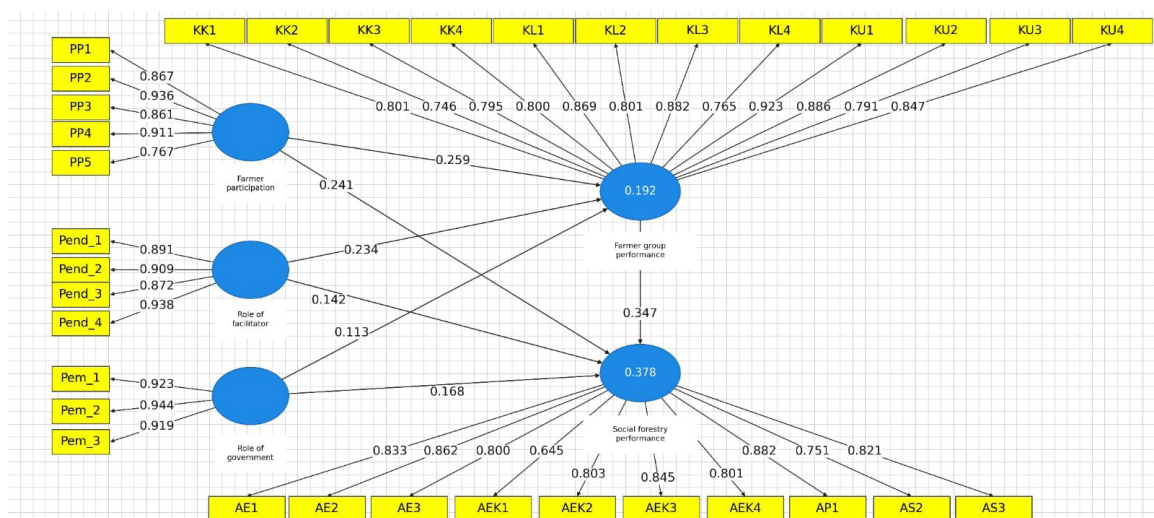


Figure 4. Remeasurement of the external model of the relationship between farmer participation, the role of facilitators, the role of government, and Social Forestry Performance

Based on Figure 4, all indicators used for each variable are valid because the outer loading values of the indicators are > 0.7 . The farmer participation variable uses five valid indicators, namely participation in planning (PP1), implementation (PP2), monitoring and evaluation (PP3), participation in service of labor (PP4), and ideas/concepts (PP5). The valid companion role variable is measured by indicators as an enabling function (Pend-1), as reinforcement (Pend-2), as protection (Pend-3), and as a supporter (Pend-4). The government role variable uses three valid indicators, namely the function as a regulator (Pem-1), the function as a dynamicator (Pem-2), and the function as a facilitator (Pem-3). The farmer group performance variable uses 12 valid indicators, namely territorial boundaries (KK1), work blocks (KK2), social forestry work plan (KK3), potential identification (KK4), organizational structure (KL_1), Articles of association/ Bylaws (KL_2), group meetings (KL_3), and cadre formation (KL_4), business products (KU_1), local marketing (KU_2), business meetings (KU_3), and cooperation (KU_4). The social forestry performance variables use ten valid indicators, namely the legality of activity planning documents (AP), forest resource governance (AE1), management of timber

forest products, non-timber forest products and environmental services (AE2), utilization of natural resources and access to financial institutions and markets (AE3), maintained area functions (AEK1), land cover improvement (AEK2), diversity of forest resource product types (AEK3), improvement of hydrological conditions (AEK4), institutional strengthening (AS2), and institutional strengthening (AS3).

The results of the path coefficient evaluation indicate a positive effect between the variables of farmer participation, the role of facilitators, and the role of government, with the performance of farmer groups and the performance of social forestry. The coefficient value of each path of farmer participation (0.259), the role of facilitators (0.234), and the role of government (0.113) on the performance of farmer groups; and the coefficient value of farmer participation (0.241), the role of facilitators (0.142), and the role of government (0.168) on the performance of social forestry.

Cross-loading value in Table 7 shows that each value of the exogenous and endogenous variables and their constituent indicators has a value > 0.70 and AVE > 0.50 , meaning that the correlation value between the variables and indicators has a positive and constructive effect.

Table 7. Results of validity tests (loading factor, AVE) and reliability tests (composite reliability and Cronbach's alpha) on the outer model of the effect of farmer participation, the role of assistants, the role of government, and social forestry performance.

Construct	Validity test		Reliability Test	
	Convergent Validity		Composite Reliability	Cronbac 's Alpha
Farmer Participation		0.757	0.940	0.920
- Planning (PP1)	0.867			
- Implementation (PP2)	0.936			
- Evaluation (PP3)	0.861			
- Services/labor (PP4)	0.911			
- Ideas/thoughts (PP5)	0.767			
Role of Facilitator		0.814	0.946	0.925
- Possible (Pend_1)	0.891			
- Strengthening (pend-2)	0.909			
- Protection (Pend_3)	0.872			
- Supporter (Pend_4)	0.936			

Construct	Validity test		Reliability Test	
	Convergent Validity		Composite Reliability	Cronbac 's Alpha
	Loading Factor	AVE		
Role of Government		0.862	0.949	0.923
- Regulators (Pem_1)	0.923			
- Dynamisator (Pem_2)	0.944			
- Facilitator (Pem_3)	0.919			
Farmer group performance		0.684	0.963	0.958
- Regional boundary arrangements (KK1)	0.801			
- Working block (KK2)	0.746			
- Social forestry work plan (KK3)	0.795			
- Potential identification (KK4)	0.800			
- Organizational structure (KL_1)	0.869			
- Basic household budget (KL_2)	0.801			
- Group meeting (KL_3)	0.882			
- Cadre formation (KL_4)	0.765			
- Business products (KU1)	0.923			
- Local marketing (KU2)	0.886			
- Business Meeting (KU3)	0.791			
- Cooperation (KU4)	0.847			
Social Forestry Performance		0.681	0.955	0.948
- Legality of documents, planning, activities (AP)	0.833			
- Forest resource management (AE1)	0.862			
- Management of wood, non-timber forest and environmental services (AE2)	0.800			
- Utilization of natural resources and access to financial institutions and markets (AE3)	0.845			
- Area function AEK1)	0.803			
- Improvement of land cover (AEK2)	0.845			
- Diversity of forest resource types and products (AEK3)	0.882			
- Improvement of hydrological conditions (AEK 4)	0.751			
- Institutional strengthening (AS2)	0.821			
- Conflict Resolution (AS3)				

Table 8. The cross-loading values for the outer model of the relationship between farmer participation, the role of facilitators, the role of government, and social forestry performance

	Farmer Participation	Role of Facilitator	Role of Government	Farmer Group Performance	Social Forestry Performance
PP1	0.867	0.354	0.058	0.310	0.397
PP2	0.936	0.289	0.039	0.304	0.397
PP3	0.861	0.394	0.204	0.352	0.392
PP4	0.911	0.316	0.053	0.337	0.407
PP5	0.767	0.213	-0.027	0.211	0.237
Pend_1	0.388	0.891	0.119	0.279	0.368
Pend_2	0.268	0.909	0.112	0.287	0.312

	Farmer Participation	Role of Facilitator	Role of Government	Farmer Group Performance	Social Forestry Performance
Pend_3	0.364	0.872	0.179	0.396	0.380
Pend_4	0.275	0.936	0.079	0.244	0.252
Pem_1	0.104	0.152	0.923	0.124	0.224
Pem_2	0.073	0.147	0.944	0.228	0.294
Pem_3	0.058	0.082	0.919	0.069	0.195
KK1	0.218	0.186	0.128	0.801	0.304
KK2	0.218	0.204	0.115	0.746	0.301
KK3	0.253	0.171	0.093	0.795	0.273
KK4	0.218	0.216	0.181	0.800	0.356
KL1	0.276	0.315	0.158	0.869	0.510
KL2	0.281	0.272	0.123	0.801	0.464
KL3	0.330	0.326	0.162	0.882	0.419
KL4	0.359	0.295	0.180	0.765	0.422
KU1	0.286	0.256	0.118	0.923	0.432
KU2	0.281	0.299	0.101	0.886	0.444
KU3	0.360	0.408	0.168	0.791	0.482
KU4	0.352	0.342	0.123	0.847	0.496
AE1	0.378	0.357	0.269	0.362	0.833
AE2	0.347	0.348	0.221	0.421	0.862
AE3	0.352	0.317	0.086	0.465	0.800
AEK1	0.412	0.350	0.278	0.476	0.845
AEK2	0.389	0.314	0.194	0.427	0.803
AEK3	0.457	0.398	0.213	0.533	0.845
AEK4	0.333	0.271	0.200	0.366	0.801
AP1	0.342	0.335	0.244	0.423	0.882
AS2	0.186	0.130	0.270	0.329	0.751
AS3	0.252	0.146	0.239	0.321	0.821

Table 9. The Fornell-Larcker values in the outer model of the relationship between farmer participation, the role of facilitator, the role of government, and social forestry performance

	Farmer Group Performance	Social Forestry Performance	Farmer Participation	Role of Government	Role of Facilitator
Farmer Group Performance	0.827				
Social Forestry Performance	0.503	0.762			
Farmer Participation	0.372	0.464	0.811		
Role of Government	0.168	0.273	0.109	0.929	
Role of Facilitator	0.345	0.373	0.389	0.142	0.902

Testing discriminant validity by looking at the Fornell-Larcker value and cross-loading. The correlation value between the latent variable and the variable itself is not smaller than that of other latent variables. The Fornell-Larcker values and cross-loading can be seen in Tables 7 and 8.

Table 8 shows that the cross-loading values on the original variable are higher compared to the cross-loading values on other variables. This means that the indicators used are more appropriate or relevant to measure their own variables rather than measuring other variables.

Table 9 shows that all correlation values between the variable values and the variable itself are greater than the correlation values between the variable values and other variables, so this test is valid. The reliability test in Table 3 shows the Composite Reliability and Cronbach's alpha values > 0.70 . This means that all indicators used to measure latent variables are reliable.

2. Inner Model Evaluation (Structural Model)

The R² analysis of farmer group performance were 0.192, as an endogenous variable correlated with the construct it formed. The latent variable of farmer group performance is influenced by exogenous variables (farmer participation, role of facilitator, role of government) by 19.2%. The endogenous variable of social forestry performance is influenced by exogenous variables (participation of farmers, role of facilitator, role of government) and farmers. The group performance variable was 37.8%, and the remaining 62.2% was influenced by other variables outside these variables and was not included in this research model. The adjusted R² value of the social forestry performance variable is 0.365 (> 0.33), so the influence of all exogenous constructs X1, X2, and X3 on Y1 is weak.

Table 10. R² value in the analysis of the relationship between farmer participation, the role of facilitator, the role of government, and social forestry performance.

	R Square	R Square Adjusted
Farmer Group Performance	0.192	0.179
Social Forestry Performance	0.378	0.365

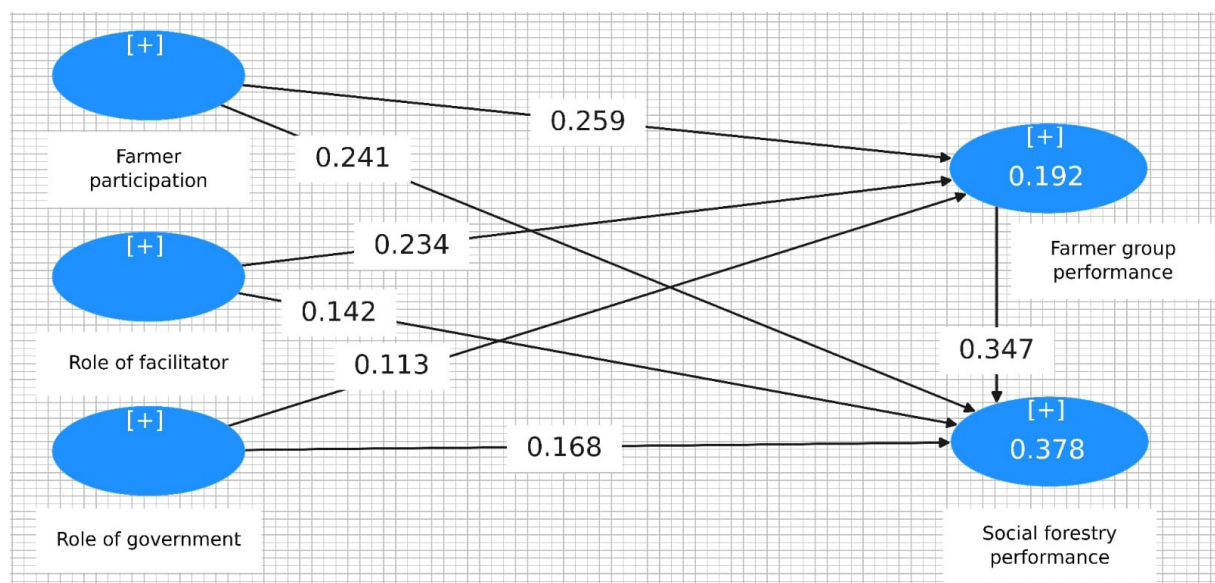


Figure 5. Results of the Bootstrapping Social Forestry Performance Model

The predictive relevance of Q-Square (Q²) for farmer group performance (0.122) and social forestry performance (0.244) is quite low (see Table 11). The performance value of farmer groups (Y1) = 0.122 indicates that the relevance of predictions is relatively small. Meanwhile, the performance of social forestry (Y2) = 0.244 indicates that the relevance of predictions is classified as moderate. This indicates that the predictive contribution of farmer group performance to social forestry performance is relatively limited. Although farmer group performance significantly influences social forestry performance, other factors outside the model may also play an important role in explaining the overall performance of social forestry.

This indicates that the predictive contribution of farmer group performance to social forestry performance is relatively limited. Although farmer group performance significantly influences social forestry performance, other factors outside the model may also play

an important role in explaining the overall performance of social forestry.

The NFI value of the model is 0.749 (74.9%) (see Table 12), indicating a moderate model fit. In SEM analysis, NFI values closer to 1 indicate a better model fit. Therefore, the obtained NFI suggests that the proposed model has an acceptable level of fit for explaining the relationships among the studied variables.

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3. Hypothesis test

Hypothesis testing uses a bootstrapping method simulation on the sample, which can be seen in Table 13. The indirect influence of exogenous and endogenous variables can be seen in Table 14.

Table 11. Predictive Relevance of Social Forestry Performance Model Output

	Q² (=1-SSE/SSO)
Farmer Group Performance	0.122
Social Forestry Performance	0.244

Table 12. Output of the Social Forestry Performance Fit Model

	Saturated Model	Estimated Model
Chi-Square	1822606	1822606
NFI	0.749	0.749

Table 13. Direct Influence on the Social Forestry Performance Model

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Farmer Group Performance -> Social Forestry Performance	0.347	0.349	0.057	6,042	0,000
Farmer Participation -> Farmer Group Performance	0.259	0.261	0.069	3,783	0,000
Farmer Participation -> Social Forestry Performance	0.241	0.239	0.062	3,903	0,000

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/ STDEV)	P Values
Government Role -> Farmer Group Performance	0.113	0.110	0.064	1,766	0.078
Government Role -> Social Forestry Performance	0.168	0.170	0.054	3,115	0.002
Role of Facilitator-> Farmer Group Performance	0.234	0.239	0.070	3,346	0.001
Role of Facilitator-> Social Forestry Performance	0.142	0.141	0.061	2,341	0.020

Table 14. Indirect Influence on the Social Forestry Performance Model

Exogenous Variable	Endogenous Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/ STDEV)	P Values
Farmer Participation	Social Forestry Performance	0.090	0.091	0.028	3,251	0.001
Government Role	Social Forestry Performance	0.039	0.038	0.023	1,712	0.088
Role of Facilitator	Social Forestry Performance	0.081	0.084	0.029	2,749	0.006

Table 15. Results of Bootstrapping Research on Social Forestry Performance Models in Soppeng Regency

	t-statistics (O/ STDEV)	p-value	Remark
Farmer Group Performance -> Social Forestry Performance	6,042	0,000	Important
Farmer Participation -> Farmer Group Performance	3,783	0,000	Important
Farmer Participation -> Social Forestry Performance	5,192	0,000	Important
Government Role -> Farmer Group Performance	1,766	0.078	Not significant
Government Role -> Social Forestry Performance	3,588	0,000	Important
Role of Facilitator -> Farmer Group Performance	3,346	0.001	Important
Role of Facilitator-> Social Forestry Performance	3,695	0,000	Important

The farmer participation variable influences social forestry performance through the farmer group performance variable, t-statistic value > t-table ($3.251 > 1.96$), and p-value of 0.001. The government role variable does not affect social forestry performance through the performance

of farmer groups (t-statistic value of 1.712), and a p-value of 0.088. The companion role variable has an indirect effect on social forestry performance through the farmer group performance variable, with a t-statistic of 2.749 and a p-value of 0.006.

B. Discussion

1. The Direct Effect of Farmer Participation Variables, The Role of Facilitators, The Role of Government on The Performance of Farmer Groups

Based on the research results, farmer participation has a significant direct effect on the performance of farmer groups. Farmer participation is more dominant in the implementation of SF activities from the beginning of submitting permit applications to the issuance of management permit decisions, preparing administrative files and documentation, participating in training, socialization and counseling, attending regular meetings, and managing cultivated land. Farmer participation in the implementation process is more in the form of services/labor, especially in managing land. The provision of seed assistance or assistance for productive economic tools provided by the government is a special attraction for farmers because this assistance belongs to farmers or becomes a group asset, thereby reducing the burden of production costs. Farmer participation in monitoring and evaluating activities is dominated by farmer group administrators who actively convey criticism, suggestions, and solutions; while other farmer group members follow farmers who are more knowledgeable and experienced.

One of the obligations for social forestry permit holders is to arrange the boundaries of the work area. Most of the permit holder groups in Soppeng Regency do not arrange the boundaries of the work area; they only understand and know the outer boundaries of the permits they obtain. Among the 18 permit holder groups, only farmer group Cempalagie has carried out a simple boundary arrangement carried out through participatory means by some group members and assisted by assistants and related agencies. The lack of funds and knowledge in mapping has caused the 17 other farmer groups to be unable to fulfill their obligations in accordance with the rules set by the government. Low levels of

education, lack of experience, and inadequate information available at the location can be overcome through socialization (Banuwa, 2018; Puspitasari et al., 2019; Rahman, 2021; Zulkifli et al., 2020). Before social forestry is implemented, widespread socialization is necessary. In addition, training is needed as an effort to increase knowledge and skills so that there is a change in the behaviour of permit holders (Marliyana, 2020; Supriyanto et al., 2021; Susilo & Nairobi, 2019). The training system implemented should use treatment that touches on the perception, self-concept, and values of the individual (Wijaya et al., 2020). In addition to requiring a long process, changing productive behaviour also requires reinforcement, repetition, and coaching (Solichin, 2006). Thus, it is hoped that farmers will have a higher spirit in managing their farming businesses, understand work situations, and be able to use new skills appropriately, and have a great attitude of confidence in solving problems related to their farming businesses (Djuku et al., 2021).

The role of facilitators for farmers holding social forestry management permits is needed in the research location because the community not only manages the land conventionally but also has to become social forestry entrepreneurs (Lawasi, 2022). Through support for assistance and facilitation from the government and business actors, the community can learn to independently manage social forestry land, starting from planning, developing potential biological resources, implementing business activities, protecting and securing forest ecosystems, and even monitoring and evaluation. Well-managed land will provide optimal benefits to the community, especially in improving welfare (Alivia et al., 2022).

The role of government does not have a significant effect on the performance of farmer groups. In the social forestry program, the role of government is realized through policies, regulations, and provision of resources such as funds or infrastructure. However, implementation in the field generally involves

facilitators as liaisons between the government and farmer groups. Because facilitators act as intermediaries, government support is not directly felt by farmer groups, but rather through facilitators who function as intermediaries. Facilitators interact directly with farmers in the field. Meanwhile, government policies or roles are only felt after being implemented by facilitators. This is in line with the results of this study that the performance of farmer groups is directly affected by the role of facilitators.

The government's bias is evident in the empowerment process, which has offered social forestry farmer groups access to productive economic tools and facilitators. However, not all facilitators met the specific needs of the groups. (Taroniarta & Yahya, 2022). The assistance provided by the government is not being utilized effectively, which negatively impacts farmer productivity. Since the issuance of the social forestry permit, there have been issues with the support provided. Some of the equipment given as assistance has been improper for their needs, rendering it inefficient and ineffective for use (Sami, 2020).

Government assistance provided in the form of mulberry seedlings for silkworm cultivation has not been successful in some locations due to unsuitable soil conditions. Therefore, government assistance programs should be better aligned with land suitability while taking ecological, economic, and social considerations into account (Najmi et al., 2019). Additionally, factors such as temperature, rainfall, altitude, and soil type must also be taken into account, as these are natural limitations that cannot be altered (Supriyanto et al., 2021).

For agricultural production, there are certain tools and equipment that cannot be utilized due to limitations in their power requirements. Many of these tools require a large electrical capacity that is not available to farmers in rural areas. Therefore, members of the farmer group need access to production tools that utilize appropriate technology, rather than those that

demand high electrical power and capacity.

Government policies are not always aligned with local needs and field conditions. As a result, farmer groups do not directly benefit from these policies because their implementation is sometimes not relevant to the local context. Therefore, the government needs to conduct consistent monitoring and evaluation of the assistance provided to social forestry permit holders to ensure that policies are implemented effectively and achieve the intended outcomes. The monitoring and evaluation mechanism for the policy does not work well, so problems in policy implementation are not immediately detected and corrected. As a result, the policy does not have a significant impact.

The effect between the performance of social forestry permit holder groups through area management, institutional management and business management with farmer participation, the role of facilitator and the role of the government is relatively low, lack of knowledge of permit holder farmers, limited assistance and minimal mapping costs from the government in arranging work area boundaries are obstacles (Harnadi, 2019), out of 18 permit holder groups only one group has arranged the outer boundaries of the work area.

The government needs to continue to encourage and provide fiscal instruments in the form of assistance and economic incentives to improve access to information, skills, appropriate technology, assistance, training and product development, post-harvest handling, commodity and product marketing, increase productivity and added value, obtain an efficient market chain, equalize product benefits, and obtain more benefits. In providing assistance, the government must also evaluate the needs of farmers and land that will be used as the location for recipients of assistance in order to determine its potential and characteristics so that the assistance program with the assistance items provided is appropriate (Shaleh et al., 2019).

2. Indirect Effect of Farmer Participation Variables, Role of Assistants, Role of Government on Farmer Group Performance

The effect of farmer group performance variables significantly mediates farmer participation and the role of assistants on social forestry performance, although the effect is low. This finding shows that to improve social forestry performance, one thing that must be done is to improve farmer group performance first through farmer participation and the role of assistants. This is in line with research (Istiqomah et al., 2021; Oktoyoki et al., 2023; Sami, 2020; Veriasa et al., 2023).

Farmer participation, the role of facilitators, and the role of the government have a low effect on the performance of social forestry through the performance of farmer groups in the prerequisite aspect; each group shows the availability of documents in the form of legality, both permit holder decrees and maps and planning documents. The main factor that encourages people to become social forestry permit holders is a sense of security in utilizing the forest, so that social forestry is considered a conflict resolution both with government officials and fellow farmer groups (Krisnantoro, 2019). Because legally the status of the land belongs to the state, but the community has the assumption that the land belongs to individuals and groups because they are considered to have maintained it, so that the forests they manage are maintained (Fitria et al., 2021).

The habit of farmers managing land using traditional and non-intensive methods, where the land is not cultivated optimally, only oriented to meet daily needs, so that the income of group members is still minimal, including contributing income to the wider community. The main factor that affects the level of farmer income is the high intensity of farmers in managing their crops and farmers who have large areas of land, not all of which can be cultivated due to limited labor (Mutaqin et al., 2022; Supriyanto et al., 2021).

3. Efforts to Improve Social Forestry Performance

The low performance of social forestry requires intervention and focus on factors that are more dominant in determining the success and failure of social forestry. This includes the main steps that can be taken as a result of the structural model proposed in this study (Figure 6). This will be able to provide a better solution because it can add to the explanation that the performance of farmer groups is absolutely necessary to achieve PS performance.

a) Improving knowledge, skills, independent attitudes and entrepreneurial abilities

The purpose of social forestry is to increase community capacity; failure to understand the social forestry program will reduce community participation (Pambudi, 2020), so that the benefits are not only felt by the group but also at the member level (Kaskoro, 2017). The social forestry permit holder group in Soppeng Regency knows about the social forestry program, and they are motivated to participate in it, but their knowledge is inadequate. Although knowledge and motivation are not the main factors (Adzkiya et al., 2023), the independent attitude and entrepreneurial skills of farmers are very important in participation efforts (Fauzan & Pradana, 2023; Indraningsih & Swastika, 2022; Mukti & Kusumo, 2021; Sa'diyah & Soetarto, 2021). Therefore, educating farmers to be independent and entrepreneurial is an important factor in increasing the success of social forestry (Nona & Sagajoka, 2021; Raharjo et al., 2020).

b) Encourage active involvement of farmers in production

Farmers in Soppeng Regency have historically faced challenges in managing their production results, which hampers their ability to enhance community productivity. Many farmers focus on processing semi-finished goods primarily for their household needs, with only a portion being sold to purchase items they are unable to produce themselves. This observation aligns with the findings of Fitri

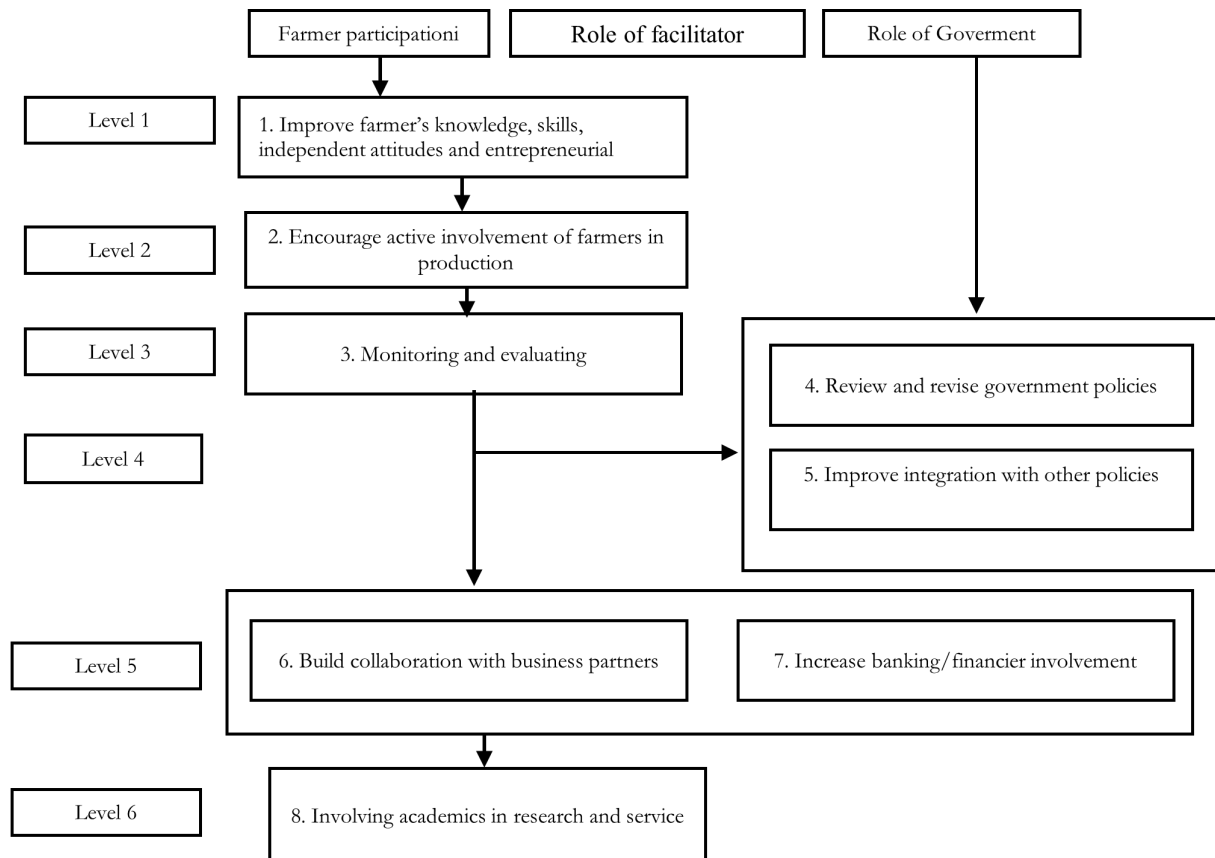


Figure 6. Efforts to Improve Social Forestry Performance in Soppeng Regency

et al. (2019), who stated that the amount of farmer income is only enough to meet daily needs. Therefore, changes in farmer behavior in producing public goods can provide new experiences and can improve production skills.

Production experience is very important to increase farmers' income, because it can affect farmers' motivation, attitude, and participation in social forestry management. The main issue is, what is the quality of the products produced by farmers (Hastanti, 2021) and how to maintain business sustainability (Manalu et al., 2022), and increase the farmer experience to produce public goods, not only oriented towards meeting production or food needs but also must improve people's standard of living (Wanimbo, 2019).

c) Monitoring and evaluation of activities

The government monitors and evaluates SF activities periodically to assess the effectiveness

of the assistance provided and make adjustments if necessary. Involving farmers in providing feedback on the assistance received can help the government improve assistance in the future.

d) Reviews and revisions of government policies

The implementation of social forestry regulations has not been optimally carried out; the obligation of farmer groups as holders of social forestry permits to arrange the boundaries of the work area and create boundary blocks cannot be carried out by permit holders. This is due to the limitations of farmer groups in using modern technology in mapping or geographic information systems in planning forest management, so that policy changes need to be made to periodically review and revise social forestry policies based on the results of monitoring and evaluation.

e) Improve integration with other policies

Lack of coordination between government agencies in Soppeng Regency has caused social forestry to run separately from rural development policies. Integration of policies with local governments and village governments will maximize local community economic empowerment and sustainable forest management.

f) Building collaboration with business partners

The group of social forestry permit holders is expected to be able to cooperate with retail companies, supermarkets, organic or environmentally friendly food retailers, food producers that produce processed non-timber forest products, pharmaceutical and cosmetic companies, and cooperatives. These parties can develop and enhance market production results using attractive packaging technology, selling products at prices affordable to the community, promoting with online brochures containing the uniqueness, and advertising the advantages and benefits of the products. These partners are expected to be able to build networks and carry out partnerships according to their respective roles (Kamaluddin & Tamrin, 2019). The lack of business partners for the farmer groups results in limited development of group businesses; therefore, cooperation with partners needs to be built. This will increase the types of group businesses so that it will have an impact on increasing work and business opportunities that can improve farmer welfare.

g) Increasing banking/financier involvement

License holders in Soppeng Regency have permits to manage forests as cultivated land; however, they face a lack of capital. This shortage of funding is a significant factor contributing to low forest yields (Sari, 2019). Therefore, it is essential to implement effective financial capital management in collaboration with third parties, specifically banks, to provide additional funding through smallholder business credit (Puspitasari et al., 2019).

h) Involving academics to play an active role in research and community service

Since the finding of *Rafflesia* sp. in the Anambas Islands from 2014 to 2025, there has not been a single form of scientific report. The involvement of academics in the development of social forestry is greatly needed by social forestry permit holders in Soppeng Regency. Research and community service provide knowledge and insight as well as improve the capacity of human resources (Wulandari et al., 2022), with policy-independent learning, an independent campus provides opportunities for students to assist farmer groups and provide solutions to problems faced by farmers so as to create independent farmer groups in the village (Yanuarsari et al., 2021).

IV. CONCLUSION

There is a significant effect between the farmer participation variable (0.259) and the role facilitator variable (0.234) on the performance of farmer groups, the government role variable does not have a direct effect on the performance of SF farmer groups, the government should conduct regular monitor and evaluate activities periodically to assess the effectiveness of SF implementation and make policy changes by reviewing and revising social forestry policies based on the results of monitoring and evaluation.

There is a significant effect between the farmer participation variable (0.241), the role of facilitator (0.142), the government role variable (0.168), and the performance of farmer groups (0.347) on social forestry performance. The performance of farmer groups contributes to mediating the relationship between farmer participation, the role of facilitators, and the role of government with social forestry performance. The predictive relevance of farmer group performance value (0.122) suggests that it is relatively small, whereas the predictive relevance of social forestry performance (0.244) indicates a moderate level of relevance. Although farmer group

performance significantly influences social forestry performance, its overall explanatory power within the model remains limited.

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