

Dinamika Kelompok Tani Hutan pada Hutan Hak dan Perhutanan Sosial di Kabupaten Bandung, Jawa Barat, Indonesia (Dynamics of Farmer Groups in Private Forest and Social Forestry in Bandung Regency, West Java, Indonesia)

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Info artikel:	ABSTRACT
Keywords: Community forests, forest farmers groups, group dynamics, social forestry	<i>The success and setbacks of a farmer group are indicated by its dynamics groups This study focused on analyzing the dynamics of forest farmer groups (KTH) and forest village community institutions (LMDH) and aimed to understand their levels and their affected factors. Data was collected through interviews with 60 intentionally selected active members of KTH Tani Mukti and LMDH Bukit Amanah, at Bandung Regency. Data was analyzed using the Structural Equation Model (SEM) with the partial least square (PLS) approach. It was found that KTH Tani Mukti showed low group dynamics, while LMDH Bukit Amanah showed high dynamics. Factors that influence KTH Tani Mukti included land ownership area and group motivation, encompassing economic, social, and ecological aspects. For LMDH Bukit Amanah, factors such as education, income, family dependents, farming experience, age, village tenure, and group motivation played significant roles. Strategies for improving group dynamics in KTH Tani Mukti involve strengthening group coaching and development objectives, while for LMDH Bukit Amanah, it includes coaching and development initiatives.</i>
Kata kunci: Hutan Masyarakat, Kelompok Tani Hutan, Dinamika kelompok, Perhutanan sosial	ABSTRAK Keberhasilan dan kemunduran kelompok tani ditunjukkan oleh dinamika kelompoknya. Penelitian ini fokus pada analisis dinamika kelompok tani hutan (KTH) dan lembaga masyarakat desa hutan (LMDH) dan bertujuan untuk memahami tingkat dinamika kelompok dan faktor-faktor yang mempengaruhinya. Data dikumpulkan melalui wawancara dengan 60 anggota kelompok aktif yang dipilih secara sengaja dari KTH Tani Mukti dan LMDH Bukit Amanah di Kabupaten Bandung. Data dianalisis menggunakan <i>Structural Equation Model</i> (SEM) dengan pendekatan <i>Partial Least Square</i> (PLS). Hasil penelitian menunjukkan bahwa KTH Tani Mukti mempunyai dinamika kelompok yang rendah dibandingkan dengan LMDH Bukit Amanah. Faktor-faktor yang mempengaruhi dinamika kelompok pada KTH Tani Mukti antara lain luas kepemilikan lahan dan motivasi kelompok yang meliputi aspek ekonomi, sosial, dan ekologi. Untuk LMDH Bukit Amanah, faktor-faktor seperti pendidikan, pendapatan, jumlah tanggungan keluarga, pengalaman usaha tani, usia, masa kerja di desa, dan motivasi kelompok memiliki pengaruh yang cukup signifikan dalam dinamika kelompok. Strategi untuk meningkatkan dinamika kelompok pada KTH Tani Mukti melalui penguatan pembinaan dan tujuan pengembangan kelompok, sementara untuk LMDH Bukit Amanah, strategi yang dapat dilakukan meliputi inisiatif pembinaan dan pengembangan kelompok.
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Kontribusi penulis: **AR**: melakukan pengambilan data, analisis data, menulis naskah; **LS**: memberikan masukan dan bimbingan, mengarahkan pengambilan data, analisis data, revisi naskah; **SND**: memberikan masukan dan bimbingan, mengarahkan pengambilan data, analisis data, revisi naskah.

1. Introduction

A community-based forest management program is deemed beneficial in providing an opportunity to increase the level of community welfare (Lubis et al., 2019) and community participation (Alfandi et al., 2019; Herningtyas et al., 2022) to maintain forest sustainability. Social forestry is a government program targeted to involve communities in forest management. Social forestry management has been regulated in the Decree of the Minister of Environment and Forestry No. 9 of 2021, one of which is through the social forestry scheme of forestry partnerships. The forestry partnership scheme is intended to increase its capacity and provide community access through forest management cooperation to ensure community welfare (Weni et al., 2020).

Sukwika (2018) stated that private forests can provide ecological, social and economic benefits to the community to enhance community participation in forest management. Private forest development program is more effective if it carried out as a group, even though private forest management can be implemented individually. This condition, therefore, requires the existence of farmer groups. This is in line with Sukwika et al. (2018), who highlighted that the sustainability of communities or organizations depends on their interaction capabilities with other interrelated communities or organizations.

The existing farmer groups are generally formed through government programs, although some are established independently. As mostly found in many cases, once the designated program comes to an end, the farmer group will be disbanded. Sri et al. (2015) revealed that the group dynamics represent the success and setbacks of a group. The dynamics of farmer groups can change the behavior of group members, which in turn will change their mindset toward forest management. Dynamic groups are characterized by activities or interactions within and with

outsiders to achieve group goals. In addition, group dynamics are the forces in the group environment that determine the behavior of members and the group's behavior in carrying out various activities to achieve group goals. There are many factors influencing group dynamics, but in this study, group dynamics are observed based on how much the characteristics relationships can influence group dynamics, measured through score analysis and the results of SEM PLS analysis that has been utilized.

Various studies have been conducted on the dynamics of farmer groups. Bangsawan (2016) stated that group objectives, group structure, group unity, leadership, task functions, group coaching and development, and group effectiveness determine the dynamics of a farmer group. Damanik (2015) added that hidden intentions are one of the elements of the dynamics of farmer groups. Hidden intentions are unknown programs, tasks, or goals realized by group members. Bowo et al. (2011) and Dassir (2020) mentioned seven elements of group dynamics that help influence the dynamics of forest farmer groups, i. group goals, group structure, group task functions, group development and coaching, group unity, group pressure, and group effectiveness.

Likewise, many studies have been conducted on the dynamics of farmer groups in social forestry. Utama et al. (2010) reported factors that influence group dynamics other than goals, structure, and function of group assignments are leadership effectiveness, environmental support, and assistant's ability. However, there are limited studies comparing farmers' perceptions of group dynamics in private forests and social forestry programs. Social forestry is a system of forest resource management in state forest areas or forest rights, which provide opportunities to local communities as actors and partners. Meanwhile, according to regulation of the

Minister of Environment and Forestry No. 23 of 2021, private forest is a forest that grows on land subject to ownership rights or other rights outside forest areas, with a minimum area of 0,25 (twenty-five hundredths) hectares, dominated by woody plants in the canopy cover. Private forest is another effort to increase community participation in forest management.

Focused on welfare and forest sustainability, this study aimed to a) analyze the level of dynamics of forest farmer groups (KTH) and forest village community institutions (LMDH), b) analyze the individual factors that affect the dynamics, and c) formulate strategies to increase the dynamics of LMDH and KTH in private forest and social forestry.

2. Material and Methods

2.1. Research Location

This research was conducted at Bandung Regency, West Java Province. Field data was collected in June 2022 from two farmer groups namely KTH Tani Mukti, a private forest farmer group at Babakan Peuteuy Village, Cicalengka District and LMDH Bukit Amanah, a social forestry farmer group at Cempaka Mulya Village, Cimaung District.

2.2. Data Collection

This research used primary and secondary data. Primary data were obtained from structured, in-depth interviews with 30 respondents in each farmer group as the research sample using questionnaires and field observations, so the total number of respondents was 60. Respondents were selected through random sampling. The use of 30 respondents is commonly associated with widely-used statistical practices known as the "rule of thumb" in surveys and social research. It is often considered a sufficient sample size to yield reliable results without significantly increasing the research burden. Primary data were mainly related to the characteristics of

respondents, private forest management or social forestry, expenditure, income, group dynamics, etc. While secondary data were obtained from the Central Bureau of Statistics at Bandung Regency. Secondary data describing biophysical and socio-cultural conditions was obtained through tracing data from the central statistical agency at the district/city level.

2.3. Parameter Observed

2.3.1 Descriptive Analysis (Average, Minimum Value, Maximum Value, and Percentage)

Data were analyzed using descriptive and statistical inference. Qualitative data was processed descriptively. Descriptive analysis provides a general overview of respondent characteristic variables and group dynamics variables. The results of respondent interviews were interpreted according to the research effects supported by theories related to the research object. Data was processed using the Likert scale to measure each variable. The research variables were given an assessment score, then the total score of each variable is transformed into an index score. The group dynamics were classified into class intervals using the following formula (Nempung et al., 2015):

$$i = \frac{a - b}{k}$$

Description:

- i : Class interval
- a : Total maximum score (SMax)
- b : Total minimum score (SMin)
- k : Number of classes/categories

2.4. Data Analysis

2.4.1 Analysis of Respondent Characteristic Factors Affecting Group Dynamics (SEM PLS)

The instrument reliability test was used to explain the causal relationship

between research variables through

hypothesis testing. This research used the discriminant validity method by testing the heterotrait-monotrait ratio of correlation and construct's reliability by way of examining that the composite reliability must be greater than 0,70 and Cronbach's alpha must be higher than 0,60.

Factors predisposed to influence group dynamics (Figure 1) were analyzed using structural equation modelling (SEM) of Partial Least Square (PLS) with the assistance of Smart PLS software. PLS is used to make predictions to see the relationship between constructs (Fahmi et al., 2022). The model in this study was determined based on a hierarchical component approach with a reflective-formative measurement model for higher-order constructs of individual characteristics consisting of the following eight lower-order constructs: 1) education, 2) age, 3) fertile land area, 4) income, 5)

number of dependents in the family, 6) farming experience, 7) length of stay in the village, and 8) farmer motivation.

Meanwhile, the reflective measurement model was used for the higher-order construct of KTH dynamics, which consists of the following nine lower-order constructs: 1) group goals, 2) group structure, 3) group task functions, 4) group development and coaching, 5) group atmosphere, 6) group unity, 7) group pressure, 8) group effectiveness, and 9) hidden intentions. This group dynamics variable was seen from the perspective of respondents.

2.5. KTH/LMDH Dynamic Improvement Strategy

The Strategy was formulated by synthesizing the results of descriptive analysis and analyzing the dynamic variables and respondent characteristics at KTH/LMDH using SEM PLS.

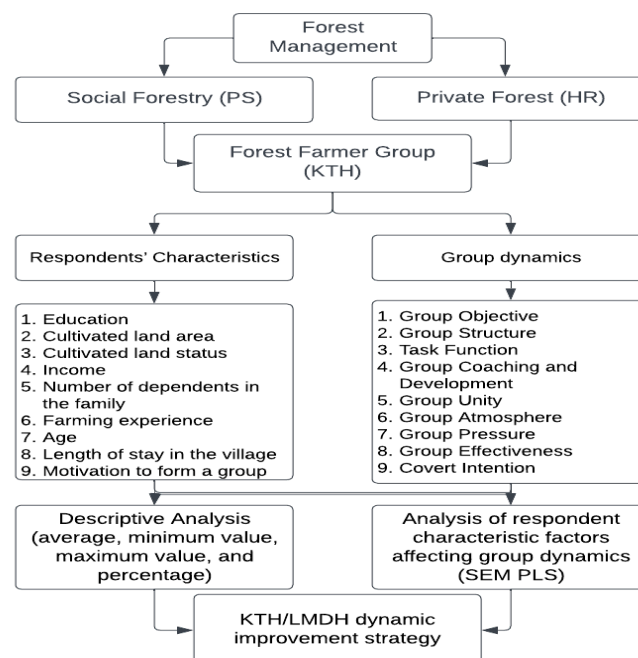


Figure 1. Factors suspected of influencing group dynamics

The research hypothesis is formulated as follows: Hypothesis: Respondent characteristics (HOC) have a positive and significant effect on the dynamics of Forest Farmer groups (HOC). The term HOC (Higher Order Construct) is commonly used in factor analysis or structural analysis to describe a factor or construct that results from the combination of several variables or other factors.

3. Results and Discussion

3.1 Research Location

The education level of respondents at KTH Tani Mukti and LMDH Bukit Amanah was mainly in the low category. Manyamsari & Mujiburrahmad (2014) stated that education level determined a farmer's level of competence in carrying out their activities. In terms of land ownership, most respondents in KTH Tani Mukti possessed an area of <0,3 ha, which is classified as a very narrow category, while those in the Bukit Amanah LMDH mainly had land ownership of 0,5 to 1,0 ha. The area of fertile land in both KTH Tani Mukti and LMDH Bukit Amanah status was dominated by a profit-sharing land system, *maro* (the agreement to divide the land's produce between the cultivator and the landowner (in Javanese and Sundanese societies)). Income is a factor that influence the socio-economic status of farmers. Farmers of LMDH Bukit Amanah generally had relatively higher incomes (IDR 3.176.807/month) compared to those in KTH Tani Mukti (IDR 2.205.486/month). In this context, Kristin et al. (2018) demonstrated that respondents' income will encourage the community to increase their interaction in utilizing the forest. Most families of KTH Tani Mukti had three dependents, while those at LMDH Bukit Amanah generally had four dependents. The number of

family members certainly has a significant influence on decision-making and farming activities.

Farming experience refers to the year number of a farmer has farmed, produced and marketed crops to generate income. Most farmers in KTH Tani Mukti had 15 years of experience and were in the new category, while those in Bukit Amanah LMDH were mainly still new to the farming industry. Mutmainah & Sumardjo (2014), believed that farming experience influences the success of farming as it provides lessons to farmers in dealing with risks and knowing how to overcome various problems.

Regarding age, most respondents in both groups were of productive age (around 44–48 years old). Ekaprasetya et al. (2018) stated that the productive age allows respondents to be actively involved in various activities. The farmers' average length of stay was in the moderate category (around 34-41 years) for both groups. The longer the farmers live in the village, the easier it is for them to adapt to the surrounding environment. This is in line with Arstein (2013) who reinforced that the longer a person lives and settles in an area, the better it generates positive energy as they will have better awareness of maintaining and managing the forest area. The factor that encourages a person to have high interaction is people's motivation to fulfill their daily needs. According to Alamanda et al. (2022) community motivation greatly influences group participation. This is following the high motivation levels of farmers at LMDH Bukit Amanah as opposed to those at KTH Tani Mukti, who had a relatively lower motivation. Respondents' characteristics in the two farmer groups are presented in Table 1.

Table 1. Farmer's characteristics of KTH Tani Mukti and LMDH Bukit Amanah

Variables	Indicators	KTH Tani Mukti		LMDH Bukit Amanah	
		Average	Category	Average	Category
Education (x1.1)	Education	Not completing Primary Education	Low	Not completing Primary Education	Low
Cultivated land area (x1.2)	Cultivated land area in the forest	0,450 ha	Narrow	0,750 ha	Moderate
	Cultivated land area outside forest	0,116 ha	Very Narrow	0,028 ha	Moderate
Cultivated land status (x1.3)	Cultivated land status	Profit Sharing		Maro	
Income (x1.4)	Income (Rp/...Month)	2.205.486	Moderate	3.176.807	High
Number of dependents in the family (x1.5)	Number of dependents in the family	3	Small	4	Moderate
Farming experience (x1.6)	Farming experience	15 years	Fairly New	6,63 years	New
Age (x1.7)	Age	47,57 years	Moderate	44,03 years	Moderate
Length of stay in the village (x1.8)	Length of stay in the village	40,23 years	Moderate	34,9 years	Moderate
Motivation to form a group (x1.9)	Total average score	1,73	Low	2,00	Moderate

3.2 Group Dynamics

3.2.1 Group Objectives

KTH Tani Mukti was established to enhance collaboration among local farmers in managing vacant land. This group has not yet to determine its group charter, which has an impact on the unclearness and formality of group objectives. The interpretation of group objectives at KTH Tani Mukti is relatively low, as opposed to LMDH Bukit Amanah, which has determined its group charter according to the goals of its members and ensures that all group members understand its objectives as clearly stated in the Article of association and by laws. According to the respondent's perception, the element of group objectives of KTH Tani Mukti was scored 10,2, which was included in the low category. This means the absence of by laws and household budgets (AD/ART) by KTH Tani Mukti contributes to the uncertainty and informality of the group's objectives. LMDH Bukit Amanah was scored 11,4, classified as moderate category. It's mean,

this LMDH (Farmer Group) has bylaws (AD/ART) that align with the goals of its members. The group's objectives are known to the members through the AD/ART, while individual goals in LMDH Bukit Amanah are to broaden insights, knowledge, and skills in agricultural endeavors.

3.2.2 Group Structure

The average score of group structure of KTH Tani Mukti was 25,7, or in the moderate category. It's means that in KTH Tani Mukti, rules are not written explicitly, but all members understand and adhere to them. Meanwhile, the average group score of Bukit Amanah LMDH was 26, or in the high category. Even though the score difference is quite small, the categories are different. Farmers of LMDH Bukit Amanah know the existing rules even though they are not written, for example, the prohibition in protected forest areas such as logging and vegetable cultivation. This is in line with the research findings by Bangsawan (2016), that even though

the rules are not written, all members understand and comply with them.

3.2.3 Group Task Function

The group task function is necessary to ensure the group can carry out its functions and achieve its goals. According to Andarwati et al. (2012), the task function is a set of tasks that each member of a group must carry out in accordance with their respective functions and their position in the group structure. The average score of the group function of KTH Tani Mukti is 19,76 or in the moderate category. This means that the group functions in this group have not been well implemented yet or the group function is still less properly implemented. While the group task function of LMDH Bukit Amanah is in the high category with a score of 23,6 meaning the group functions in this group have been well implemented.

3.2.4 Group Coaching and Development

Group coaching and development are intended to keep the group sustainability. The distribution of coaching and development variable scores of KTH Tani Mukti was 19,7, classified as very low category. This means that the coaching and development of the farmer group was still needed to be revised. The average group coaching and development score for LMDH Bukit Amanah was 23,83, or in the moderate category. This means that efforts need to be maintained and enhanced to foster and develop this group so that it is more dynamic and effective.

3.2.5 Group Unity

The average score of KTH Tani Mukti's unity was 23,5, which was included in the moderate category. This means that some members of KTH Tani Mukti still consider themselves part of the group, but this awareness is not in line with the members' active participation in carrying out group tasks. The average

group score for unity in LMDH Bukit Amanah was 24,2 and was included in the high category.

3.2.6 Group Atmosphere

The average score of group atmosphere of KTH Tani Mukti and LMDH Bukit Amanah was 12,46 and 12,43, respectively, it was classified as moderate category. Leilani et al. (2006) revealed that factors affected the atmosphere of the group, namely tension, friendliness, permissiveness, and the physical and democratic environment.

3.2.7 Group Pressure

The right group pressure will lead to group dynamics and vice versa. It can influence group dynamics, and conversely, group dynamics can also influence the pressure or influence within the group. In this context, "group pressure" may refer to the influence, norms, or social dynamics that arise from interactions within group members. The average score of the KTH Tani Mukti's group pressure was 4,2, or in the moderate category, meaning that conflicts, competition, and the authoritarian nature of the leaders at KTH Tani Mukti were less visible. In this case, Daniel et al. (2021) argued that this pressure is expected to cause changes in behavior, ideas, attitudes, and beliefs among group members. Meanwhile, the performance of LMDH Bukit Amanah based on pressure from farmer groups was relatively high with a score of 5,02. This is following Faqih (2014) who demonstrated that high group pressure generally results in group members compliance with group norms and uniformity in activities.

3.2.8 Group Effectiveness

Ekaprasetya et al. (2018) defined group effectiveness as the group's success in achieving its goals. The more goals that can be achieved, the more successful, and satisfied group members will be. The

average score for group effectiveness at KTH Tani Mukti is relatively low, whereas at LMDH Bukit Amanah belongs to the moderate category.

3.2.9 Covert intention

The average score of the covert intention of group members to be part of KTH Tani Mukti was 7,67, or in the high category. One of the goals of KTH Tani Mukti members joining the group was to

make it easier to obtain seed and fertilizer assistance. Meanwhile, those joining LMDH Bukit Amanah had an 8,67 covert intention, also included in the high category. Some group members may have a personal business orientation, but such intentions, generally do not have a negative impact on the group. The group dynamics variables at KTH Tani Mukti and LMDH Bukit Amanah are presented in Table 2.

Table 2. Group dynamics average score and category according to respondent's perception

Variabel	KTH Tani Mukti		LMDH Bukit Amanah	
	Average Score	Category	Average Score	Category
Group Objective (y1)	10,20	Low	11,40	Moderate
Group Structure (y2)	25,70	Moderate	26,00	High
Task Function (y3)	19,76	Moderate	23,60	High
Group Coaching and Development (y4)	19,70	Very Low	23,83	Moderate
Group Unity (y5)	23,50	Moderate	24,20	High
Group Atmosphere (y6)	12,46	Moderate	12,43	Moderate
Group Pressure (y7)	4,20	Moderate	5,02	High
Group Effectiveness (y8)	16,03	Low	18,8	Moderate
Covert Intention (y9)	7,67	High	8,67	High
Total Group Dynamics	139,30	Low	154,06	High
n = 30/Group				

3.3 The Relationship Between the Characteristics of the Respondents and the Variable Dynamics of the Group

3.3.1 Evaluation of Confirmatory Factor Analysis

The results of convergent validity testing for the respondent characteristic variable (x1) and group dynamics variable (y) after model modification revealed that all measuring items have met the requirements for testing the outer loading value after removing invalid indicator items and average variance extracted (AVE) of above 0,50. Thus, the results are valid and can be used to measure each latent variable. The VIF collinearity test results for all constructs indicate that all

predictor constructs are < 7 . Hence, collinearity is not a problem between construct dimensions (Hair et al., 2014; Hair Jr. et al., 2017). Furthermore, discriminant validity testing found that the confidence interval (CI) value of either 2,5% or 97,5% of each dimension for the variable value was less than or equal to 1,00. Thus, it was obvious that there were no discriminant validity problems for each supporting indicator in all constructs.

The reliability test was carried out using the composite reliability test by looking at all latent variable values having a composite reliability value of $\geq 0,7$. All constructs/variables have good reliability according to the questionnaire used. In the final stage of the CVA (Coefficient of Variation) test, a significance test of the

relationship between dimensions and variables was carried out. It showed that all the lower-order constructs that form higher-order national culture construction have a t-statistics value above 1,96 and a p-value below 0.05. Therefore, it can be concluded that all constructs in the dimension of lower order constructs (LOC) are form of higher order constructs (HOC).

3.3.2 Evaluation of Measurement Models

An evaluation of the measurement model was carried out to assess the validity and reliability of the model. The research measurement model in PLS-SEM is the outer model, which consists of a set of relationships between indicators and latent variables (Hair et al., 2021). Figure 2 shows the testing results of all variables, resulting in no indicators that have a loading factor value of less than 0,50. Therefore, the indicators in the model can be assumed to be valid.

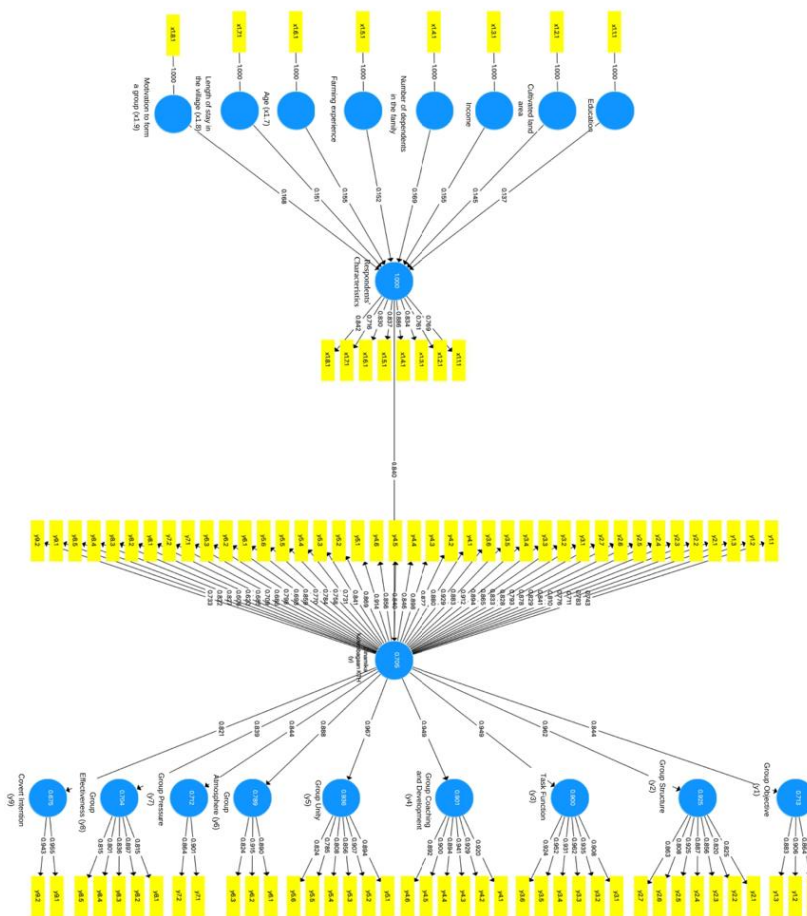


Figure 2 Results of PLS Algorithm Main Model Procedure

The discriminant validity test using the heterotrait-monotrait ratio of correlations (HTMT) disclosed that the confidence interval (CI) value of either 2,5% or 97,5% of each dimension for the variable value is less than or equal to 1,00, thus indicating that there are no discriminant validity problems for each supporting indicator. The reliability test highlights that the

composite reliability test shows that all latent variable values have a Cronbach's alpha of $\geq 0,60$ and composite reliability of $\geq 0,70$. Thus, all constructs can be assumed to be reliable.

3.3.3 Evaluation of Structural Models

A structural model was tested to measure the relationship between latent

variables in this research and to measure how fit the model was used. According to Hair Jr. et al. (2017), the evaluation of structural models aims to predict the relationship between latent variables. Hair Jr. et al. (2017) in Ramayah et al. (2017) suggested looking at the Inner VIF value, coefficient of determination (R^2), model suitability and predictive relevance (Q^2) to assess the structural (inner model).

The inner VIF (Variance Inflation Factor) value is used to assess multicollinearity in the structural model. Testing the multicollinearity value of the variable correlation matrix generated through the VIF value with a VIF value of <10 indicated that no multicollinearity between the independent variables. The test results showed the value of R-Square (R^2) or the coefficient of determination of the group dynamics construct (y) of 0,700. This means that 70% of the variation in the endogenous variables can be explained by the exogenous variables in the model, while the remaining 30% is likely explained by other factors outside the scope of this study, while the rest were explained by other exogenous variables outside of this study. In the predictive relevance ($Q^2_{predict}$) calculation, which shows a value greater than zero, so it can be concluded that the model had a relevant predictive value. The results showed that the model in this study had a good fit

because it had a standardized root mean square residual (SRMR) value of 0,086. Ramayah et al. (2017) stated that the model will be considered as a good fit if the standardized root mean square residual (SRMR) value is below 0,10.

3.3.4 Hypothesis Test

The proposed hypothesis test is indicated from the path coefficients, the T-statistic values obtained through the bootstrapping procedure, and the p-value. According to (Hair et al., 2014), the path coefficient values are in the range of -1 to +1, where the path coefficient values that are close to +1 represent a strong positive relationship and the path coefficient values of -1 indicate a strong negative relationship, while T-Statistics (bootstrapping) is used to see the significance value between constructs. Bootstrapping is used to calculate confidence intervals and test statistical significance without relying on specific distribution assumptions. Bootstrapping helps estimate the empirical sample distribution of a statistic without needing in-depth knowledge of the true population distribution. The results of the hypothesis were significant and had a positive effect, as indicated by path coefficient value of 0,840, which is close to +1 value, a T-Statistic value of 12,887 ($> 1,96$), and a p-value of 0,000 ($< 0,05$).

Table 3. Hypothesis Test Results

Path	Original Sample (O)	T Statistics (O/STDEV)	p Values	Conclusion
Individual characteristics → KTH dynamics	0.840	12.887	0.000	Positive and Significant

3.3.5 PLS MGA Testing Between Groups

This stage was conducted to find out the differences between farmer groups in private forest and social forestry. To test the proposed hypothesis, researchers used the PLS Multi Group Analysis (MGA) procedure through the bootstrapping procedures. The original path coefficient

values at KTH Tani Mukti were smaller than those at LMDH Bukit Amanah with respective values of 0,817 and 0,836. This means that there is a greater influence on the variables at LMDH Bukit Amanah compared to that at KTH Tani Mukti. Table 4 presents the test results on each characteristic variable with group

dynamics variables.

Table 4. MGA PLS Test Results – Comparison Between Groups

Characteristics of respondents (x1)	KTH	Group Dynamics (y)								
		Original Path Coefficients								
		y1	y2	y3	y4	y5	y6	y7	y8	y9
Education (x1.1)	1	0.085	0.092	0.098	0.098	0.099	0.088	0.096	0.090	0.081
	2	0.103	0.100	0.113	0.114	0.116	0.096	0.114	0.094	0.098
Cultivated land area (x1.2)	1	0.109	0.121	0.121	0.119	0.122	0.114	0.105	0.111	0.100
	2	0.082	0.098	0.097	0.098	0.100	0.086	0.089	0.081	0.084
Income (x1.4)	1	0.082	0.115	0.115	0.113	0.116	0.015	0.100	0.105	0.095
	2	0.114	0.135	0.134	0.135	0.138	0.130	0.123	0.111	0.116
Number of dependents in the family (x1.5)	1	0.114	0.127	0.127	0.124	0.128	0.119	0.110	0.116	0.105
	2	0.129	0.153	0.152	0.153	0.156	0.134	0.139	0.126	0.132
Farming experience (x1.6)	1	0.102	0.114	0.114	0.112	0.115	0.107	0.099	0.104	0.094
	2	0.113	0.134	0.133	0.134	0.137	0.118	0.122	0.110	0.115
Age (x1.7)	1	0.102	0.107	0.114	0.113	0.099	0.104	0.111	0.114	0.094
	2	0.116	0.121	0.141	0.137	0.125	0.114	0.138	0.138	0.119
Length of stay in the village (x1.8)	1	0.115	0.129	0.129	0.126	0.130	0.121	0.112	0.118	0.106
	2	0.099	0.118	0.116	0.118	0.120	0.103	0.107	0.097	0.101
Motivation to form a group (x1.9)	1	0.118	0.131	0.131	0.129	0.132	0.123	0.114	0.120	0.108
	2	0.119	0.142	0.140	0.141	0.144	0.124	0.128	0.116	0.122

Description: Number 1 is KTH Tani Mukti and 2 is LMDH Bukit Amanah

The PLS MGA test of Comparison Between Groups revealed that the original path coefficients of the respondents' variable characteristics with the indicator of land area (x1.2) had a greater effect on KTH Tani Mukti compared to LMDH Bukit Amanah on all group dynamics variables. This condition shows that the land area encourage dynamics in KTH Tani Mukti. Respondents with larger land areas will increasingly need help with seeds and fertilizers to manage their land and do farming. Meanwhile, those in the Bukit Amanah LMDH believed that land area was not a big matter because land distribution and utilization permits have been regulated in the forestry partnership cooperation according to the Decree of the Minister of Environment and Forestry No. 9 of 2021.

Furthermore, the value of the original path coefficients of the

respondents' variable characteristics with other indicators such as education (x1.1), income (x1.4), number of dependents in the family (x1.5), farming experience (x1.6), age (x1.7), length of stay in the village (x1.8), and group motivation (x1.9) had a greater effect on LMDH Bukit Amanah compared to that in KTH Tani Mukti. This shows that the farmer's perception of the dynamics of the Bukit Amanah LMDH group is relatively high. The respondent characteristics and group motivation (x1.9) had a greater effect on the group pressure variable at KTH Tani Mukti compared to LMDH Bukit Amanah. However, on other variables, the dynamics of the Bukit Amanah LMDH group had a greater impact than those in KTH Tani Mukti. This means that the higher the respondent's motivation to join the group (either for personal or group reasons), the higher the active

participation in the group, and the better the group dynamic.

3.4 KTH/LMDH Dynamic Improvement Strategy

3.4.1 KTH Tani Mukti

Initially the level of dynamics was not included as an assessment in determining the ability category of farmer groups, but it remained an important element to maintain and improve group dynamics for the young KTH Tani Mukti group. The assessment of group dynamics is important because it provides insights into how well the group functions, interacts, and adapts to achieve common goals. By evaluating group dynamics, we can identify strengths, weaknesses, and potential areas for improvement. This assessment aids in the development of strategies to enhance the quality of group work, improve communication, and facilitate better cooperation and collaboration among group members. Therefore, the assessment of group dynamics is a crucial tool in managing and improving group performance.

On this basis, the following strategies can be implemented to improve the dynamics of farmer groups, i.e. improving group objectives, coaching, and group development.

1. Improvement of group objectives at KTH Tani Mukti

It is necessary to determine group objectives, articles of association, and bylaws as guidelines in organizing the group to indicate the rights and obligations of member farmers in the group.

2. Group coaching and development

To increase farmer participation, it is recommended to hold regular meetings such as group meetings once a month to discuss group activities, and problems faced to enhance farmers' knowledge and skills in managing land. Regular meetings can also be held by inviting instructors to improve group dynamics variables such as group unity. It aims also to improve coordination and interaction between

group members to ensure farmers feel the benefits of being part of the groups.

Improving partnership networks to increase market and information access. It is important for groups to have information regarding markets and prices so that farmers can determine strategies in producing commodity production, both wood and crops; hence the group provides benefits to its members.

3.4.2 LMDH Bukit Amanah

The dynamics of farmer groups at LMDH Bukit Amanah were in the good category. Generally, all variables were in the moderate to high category, but several variables must be improved, such as group atmosphere at 12,43 (moderate), group coaching and development at 23,83 (moderate) and group effectiveness at 18,8 (moderate). Hence, the following strategies can be implemented to improve the dynamics of farmer through group coaching and group development. The recommendations for the group atmosphere and effectiveness will in line with the goals and development of the group. The better the goals and development of the group, the better the atmosphere and effectiveness of the group.

This group already has its group charter, but promotions remains necessary to increase members' awareness of them, because some members need to be made aware of this required information as indicated in the interview. This group also regularly receives visits from *Perhutani*, the government agency that handles forest areas, as well as from other parties, both the government (Ministry of Environment and Forestry) and private companies. These visits can be used by the groups to improve and develop groups. These visit's benefits include information, relationships, education, resource access, recognition, and business opportunities for the farmer group. This group has been able to package and sell the main product from the management of its coffee

plantations, and taking advantage of tourist visits to sell their products as well as a form of promotion.

4. Conclusion

The group dynamics of KTH Tani Mukti were in the low category because the main variables in group formation, such as objectives, coaching and group development and effectiveness were still low. In contrast, the group dynamics of LMDH Bukit Amanah were in the high category. The respondents' characteristics that influenced the dynamics of the KTH Tani Mukti group were land area and group motivation, while the respondents' characteristics that influenced the dynamics of the LMDH Bukit Amanah group were education, income, number of dependents in the family, farming experience, age, length of stay in the village, and group motivation. The strategy for increasing group dynamics at KTH Tani Mukti can be done by strengthening the goals of group coaching and group development, while at LMDH Bukit Amanah can be done through group coaching and development.

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References

- Alamanda, Z. F., Siti, A., & Nugroho, H. (2022). The Level of Beef Cattle Farmers' Readiness for Livestock Intensification Program Surrounding Baluran National Park Area. *Sylva Lestari Journal*, 10, 439–456.
- Alfandi, D., Qurniati, R., & Febryano, I. G. (2019). Community Participation in Mangrove Management. *Sylva Lestari Journal*, 7 (1), 30–41.
- Andarwati, S., Guntoro, B., Haryadi, F. T., & Sulastrri, E. (2012). Dynamics of Beef Cattle Breeding Groups Assisted by Gadjah Mada University in Yogyakarta Special Region Province. *Animal Science*, 10 (1), 39. <https://doi.org/10.20961/sainspet.v10i1.4838>
- Arstein, S. (2013). The Effect of Length of Residence in Residential Environmental Management. *BINUS ComTech Journal*, 4 (1), 24–32.
- Bangsawan, I. H. Y. H. (2016). Farmer Group Dynamics and Private Forest Developments in Serang District Banten Province. *Journal of Forestry Social and Economic Research*, 13 (1), 1–12.
- Bowo, C., Supriono, A., Hariyono, K., & Kosasih, S. (2011). Institutional dynamics of dry land community forest farmer groups in Tambak Ukir Village, Kendit District, Situbondo Regency. *JSEP (Journal of Social and Agricultural Economics)*, 5 (3), 3–38.
- Damanik, I. P. (2015). Factors that Influence Group Dynamics and Their Relationship with Farmer Group Capability Classes in Pulokencana Village, Serang Regency. *Journal of Extension*, 9 (1). <https://doi.org/10.25015/penuluhan.v9i1.9856>
- Daniel, R., Maad, F., & Wibaningwati, D. B. (2021). Dynamics of Rice (*Oryza sativa* L.) Farming Groups in Rumpin District, Bogor Regency. *Agrisintech (Journal of Agribusiness and Agrotechnology)*, 2 (1), 09. <https://doi.org/10.31938/agrisintech.v2i1.311>
- Dassir, M. (2020). Dynamics of Village Forest Farmer Groups in Bantaeng Regency. *Journal of Forests and Society*, 12 (1), 78–86.
- Ekaprasetya, D., Rimbawati, M., Fatchiya, A., & Sugihen, B. G. (2018). *Extension Journal, March 2018 Vol. 14 No. 1 Dynamics of Forest Farmer Groups*. 14 (1).

- Fahmi, M. A., Kostini, N., & Putra, W. B. T. S. (2022). Exploring hybrid learning readiness and acceptance model using the extended TAM 3 and TPB approach: An empirical analysis. *International Journal of Research in Business and Social Science* (2147- 4478), 11 (8), 321–334.
<https://doi.org/10.20525/ijrbs.v11i8.2144>
- Faqih, A. (2014). The role of Field Agricultural Instructors (PPL) in group empowerment activities on the performance of farmer groups. *Agrijati*, 26 (1), 41–60.
- Hair, J.F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V.G. (2014). Partial least squares structural equation modeling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26 (2), 106–121.
<https://doi.org/10.1108/EBR-10-2013-0128>
- Hair, J.F., Sarstedt, M., Ringle, C.M., & Gudergan, S.P. (2021). Advanced issues in partial least squares structural equation modeling (PLS-SEM). In *English* (Vol. 4, Issue 1, p. 197).
- Hair Jr., J.F., Matthews, L.M., Matthews, R.L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1 (2), 107.
<https://doi.org/10.1504/ijmda.2017.10008574>
- Herningtyas, W., Njurumana, G. N., Elisabet, M., Feriani, S., & Mugiono, I. (2022). *Sylva Lestari Journal*, 10 (41), 63–82.
- Kristin, Y., Qurniati, R., & Kaskoyo, H. (2018). The Interaction of Community around the Forest towards Land Use Tahura Wan Abdul Rachman. *Sylva Lestari Journal*, 6 (3), 1.
<https://doi.org/10.23960/jsl361-8>
- Leilani, A., Hasan, O. S., Majors, D., Fisheries, P., & Jakarta, S. (2006). Analysis of Group Dynamics in the Mekar Sari Farmer Group, Purwasari Village, Dramaga District, Bogor Regency. In *Journal of Agricultural Extension*, (Vol. 1, Issue 1).
- Lubis, R. S., Kaskoyo, H., Febryano, I. G., & Bakri, S. (2019). Contribution of Woman Forest Farmers on Family Income at Private Forest in Air Kubang Village Air Naningan District Tanggamus Regency. *Sylva Lestari Journal*, 7 (2), 186.
<https://doi.org/10.23960/jsl27186-194>
- Manyamsari, I., & Mujiburrahmad. (2014). Farmer Characteristics and Their Relationship with Competence of Narrow Land Farmers (Case: In Sinar Sari Village, Dramaga District, Bogor Regency, West Java). *Agrisep*, 15 (2), 58–74.
- Mutmainah, R., & Sumardjo. (2014). *The role of farmer group leadership and the effectiveness of farmer empowerment*. 02 (03), 182–199.
- Nempung, T., Setiyaningsih, T., & Syamsiah, N. (2015). *Automation of Web-Based Likert Scale Research Methods*. November, 1–8.
- Ramayah, T., Cheah, J., Ting, F. C. H., & Memon, M.A. (2017). Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 3.0: An Updated and Practical Guide to Statistical Analysis. *Practical Assessment, Research and Evaluation*, 4 (October), 291.
- Sri, T., Group, M., & Bojongkantong, V. (2015). The Correlation Between Group Dynamics and Cleanliness of the Etawah Crossbreed Goat Farming Business. The Correlation Between Group Dynamics With Success. *Student E-Journal*, 4 (4), 1–13.
- Sukwika, T. (2018). Actor Analysis in Formulating an Institutional Model for Community Forest Development in Bogor Regency. *Journal of*

- Regional and Rural Development Planning*, 2 (2), 133. <https://doi.org/10.29244/jp2wd.2018.2.2.133-150>
- Sukwika, T., Darusman, D., Kusmana, C., & Nurrochmat, DR (2018). Policy Scenario for Sustainable Community Forest Management in Bogor Regency. *Journal of Natural Resources and Environmental Management*, 8 (2), 207–215. <https://doi.org/10.29244/jpsl.8.2.207-215>
- Utama, S., Sumardjo, S, Susanto, D. & Gani, D. S. (2010). Dynamics of Forest Farmer Groups in Joint Community Production Forest Management at Perum Perhutani Unit I, Central Java Province. *Journal of Extension*, 6 (1), 49–64.
- Weni, G. A. M., Febryano, I. G., Kaskoyo, H., & Banuwa, I. S. (2020). Alternative Resolution of Tenurial Conflicts in the Harapan Forest Area. *Wilderness Journal*, 3 (1), 59. <https://doi.org/10.29303/jbl.v3i1.425> .