

*Full Length Research Article*

## Forest Farmer Group Development Model for Sustainable Well-Being in Kampar Regency

Gandhiko Mohta<sup>1</sup>, Leti Sundawati<sup>2,\*</sup>, Budi Kuncahyo<sup>2</sup><sup>1</sup> Study Program of Forest Management Science, Graduate School, Faculty of Forestry and Environment, IPB University, Bogor, Indonesia<sup>2</sup> Department of Forest Management, Faculty of Forestry and Environment, IPB University, Bogor, Indonesia\* Corresponding Author. E-mail address: [leti\\_sundawati@apps.ipb.ac.id](mailto:leti_sundawati@apps.ipb.ac.id)

## ARTICLE HISTORY:

Received: 12 June 2023

Peer review completed: 22 July 2023

Received in revised form: 22 August 2023

Accepted: 28 August 2023

## KEYWORDS:

Area

Business development

Forest farmer group

Institutional

Poverty alleviation

## ABSTRACT

Sustainable forest resource utilization can alleviate poverty in developing countries, including Indonesia, mainly by rural community groups like forest farmer groups (KTH). However, the capacity of KTH to manage forest resources is still low, leading to a decline in their well-being, exemplified in KTH in Kampar Regency. Unlike previous studies, this research focuses on developing KTH based on institutional, area management, and business aspects. The objective of the study is to analyze the factors influencing KTH's well-being and build a development model for KTH. The research was conducted in Kampar Regency with 193 respondents using a census method. Data analysis used the Partial Least Squares-Structural Equation Modeling (PLS-SEM) technique. The study's findings reveal that business management significantly influences KTH's well-being in Kampar Regency, followed by institutional and area management aspects. The development model for KTH involves enhancing key indicators in each aspect, such as KTH's involvement in government/non-government organizations/other institution programs, appropriate area utilization, and increased business capital, as key steps to achieve a productive, self-reliant, prosperous, and sustainable management.

© 2023 The Author(s). Published by Department of Forestry, Faculty of Agriculture, University of Lampung. This is an open access article under the CC BY-NC license: <https://creativecommons.org/licenses/by-nc/4.0/>.

### 1. Introduction

Globally, around 500 million people, mainly in rural areas, depend on forests and other natural resources for survival (Fedele et al. 2021; Gerten et al. 2020; Shyamsundar et al. 2021; United Nations 2018). Most of them live in extreme poverty, and natural resources are the main means of fulfilling their daily lives and are an important asset for their survival, especially for people experiencing poverty in rural areas (Fedele et al. 2021; Shyamsundar et al. 2021). According to the biodiversity report, around one-sixth of the global population depends on forest resources for ecosystem services such as provision, support, culture, and regulation that support their livelihoods (Estifanos et al. 2020; Mavah et al. 2018; Resende et al. 2021). Based on the research by Fedele et al. (2021), which maps human direct use of natural resources for basic needs in the tropics, found that around 30% of the 1.2 billion people living in the tropics are highly dependent on nature for their basic needs. It is undeniable that the sustainable use of forest

resources has a vital role in reducing poverty rates in developing economic countries and the African continent (United Nations 2018).

One of the developing countries that utilize forest resources diversely, including its areas, timber forest products (TFF), non-timber forest products (NTFP), and environmental services (Istiqomah and Dwisela 2022), is Indonesia. These forest resources are utilized by community groups that act as actors and supporters of forestry development. As part of the community, forest farmer groups (KTH) are key in forestry development at the site level (Santoso et al. 2019). According to the Minister of Environment and Forestry Regulation Number 89 of 2018 on Forest Farmer Group Guidelines, KTH is a group of Indonesian farmers engaged in forestry activities, including timber businesses, non-timber forest product businesses, and environmental services, both inside and outside forest areas. Forestry activities involving forest farmer groups as the main actors include Community Plantation Forests, Community Forests, People's Forests, and KTH engaged in forestry activities such as forest plantations, agroforestry, beekeeping, rattan cultivation, and environmental services utilization.

The success of forest farmer group initiatives in Indonesia will positively impact the country's national development, such as improving the well-being of communities, especially farmers, enhancing environmental conservation, and promoting forest security. However, based on the Ministry of Environment and Forestry Regulation Number 16 of 2020 on the strategic plan for the Ministry of Environment and Forestry for 2020-2024, the economic benefits related to the management of Non-Timber Forest Products (NTFPs), including those managed by forest farmer groups, have not been fully utilized and developed. This tendency indicates that the capacity of forest farmer groups to manage forest resources in Indonesia is still low, leading to a decline in their well-being. One example is the forest farmer groups in Kampar Regency, Riau Province. According to the data from the Riau Provincial Environment and Forestry Office in 2021 on the recapitulation of forest farmer groups in Riau Province, the capacity level of forest farmer groups in the Kampar Regency is considered low. This low capacity may be attributed to low productivity and weak commodity marketing despite the high potential for forest resources management by communities around the forest (Asmoro et al. 2021).

Several studies have delved into the capacity development of KTH to achieve sustainable well-being (Asmoro et al. 2021; Rimbawati et al. 2018; Ruhimat 2017). In this perspective, Ruhimat (2017) reported that agroforestry KTH in Tasikmalaya Regency optimizes its capacity by developing group dynamics and active member participation. Subsequently, Rimbawati et al. (2018) indicated that agroforestry KTH in Bandung Regency optimizes its capacity by strengthening the role of facilitators and external support through partnerships/collaborations. Meanwhile, Asmoro et al. (2021) revealed that KTH in East Lampung Regency optimizes its capacity by enhancing the internal environmental support factors of the KTH. These three studies only focused on the internal institutional aspects of KTH capacity development. However, there has been no research that enhances KTH's capacity to achieve well-being, considering institutional management, area management, and business management.

The institutional management encompasses efforts to build and strengthen clear and effective organizational structures for forest farmer groups. It includes activity planning (Damanik and Purba 2019), management roles (Damanik 2013), monitoring and evaluation (Koampa et al. 2015), developing participatory decision-making mechanisms (Istiqamah et al. 2021), and establishing policies and rules to be implemented within the group (Djelau et al. 2014). Institutional management serves as the foundation for the effective implementation of KTH

programs as they currently face various challenges and constraints in their management (Lewis and Davis 2015; Safe'i et al. 2018).

The area management represents the efforts undertaken to nurture and regulate the territory managed by forest farmer groups, both within forest areas and outside of them. All these endeavors are grounded in a commitment to environmental sustainability. This tendency includes indicators for mapping the group's managed areas (Marasabessy 2018), identifying area potentials (Karundeng et al. 2022), and group activities related to forest resource rehabilitation and conservation (Cronkleton et al. 2011; Hajjar and Oldekop 2018). Area management should consider the importance of forest areas as habitats for diverse flora and fauna species, ensuring the sustainability of the ecosystem (Suzette-Lorilla et al. 2023).

The business management involves establishing a sustainable and profitable business model for forest farmer groups (Hintz et al. 2021). Business management consists of indicators for financial management, diversification of business products (Khamidi 2013), and collaboration with business stakeholders. The indicators for these three management aspects are regulated in the Head of Extension and Human Resources Development Regulation (P2SDM) No. 5 of 2020.

According to the Minister of Environment and Forestry Regulation Number 89 of 2018 regarding the Forest Farmer Group Guidelines, these three management aspects need to be integrated to achieve a productive, independent, prosperous, and sustainable forest farmer group (KTH). Therefore, this research aims to analyze the factors influencing KTH's well-being in Kampar Regency from institutional management, area management, and business management perspectives and to build a development model for KTH in forest resource management. The results of this research are expected to serve as considerations for stakeholders (government, NGOs, and private sector) in efforts to develop KTH's capabilities and achieve prosperity.

## 2. Materials and Methods

### 2.1. Location and Time

Field data collection was conducted from March to September 2022 in Kampar Regency (Fig. 1). The research location was intentionally chosen to include all forest farmer groups (KTHs) in Kampar Regency, totaling eight groups. This location was selected because the KTH in Kampar Regency still has an allowed capacity level. Currently, all KTHs in Kampar Regency have not obtained forest utilization permits (Department of Forestry and Environment of Riau Province 2021). This research involved all KTHs in the Kampar Regency (Table 1).

### 2.2. Data Collection

The data were obtained from interviews with members of KTH in Kampar Regency. This research used a census method to collect data from all KTHs in Kampar Regency, totaling 193 members (Table 1).

### 2.3. Data Analysis

This study used the Partial Least Squares-Structural Equation Modeling (PLS-SEM) analysis method. PLS-SEM was designed to analyze latent relationship patterns in data under conditions with little or no knowledge of how variables are interrelated (Hair et al. 2017). The measurement indicators for each management aspect used a Likert scale with scores ranging from 1 to 5. The

Likert scale in the questionnaire indicated the level of each indicator in the three management aspects from very low, low, moderate, high, to very high concerning the well-being of the KTH.

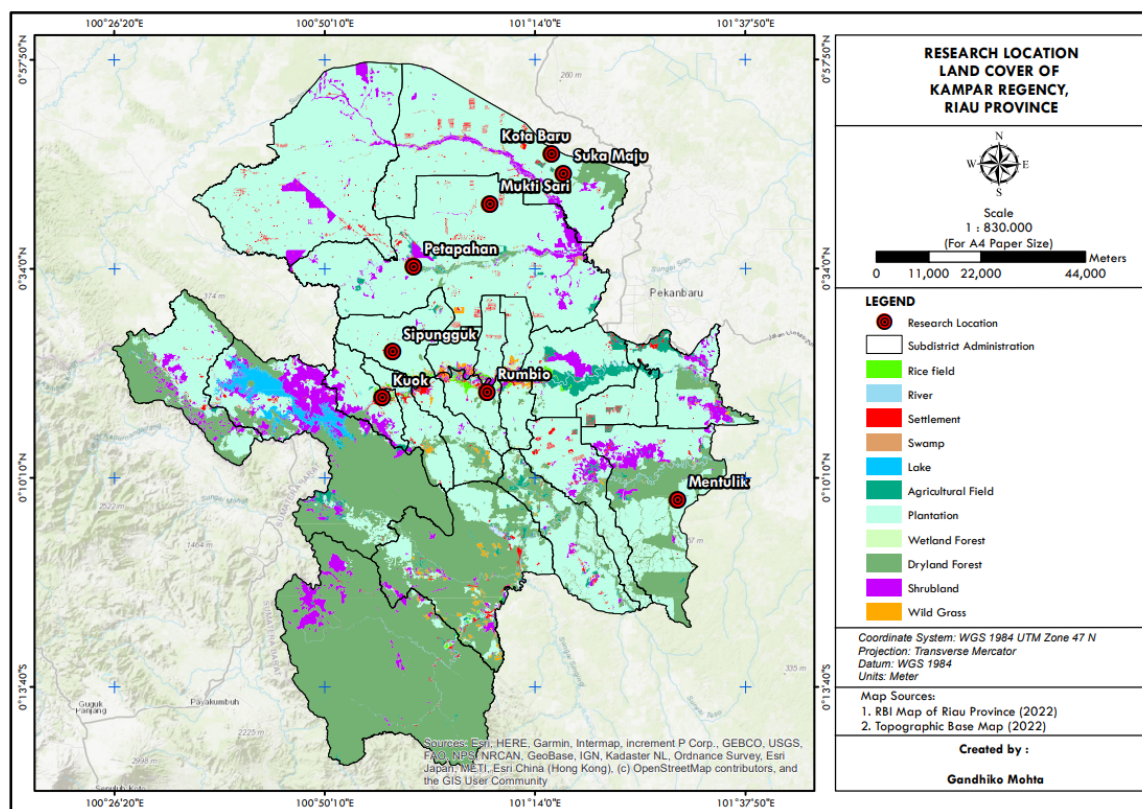


Fig. 1. Research locations.

Table 1. KTH di Kampar Regency

No.	Forest farmer group (KTH)	Forest management unit (FMU)	Address		No. of members
			Village/urban village	District	
1	Halaman Kuyang Lestari	Kampar Kiri	Rumbio	Kampar	20
2	Rimbun Lestari	Kampar Kiri	Sipungguk	Salo	24
3	Galo-Galo Kuok	Kampar Kiri	Kuok	Kuok	37
4	Berkah Bersama	Suligi Batu Gajah	Patapahan	Tapung	20
5	Sendang Berkah Aryasatya	Suligi Batu Gajah	Mukti Sari	Tapung	27
6	Mandiri Gunung Jati	Minas Tahura	Kota Baru	Tapung Hilir	25
7	Sukma Tadi Lada	Minas Tahura	Suka Maju	Tapung Hilir	15
8	Bersatu Abadi Jaya	Sorek	Mentulik	Kampar Kiri Hilir	25
Total					193

The questionnaire and indicators for the institutional management, area management, and business management aspects were modified from the Head of P2SDM Regulation No. 5 of 2020. Indicators of the dependent variables represent the well-being of the KTH (Y), as we know that prosperous KTH generally had characteristics such as intensive counseling (Ramadoan et al. 2013) (Y1), the ability of KTH to create more job opportunities (Hapsari and Rokhani 2020) (Y2), good understanding and implementation of sustainable forest management (Tadesse et al. 2022) (Y3), the capacity of KTH to innovate (Živojinović et al. 2017) (Y4), and having a large production area

or cultivation and good potential for business types (Utami and Ratnaningsih 2018) (Y5). The design of the model (Fig. 2) and the research variables (Table 2) are presented below.

The hypotheses in this research are as follows: H1 = the institutional management aspect has a significant relationship with the well-being of KTH, H2 = the area management aspect has a significant relationship with the well-being of KTH, and H3 = the business management aspect has a significant relationship with the well-being of KTH.

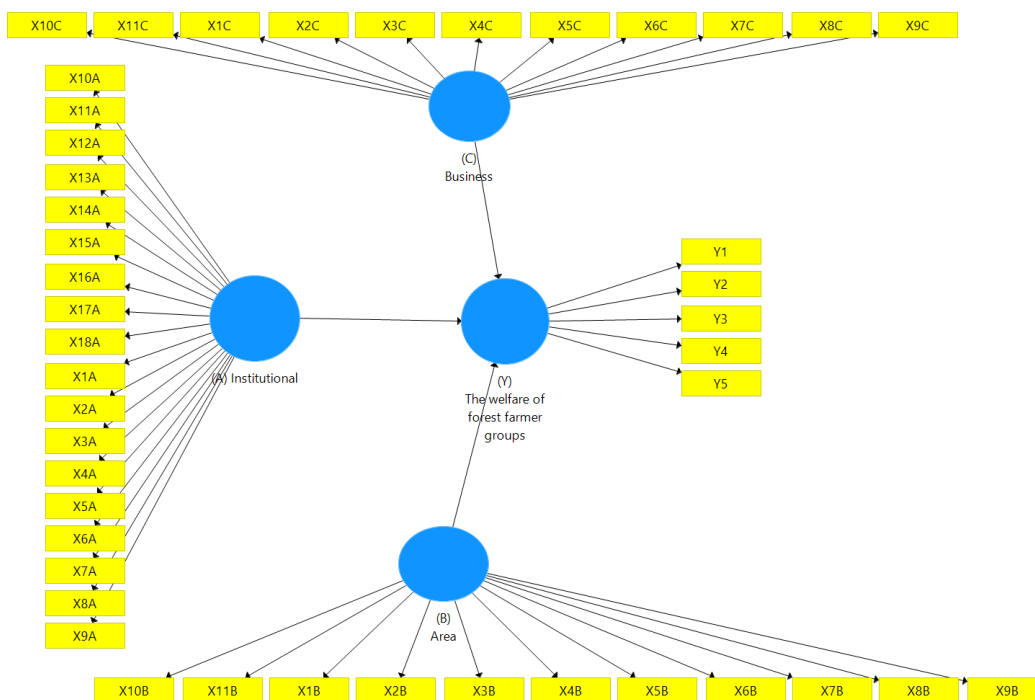


Fig. 2. Research model design

Table 2. Variables and indicators in research

Variable	Indicator	Symbol
Institutional	- The legal basis for establishing KTH	X1A
	- The management of KTH	X2A
	- The participation of women in the management and membership of KTH	X3A
	- Planning of KTH activities	X4A
	- The attendance of members in KTH meetings	X5A
	- The average attendance of the management members/members in every implementation of the KTH’s activities	X6A
	- Monitoring and evaluation of KTH activities	X7A
	- The completeness of the KTH’s secretariat (KTH name board, information board, meeting hut, library, group management map, and organizational structure)	X8A
	- The rules and regulations of the KTH	X9A
	- Completeness of the group’s administration: guestbook, member list book, meeting attendance book, meeting minutes, cash book, savings book, loan book, inventory book, information book, and activity result book	X10A
	- Frequency of KTH meetings	X11A
	- Participation of leaders/members in capacity-building activities	X12A
	- Types of forestry training attended by KTH managers/members	X13A
	- Involvement of KTH in government/NGO/other institutional programs	X14A
	- Local wisdom developed in KTH activities	X15A
	- Number of new groups formed	X16A

Variable	Indicator	Symbol
	- The number of community self-help forestry extension (PKSM) formed	X17A
	- Number of members who have the potential to become KTH management cadres	X18A
Area	- Understanding of KTH members on the boundaries of their management area	X1B
	- Arrangement and mapping of KTH's management area	X2B
	- Introduction to the potential and carrying capacity of the KTH's area	X3B
	- Identification and mapping of issues in the KTH's	X4B
	- The utilization of the managed group's territory according to its potential	X5B
	- KTH activities in conducting rehabilitation	X6B
	- KTH activities in conserving forest resources	X7B
	- Impact on increasing public awareness and concern for forest and environmental conservation in the form of groups/organizations	X8B
	- Impact on the environment	X9B
	- Acquisition of sustainable forest management certificates (PHBML/SVLK and others)	X10B
	- Commodities produced following the Indonesian National Standards (SNI)/management of product licensing (such as PIRT and <i>halal</i> certification)	X11B
Business	- The increase in business capital	X1C
	- The sources of additional business capital	X2C
	- Business development/product diversification	X3C
	- Having business meetings with business stakeholders	X4C
	- Establishing partnerships through agreements/MoUs	X5C
	- Scope of marketing objectives for KTH's products	X6C
	- Increase in the total income of the KTH in the last year	X7C
	- Utilization of access to information and technology from various sources	X8C
	- Employment absorption from KTH business	X9C
	- Increase in revenue/income from main business/production	X10C
	- Increase in turnover/revenue from derivative businesses/productions	X11C
Well-being of KTH	- Intensive extension conducted by the government, NGOs, and other institutions	Y1
	- KTH can create more job opportunities	Y2
	- The good understanding of sustainable forest management implementation by KTH	Y3
	- KTH can innovate, managing limited production factors well to obtain maximum production	Y4
	- The KTH has a large production area or cultivation area and a good potential for various types of business	Y5

### 3. Results and Discussion

#### 3.1. Descriptive Analysis of Institutional Management Aspect

The research results of KTH development in forest resource management descriptively indicate that the institutional management aspect towards the well-being of KTH has a moderate influence, with an average score ranging from 2.61 to 4.40 (**Table 3**). KTH members believe that the basic legal foundation of establishing KTH (X1A) has a moderate influence on improving the well-being of KTH. It could be because the legal foundation of establishing KTH can provide protection and legal recognition, facilitating KTH's access to economic and social services (Pokorny et al. 2021).

**Table 3.** The distribution of data on the institutional management aspect

No.	Indicator	Symbol	Average score	Category of average score
1	The legal basis for establishing KTH	X1A	2.78	Moderate
2	The management of KTH	X2A	2.75	Moderate
3	The participation of women in the management and membership of KTH	X3A	2.84	Moderate
4	Planning of KTH activities	X4A	3.03	Moderate
5	The attendance of members in KTH meetings	X5A	3.08	Moderate
6	The average attendance of the management members/members in every implementation of the KTH's activities	X6A	2.78	Moderate
7	Monitoring and evaluation of KTH activities	X7A	3.21	Moderate
8	the completeness of the KTH's secretariat (KTH name board, information board, meeting hut, library, group management map, and organizational structure)	X8A	3.23	Moderate
9	The rules and regulations of the KTH	X9A	2.85	Moderate
10	Completeness of the group's administration: guestbook, member list book, meeting attendance book, meeting minutes, cash book, savings book, loan book, inventory book, information book, and activity result book	X10A	3.02	Moderate
11	Frequency of KTH meetings	X11A	3.06	Moderate
12	Participation of leaders/members in capacity-building activities	X12A	2.75	Moderate
13	Types of forestry training attended by KTH managers/members	X13A	2.89	Moderate
14	Involvement of KTH in government/NGO/other institutional programs	X14A	3.01	Moderate
15	Local wisdom developed in KTH activities	X15A	3.09	Moderate
16	Number of new groups formed	X16A	3.04	Moderate
17	The number of community self-help forestry extension (PKSM) formed	X17A	2.93	Moderate
18	Number of members who have the potential to become KTH management cadres	X18A	3.04	Moderate

Notes: The interval categories are 1.00-1.80 (Very low), 1.81-2.60 (Low), 2.61-3.40 (Moderate), 3.41-4.20 (High), 4.21-5.00 (Very high).

KTH members believe that the indicator of KTH management (X2A) has a moderate influence on improving the well-being of KTH. This result is supported by [Damanik \(2013\)](#), who stated that elements of functional and good management tasks can positively impact group dynamics. To achieve good group management, the KTH management in Kampar Regency needs to understand their roles and responsibilities in carrying out management tasks based on agreed-upon rules, such as the group's bylaws (AD/ART). KTH members also believe that the indicator of women's participation (X3A) has a moderate influence on improving the well-being of KTH. Women's participation in the group impacts institutional development processes ([Kusmayadi 2017](#)).

KTH members believe that the indicator of group activity planning (X4A) has a moderate influence on improving the well-being of KTH. It might be because group activity planning can overcome limitations in resources and funding, making decision-making by KTH more accessible and efficient ([Damanik and Purba 2019](#)). KTH members also believe that the indicator of group

member presence (X5A) has a moderate influence on improving the well-being of KTH. The presence of group members can effectively solve group issues, facilitating joint decision-making to determine the group's next steps (Istiqamah et al. 2021).

KTH members believe that the indicator of the presence of leaders/members in every group activity (X6A) has a moderate influence on improving the well-being of KTH. It could be caused by the presence of leaders/members in every group activity, which can create solidarity within the group to achieve common goals (Ermawati et al. 2021). KTH members also believe that the indicator of monitoring and evaluation (X7A) has a moderate influence on improving the well-being of KTH. Monitoring and evaluation help assess the outcomes of group activities, determining the success of KTH's initiatives. If the results are unsatisfactory, improvements can be made based on the evaluation (Winata and Yuliana 2012).

KTH members believe that the indicator of completeness of the KTH secretariat, including KTH name boards, information boards, meeting huts, libraries, area maps, organizational structure, and others (X8A), has a moderate influence on improving the well-being of KTH. This result is because the organizational structure significantly influences how an organization or group adopts administrative innovations, such as how the organization is structured and how roles and responsibilities are distributed (Lee and Yang 2011; Nowotny et al. 2022). Field observations have shown that, on average, KTH in Kampar Regency already possesses more than three elements of the secretariat. KTH members also believe that the indicator of group rules (X9A) has a moderate influence on improving the well-being of KTH. It might be due to the rules agreed upon within the group must be followed and adhered to, with sanctions in place to create order and certainty in social interactions, thereby achieving equitable group welfare (Maryudi 2016).

KTH members believe that the indicator of completeness of group administration (X10A) has a moderate influence on improving the well-being of KTH. This tendency is because complete administration facilitates members and others in receiving information related to KTH (Istiqamah et al. 2021). KTH members also believe that the indicator of KTH meeting frequency (X11A) has a moderate influence on improving the well-being of KTH. This result is because an increase in the frequency of group meetings strengthens the sense of family within the group to achieve common goals (Istiqamah et al. 2021; Kartono 2008).

KTH members believe that the indicator of participation of leaders/members in capacity-building activities (X12A) has a moderate influence on improving the well-being of KTH. As stated in the Minister of Environment and Forestry Regulation Number 57 of 2017, Article 27 point f, training is an activity to enhance human resource capacity. KTH members also believe that the indicator of the type of forestry training attended by leaders or members (X13A) has a moderate influence on improving the well-being of KTH. Veronice et al. (2018) stated that participating in training is a crucial aspect of developing human resource capacity to compete globally.

KTH members believe that the indicator of KTH's involvement in government/NGO/other institution programs (X14A) has a moderate influence on improving the well-being of KTH. This result is because the involvement of KTH can influence the program outcomes through cooperation, shared ownership, and individual capacity building for development purposes (Kimengsi and Balgah 2016; Kimengsi and Ngu 2022). One of the government programs that KTH participates in the Kampar Regency is "Bang Pesona," which aims to assist the creative economy to become more productive and work more efficiently. KTH members also believe that the indicator of Local Wisdom (X15A) has a moderate influence on improving the well-being of KTH. This statement is under Law Number 11 of 2020 concerning Job Creation or *Cipta Kerja*, which



aims to protect and manage the environment through local wisdom sustainably. One form of local wisdom developed by KTH in Kampar Regency is land management using agroforestry systems.

KTH members believe that the indicator of the number of newly formed groups (X16A) has a moderate influence on improving the well-being of KTH. This result is because the formation of new groups can create social relationships that strengthen KTH's collective capacity to overcome challenges and find joint solutions for the sustainability of their activities, whether it is forest management or the utilization of non-timber forest products (De Mello et al. 2023). KTH members also believe that the indicator of the number of Community Forestry Extension Workers or *Penyuluh Kehutanan Swadaya Masyarakat* (PKSM) formed (X17A) has a moderate influence on improving the well-being of KTH. It could be caused by the PKSM actively plays a role in analyzing the needs and issues arising in KTH activities, from planning to evaluation (Ramadoan et al. 2013). In Kampar Regency, PKSM also actively serves as the management of the KTH. KTH members believe that the indicator of the number of potential members to become KTH management cadres (X18A) has a moderate influence on improving the well-being of KTH. This result is supported by Kirana et al. (2022), stating that potential KTH management candidates have characteristics such as commitment to improving the capacity of the KTH.

### 3.2. Descriptive Analysis of Area Management Aspect

The research results on the development of KTH in forest resource management descriptively indicate that the area management aspect towards the well-being of KTH has a moderate influence, with an average score ranging from 2.61 to 4.40 (Table 4).

**Table 4.** The distribution of data on area management aspects

No.	Indicator	Symbol	Average score	Category of average score
1	Understanding of KTH members on the boundaries of their management area	X1B	3.12	Moderate
2	Arrangement and mapping of KTH's management area	X2B	2.93	Moderate
3	Introduction to the potential and carrying capacity of the KTH's area	X3B	2.88	Moderate
4	Identification and mapping of issues in the KTH's management area	X4B	3.21	Moderate
5	The utilization of the managed group's territory according to its potential	X5B	2.83	Moderate
6	KTH activities in conducting rehabilitation	X6B	3.08	Moderate
7	KTH activities in conserving forest resources	X7B	3.21	Moderate
8	Impact on increasing public awareness and concern for forest and environmental conservation in the form of groups/organizations	X8B	3.01	Moderate
9	Impact on the environment	X9B	3.01	Moderate
10	Acquisition of sustainable forest management certificates (PHBML/SVLK and others)	X10B	3.12	Moderate
11	Commodities produced following the Indonesian National Standards (SNI)/management of product licensing (such as PIRT and halal certification)	X11B	2.93	Moderate

Notes: The interval categories are 1.00-1.80 (Very low), 1.81-2.60 (Low), 2.61-3.40 (Moderate), 3.41-4.20 (High), 4.21-5.00 (Very high).

KTH members believe that the indicator of members' understanding of the boundaries of the group's management area (X1B) has a moderate influence on the well-being of KTH. The importance of members' understanding of the boundaries of the group's management area in achieving prosperous KTH lies in the fact that members who have a good understanding of the management area's boundaries can overcome internal obstacles in raising awareness of environmental conservation (Karim 2017). KTH Rimbun Lestari previously experienced a miscommunication with relevant agencies regarding the management area's boundaries. However, this issue has been resolved through mutual discussions with the Ministry of Environment and Forestry (KLHK) in Sipungguk Village.

KTH members believe that the indicator of arrangement and mapping of the group's management area (X2B) has a moderate influence on the well-being of KTH. This result is because having boundaries for the group's management area makes it exclusive, meaning that the management of natural resources and the environment is the right of the claimants (Marasabessy 2018). KTH members also believe that recognizing the potential and carrying capacity of the group's management area (X3B) influences the well-being of KTH. Identifying and mapping potential resources enables more effective planning of programs to be implemented by KTH (Karundeng et al. 2022).

KTH members believe that identifying and mapping issues within the group's management area (X4B) influences the well-being of KTH. Identification and mapping of issues within the group's management area help KTH to target problematic areas easily and concentrate on the best strategies for problem-solving (Mir et al. 2022). KTH members also believe that utilizing the managed group's territory according to its potential (X5B) influences the well-being of KTH. Utilizing the group's management area according to its potential can create efficiency and productivity in line with the physical capacity of the land while maintaining the sustainability of resources with an environmentally-based approach (Marasabessy 2018).

KTH members believe that the indicator of group activities in conducting rehabilitation (X6B) influences the well-being of KTH. Kassa et al. (2023) explained that rehabilitation activities can restore vegetation in degraded forests/land and improve ecosystem functions. Such rehabilitation activities are exemplified by KTH Bersatu Abadi Jaya in Mentulik Village, where they conducted a joint tree planting with the Forest Police Community Partners (*Masyarakat Mitra Polisi Kehutanan - MMP*), planting 4000 seedlings of various tree species, including *Areca catechu*, *Archidendron pauciflorum*, *Parkia speciosa*, *Durio zibethinus*, *Aquilaria malaccensis*, *Pometia pinnata*, *Arenga pinnata*, *Swietenia mahagoni*, *Samanea saman*, and *Cratoxylon arborescens*.

KTH members believe that the indicator of group activities in conducting forest resource conservation (X7B) influences the well-being of KTH. Conservation activities are beneficial for maintaining ecosystem functions, protecting biodiversity, and reducing carbon emissions (Nel et al. 2022). Therefore, in the actual activity, the forest resource conservation activities carried out by KTH, such as KTH Sendang Berkah Aryasatya include forest area restoration in collaboration with Kodim C313 KPR (Military District Command - Community Development Program).

KTH members believe that the indicator of the impact on increasing public awareness and concern for forest and environmental conservation in the form of groups/organizations (X8B) influences the well-being of KTH. This is because communities play a crucial role in improving environmental quality and require social institutions to enhance their role in preserving natural resources (Martuti et al. 2018). KTH members also believe that the indicator of the impact on the

environment (X9B) influences the well-being of KTH. This result is supported by Siboro (2019), who stated that group activities such as greening can enhance biodiversity, which has significant ecological, social, and economic impacts.

KTH members believe that the indicator of obtaining sustainable forest management certificates (X10B) influences the well-being of KTH. This result is because the sustainable forest management certificates such as SVLK (Timber Legality Verification System) aim to address illegal logging issues by ensuring that all wood in Indonesia's market chain is harvested, transported, processed, and traded under national laws (Susilawati et al. 2019). KTH members also believe that the indicator of commodities produced under Indonesian National Standards (SNI)/product licensing management (X11B) influences the well-being of KTH. Implementing SNI can enhance product competitiveness and provide quality assurance while ensuring human health and environmental preservation (Prasetya 2014). KTH in Kampar Regency has obtained product licensing management, such as halal certification for consumer commodities, as seen in KTH Galo-Galo Kuok.

### 3.3. Descriptive Analysis of Business Management Aspect

The results show that the business management aspect has a moderate influence on the well-being of KTH, with an average score ranging from 2.61–4.40 (Table 5).

**Table 5.** The distribution of data on business management aspects

No.	Indicator	Symbol	Average score	Category of average score
1	The increase in business capital	X1C	3.12	Moderate
2	The sources of additional business capital	X2C	3.09	Moderate
3	Business development/product diversification	X3C	3.05	Moderate
4	Having business meetings with business stakeholders	X4C	3.10	Moderate
5	Establishing partnerships through agreements/MoUs	X5C	3.00	Moderate
6	Scope of marketing objectives for KTH's products	X6C	2.89	Moderate
7	Increase in the total income of the KTH in the last year	X7C	3.10	Moderate
8	Utilization of access to information and technology from various sources	X8C	3.22	Moderate
9	Employment absorption from KTH business	X9C	3.25	Moderate
10	Increase in revenue/income from main business/production	X10C	3.08	Moderate
11	Increase in turnover/ revenue from derivative businesses/ productions	X11C	3.13	Moderate

Notes: The interval categories are 1.00-1.80 (Very low), 1.81-2.60 (Low), 2.61-3.40 (Moderate), 3.41-4.20 (High), 4.21-5.00 (Very high).

KTH members believe that the indicator of business capital increase (X1C) has a moderate influence on the well-being of KTH. Increasing the amount of capital impacts increasing income, as larger capital enables the business to grow bigger (Setiaji and Fatuniah 2018). The increase in business capital comes from grants received by KTH in Kampar Regency in 2020, such as the

Bang Pesona assistance in the form of valuable hardwood and agroforestry fruit plants worth Rp. 50,000,000/KTH. KTH members also believe that the indicator of the source of additional business capital (X2C) has a moderate influence on the well-being of KTH. The source of additional capital in this indicator is obtained through loans from financial institutions such as banks or non-bank institutions. The ease of accessing loans allows a business to meet its operational needs and increase its revenue quickly (Setiaji and Fatuniah 2018). However, the cooperatives in KTH in Kampar Regency have not been operating optimally, mainly due to the community's lack of trust in the effectiveness of cooperatives in marketing KTH commodities.

KTH members believe that the indicator of business diversification/ product diversification (X3C) has a moderate influence on the well-being of KTH. This is because product diversification in the agricultural and forestry sectors can be used as a tool to increase income, create job opportunities, reduce poverty, and conserve soil and water resources (Joshi et al. 2004; Saboori et al. 2023). KTH members also believe that the indicator of conducting business meetings with business actors (X4C) has a moderate influence on the well-being of KTH. This result is in line with Supriyanto et al. (2019), who stated that conducting business meetings and establishing partnerships with business actors can improve and enhance the livelihood of farmers. It could be caused by the farmers gaining market clarity and receiving financial assistance for their businesses.

KTH members believe that the indicator of establishing partnerships with agreements/Memorandum of Understanding (MOU) (X5C) has a moderate influence on the well-being of KTH. As stated by Sebagaimana Alam et al. (2022), if business actors have never collaborated before and have different governance structures, MOUs can be beneficial in avoiding misunderstandings among business actors. KTH members also believe that the indicator of the coverage of marketing goals for the group's business products (X6C) has a moderate influence on the well-being of KTH. A broader marketing scope, supported by appropriate business strategies, can attract more consumers, allowing the group's business to achieve a more extensive economic scale (Farida and Setiawan 2022).

KTH members believe that the indicator of the increase in the group's total income in the last year (X7C) has a moderate influence on the well-being of KTH. Increasing agricultural productivity and market certainty can boost the total income of KTH, and when productivity consistently improves, KTH can achieve prosperity (Asmoro et al. 2021). KTH members also believe that the indicator of utilizing access to information and technology from various sources (X8C) has a moderate influence on the well-being of KTH. This is because the utilization of digital technology has the potential to provide sustainable competitive advantages for business actors by assisting them in achieving market dominance (Akpan et al. 2022). Sources of information and technology for KTH in Kampar Regency include the internet, such as blogs and YouTube, government institutions like the Department of Forestry and Environment (DLHK) of Riau Province and Forest Management Units (KPH), as well as research institutions like Litbang Kuok and private organizations.

KTH members believe that the indicator of labor absorption from group businesses (X9C) has a moderate influence on the well-being of KTH. It is in line with Musfira et al. (2022), who state that labor is a factor that affects the level of business income, as an increase in the workforce leads to higher production levels. KTH members also believe that the indicator of increased turnover/income from the main business/production (X10C) has a moderate influence on the well-being of KTH. The increase in income from the main production, based on high productivity, directly contributes to the well-being of the business as this production is the primary source of

income (Nambiar 2021). Additionally, KTH members believe that the indicator of increased turnover/income from derivative businesses/production (X11C) has a moderate influence on the well-being of KTH. According to Nuzuliyah (2018), increased income from derivative businesses can add value and contribute to economic growth, positively impacting business opportunities and ultimately enhancing the well-being of KTH in the long term.

### 3.4. Model Evaluation

Collinearity VIF results showed that latent variables with predictors >5 were excluded from the model, resulting in a modified model (Fig. 3). The Collinearity VIF results for each construct with predictors < 5 (Table 6) suggest no multicollinearity between exogenous variables and endogenous variables (Sarstedt et al. 2016). The standardized root mean square residual (SRMR) value (Table 7) of the estimated model was 0.057 (< 0.08), indicating an acceptable fit for the model (Hair et al. 2017). The Normed Fit Index (NFI) value of 0.859 (Table 7) has met the criterion of > 0.5 (50%) (Bentler and Bonett 1980).

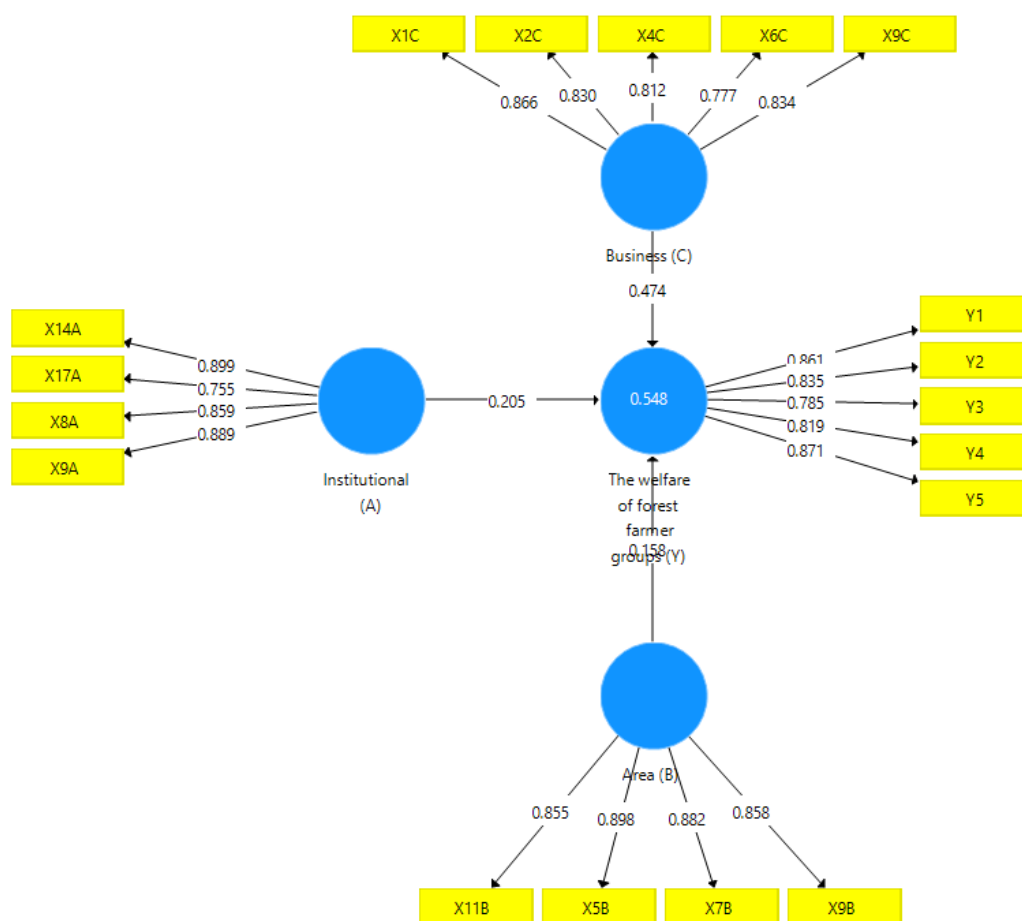


Fig. 3. The modified model.

The results of the convergent validity analysis on the modified model indicate that each construct with its measuring indicators has met the requirement to pass the outer loading test (Table 8). Outer loading is a value that indicates the relationship (correlation) between an indicator and its latent variable. The higher the outer loading value, the closer the relationship between an indicator and its latent variable (Hair et al. 2017). Reflective indicator loadings can pass the test and have good measurement properties for latent variables if the outer loading value exceeds 0.5

(Hair et al. 2017; Henseler et al. 2009). The results of this outer loading test explain that the institutional management relationship with the indicators is ordered from the strongest to the lowest relationship, namely indicators of involvement of KTH in government/NGO/other institutional programs (X14A), regulations of the KTH (X9A), completeness of the KTH's secretariat (X8A), and number of community self-help forestry extension (PKSM) formed (X17A). Furthermore, the relationship between area management and its indicators is also sorted from the strongest to the lowest relationship, namely the utilization of the area managed by the group according to potential (X5B), impact on the environment (9B), and commodities produced following the Indonesian National Standards (SNI)/management of product licensing (such as PIRT and halal certification) (X11B). Meanwhile, the relationship between business management and its indicators is ordered from the strongest to the lowest, namely increase in business capital (X1C), employment absorption from KTH business (X9C), sources of additional business capital (X2C), and scope of marketing objectives for KTH's products (X6C). The indicators that have the strongest to the lowest relationship to KTH welfare (Y) are having a large area of production or cultivation and good business potential (Y5), intensive counseling (Y1), the ability of KTH to create more jobs (Y2), KTH capacity to be improved (Y4), as well as good understanding and implementation of sustainable forest management (Y3).

**Table 6.** Collinearity assessment results between institutional (A), area (B), and business (C)

Indicator	VIF
X11B	2.334
X14A	2.838
X17A	1.627
X1C	2.539
X2C	2.148
X4C	1.972
X5B	2.937
X6C	1.792
X7B	2.645
X8A	2.301
X9A	2.733
X9B	2.233
X9C	2.263
Y1	2.526
Y2	2.327
Y3	1.931
Y4	2.325
Y5	2.803

Note: The description of indicators is in Table 1.

**Table 7.** Model fit analysis results

	Saturated Model	Estimated Model
SRMR	0.055	0.055
NFI	0.859	0.859

The next step in testing convergent validity is the Average Variance Extracted (AVE) test, which requires a value above 0.5 to pass the test (Chin 2010; Hair et al. 2017). The modified model

has an AVE value (**Table 9**) greater than 0.5, indicating that more than 50% of each reflective indicator can be considered and represent the latent variable.

**Table 8.** Outer loading analysis results

Indicator	Area (B)	Business (C)	Institutional (A)	Well-being of KTH (Y)
X11B	0.855			
X14A			0.899	
X17A			0.755	
X1C		0.866		
X2C		0.830		
X4C		0.812		
X5B	0.898			
X6C		0.777		
X7B	0.882			
X8A			0.859	
X9A			0.889	
X9B	0.858			
X9C		0.834		
Y1				0.861
Y2				0.835
Y3				0.785
Y4				0.819
Y5				0.871

Note: The description of indicators is in Table 1.

Next, the reliability of the values was identified by conducting a composite reliability test. Composite Reliability (CR) aims to measure the extent to which indicators related to a latent variable are explained by the latent variable rather than other factors. The larger the CR value, the higher the reliability (Hair et al. 2017; Tenenhaus et al. 2005). The requirement for reliable latent variables is when the composite reliability value is equal to or greater than 0.7 (Hair et al. 2017; Tenenhaus et al. 2005). The results of the construct validity and reliability tests (**Table 9**) indicate that the latent variables of institutional management, area management, business management, and well-being of KTH had reliability coefficients within the range of 0.70 to 0.95, demonstrating that all values of these latent variables were highly reliable.

**Table 9.** Construct reliability and validity calculation results

Variable	Cronbach's alpha	rho_A	Composite reliability	Average variance extracted (AVE)
Area (B)	0.896	0.898	0.928	0.763
Business (C)	0.882	0.883	0.914	0.679
Institutional (A)	0.873	0.882	0.914	0.727
Well-being of KTH (Y)	0.891	0.896	0.920	0.697

The bootstrapping procedure used a 95% confidence interval (CI) level to correct bias and accelerated (Bca) to assess the significance of indicator weights (Aguirre-Urreta and Rönkkö 2015; Streukens and Leroi-Werelds 2016). The number of bootstrap samples should be greater than the number of valid observations, for example, 5,000 samples (Streukens and Leroi-Werelds 2016).

The data processing results of the research model, using 5,000 subsamples, show that the confidence interval (CI) level at the 2.5% and 97.5% levels from each exogenous variable to the endogenous variable has a value smaller than 1.00. Therefore, it can be concluded that each construct and its indicator components have good data validity.

**Table 10.** Tests for discriminant validity

Variable	Fornell-Lacker Criterion				Heterotrait–monotrait ratio (HTMT)		
	B	C	A	Y	B	C	A
B	0.873						
C	0.59	0.824			0.664		
A	0.625	0.661	0.852		0.707	0.756	
Y	0.565	0.702	0.617	0.835	0.631	0.785	0.695

Notes: A, Institutional; B, Area; C, Business; Y, Well-being of KTH.

The Fornell-Larcker criterion test measures discriminant validity between different latent variables in this model. This test compares the correlation between latent variables (constructs) with the square root of the average variance extracted (AVE) from other constructs. If the correlation between constructs is lower than the square root of the AVE from other constructs, discriminant validity is considered fulfilled, indicating that these constructs can be distinguished (Hair et al. 2017). The square root of the AVE of the latent variables (constructs) institutional management, area management, and business management (Table 10) exceeded their respective inter-construct correlation, confirming the discriminant validity of all measures in this study (Fornell and Larcker 1981). In the Heterotrait-Monotrait Ratio (HTMT) test, the ratios obtained in SmartPLS should ideally be less than 0.85 to confirm discriminant validity (Henseler et al. 2015). The HTMT ratios between all constructs were indeed less than 0.85 (Table 10), further confirming the discriminant validity of the constructs used in our study.

### 3.5. Structural Equation Model

The structural equation model for the well-being of KTH in Kampar Regency is as follows: Well-being (Y) = 0.474 Business (C) + 0.205 Institution (A) + 0.158 Area (B).

**Table 11.** Significance test

	Hypothesis	Path coefficient	Sample Mean (M)	T Statistics	P-Value	Remark
H1	Institutional (A) -> Well-being of KTH (Y)	0.205	0.205	2.639	0.008	Significant
H2	Area (B) -> Well-being of KTH (Y)	0.158	0.157	2.004	0.045	Significant
H3	Business (C) -> Well-being of KTH (Y)	0.474	0.477	5.915	0.000	Significant

**Table 12.** R<sup>2</sup> coefficient

	R Square	R Square Adjusted
Well-being of KTH (Y)	0.548	0.541



All variables, namely institutional management aspect (A), area management aspect (B), and business management aspect (C), have a positive and significant influence on the well-being of KTH (Y). With a path coefficient of 0.474, the business management aspect has the largest direct impact on achieving the well-being of the KTH. The institutional management aspect (A) and area management aspect (B) come in second and third, with path coefficient values of 0.205 and 0.158, respectively. The R-squared value to achieve the well-being of the KTH (Y) in this study is 0.584. This score indicates that the influence of the independent variables, namely institutional management aspect (A), area management aspect (B), and business management aspect (C), on the dependent variable, the well-being of the KTH, is 54.8%. [Chin \(1998\)](#) stated that an R-squared value of 0.548 (**Table 12**) is considered moderate. Meanwhile, the remaining 45.2% is explained by variables or factors outside the scope of the study, such as demographic factors, including gender, age, education level, and the impact of background and culture.

The model of KTH development to achieve well-being in Kampar Regency is carried out by enhancing the indicators that significantly influence the well-being of the KTH in each exogenous variable, ranked based on the largest to smallest outer model values (**Table 8**). The following sections explain the efforts to develop the KTH for each management aspect.

### 3.5.1. Institutional management aspect

Efforts to improve the institutional management aspect with the indicator of KTH involvement in government/NGO/other institution programs (X14A) can be made through the following ways:

- (1) Improving information access. The government and relevant stakeholders can convey information transparency through social media, websites, and direct meetings with KTH.
- (2) KTH participation in program planning. During the planning phase, the KTH must provide input and suggestions regarding their needs and expectations for the programs or activities to be conducted.
- (3) Enhancing the capacity of KTH. The government should provide training and mentoring for the KTH related to land management, financial management, and other necessary skills.
- (4) Providing incentives. According to [Rochmayanto et al. \(2023\)](#), incentives can ignite enthusiasm and motivation to improve the performance of KTH members, thus achieving the well-being of the KTH members.
- (5) Establishing strong partnerships. Forging strong partnerships will enable the KTH to be more engaged and motivated to actively participate in organized activities or programs.

The indicator of rules owned by the group (X9A) can be improved in the following ways: 1) Socialization of the bylaws (AD/ART): KTH needs to conduct effective socialization with all members regarding the contents of the bylaws (AD/ART). This socialization should explain the rules stated in the bylaws, such as organizational structure, members' roles and responsibilities, decision-making procedures, and the mechanism for amending the bylaws. It should also clarify how these rules can influence the activities and decisions within the KTH. Following the rules and regulations in the institution is essential to create order and certainty in social interactions, ultimately leading to the group's well-being legally ([Maryudi 2016](#)). 2) Evaluation and improvement of the bylaws: KTH should conduct regular evaluations of the performance of the bylaws and the level of compliance by its members. This evaluation aims to identify points in the bylaws that need to be improved and enhanced. In the process of improvement, it is important to

actively involve all KTH members and provide them with opportunities to give input and suggestions so that the formed bylaws represent a collective agreement.

The indicator of the completeness of KTH's secretariat (X8A) can be improved through the following ways:

- (1) Development of administrative systems. KTH can establish a robust and effective administrative system to support the improvement of the group's capabilities (Asmoro et al. 2021). The administrative activities in KTH in Kampar Regency are currently conventional, so utilizing software or information systems that efficiently manage and access member data documenting activities, finances, and resource inventories is recommended. Implementing such systems can streamline administrative tasks and enhance overall efficiency.
- (2) Monitoring and evaluation. KTH needs to regularly monitor and evaluate the secretariat's performance, with a written schedule for these activities. The evaluation should assess achieving objectives, operational efficiency, and compliance with established procedures. The evaluation results can serve as a basis for improving and enhancing the secretariat's performance, ensuring it effectively meets the group's needs.

The indicator of the number of formed PKSM (X17A) can be improved through the following ways:

- (1) Financial incentives and career development programs for PKSM. The Minister of Forestry and Environmental Regulation No. 76 of 2016 regarding private forestry extension workers and community-based forestry extension workers has already outlined the incentives provided to PKSM. However, no specific government program or allowance currently offers financial incentives and career development opportunities for PKSM. Therefore, the government should create such a program to increase the interest of more individuals to join and retain existing PKSM extension workers. This tendency can help in enhancing their motivation and commitment to their roles.
- (2) Guidance and supervision for PKSM. The government, NGOs, and other research institutions involved in managing and developing KTH in Kampar Regency must ensure effective guidance and supervision for PKSM extension workers. It can be achieved through regular field visits, performance evaluations, and actively seeking input from PKSM extension workers to improve and develop better programs. Ensuring strong guidance and supervision can support PKSM in delivering their roles effectively and contribute to their overall effectiveness in supporting KTH's development.

### 3.5.2. Area management aspect

Efforts to enhance the area management aspect with the indicator of the utilization of the managed group's territory according to its potential (X5B) can be carried out through the following ways:

- (1) Selection of appropriate plant species. KTH in Kampar Regency can choose plant species suitable for the environmental conditions, such as soil type, rainfall, and topography of the area. Based on these conditions, KTH can utilize plant species with potential in Kampar Regency, such as rubber, gambier, coconut, cocoa, and areca nut (BPS Kampar Regency 2016), to minimize the risk of plant failure and increase KTH's income.
- (2) Sustainable forest resource utilization. Implementing agroforestry systems can be a suitable approach as they have shorter harvest times than traditional forestry with relatively long

productivity periods. KTH Mandiri Gunung Jati has already practiced the application of agroforestry in land management in Kampar Regency.

- (3) Development of nature tourism. Building nature-based agroforestry-based ecotourism and establishing honeybee tourism huts can be beneficial for KTH in Kampar Regency, especially those primarily engaged in honey-related activities, such as KTH Galo-Galo Kuok, KTH Sukma Tani Lada, KTH Bersatu Abadi Jaya, and KTH Rimbun lestari.
- (4) Development of flagship commodities. Developing medicinal plant cultivation and Multi-Purpose Tree Species (MPTS) cultivation can enable farmers to utilize non-timber commodities. These approaches aim to promote sustainable resource utilization, increase income, and create economic opportunities for KTH in Kampar Regency.

The indicator of group activities in conserving forest resources (X7B) can be enhanced by developing appropriate planning and implementing consistent conservation programs. This plan should encompass activities such as reforestation, afforestation, monitoring the sustainability of resources, and forest fire control and prevention. Evaluating the suitability of each program phase with the KTH conservation plan is necessary to achieve more effective results in preserving forest resources for the KTH (Okthalamo et al. 2022).

To improve the indicator of environmental impact (X9B), KTH needs to protect and rehabilitate water resources in the vicinity of the KTH area. This result can involve preserving springs, developing infrastructure that supports water management, and implementing water conservation techniques such as efficient irrigation systems (Purwantini and Suhaeti 2018). Preserving the quality and availability of water resources can enhance the quality of life for communities around the area and ensure the sustainability of KTH activities closely related to agricultural and forestry land management.

To enhance the indicator of commodities produced under Indonesian National Standards (SNI)/product licensing management (such as PIRT and halal certification) (X11B), KTH can take the following steps:

- (1) Training and Consultation. KTH members can participate in training and consultations organized by authorized institutions or agencies, such as the National Standardization Agency (BSN), to understand the requirements and procedures for obtaining product licenses.
- (2) Establishment of Licensing Management Team. KTH can form a dedicated team responsible for managing product licensing. This team should consist of members with knowledge and skills related to product licensing. Their tasks include document collection, meeting requirements, and coordinating the product licensing process. With this specialized team, KTH can ensure that all requirements are met and that its products have proper licensing, thereby enhancing the quality and competitiveness of KTH products (Prasetya 2014).

### 3.5.3. Business management aspect

To enhance the business management aspect with the indicator of the increase in business capital (X1C) by 50% or more, as stipulated in Regulation P2SDM number 5 of 2020, KTH can implement the following strategies:

- (1) Improve financial management skills. Effective financial management is crucial for the success of small and micro businesses (Halimah 2022; Hasyim 2013). KTH should enhance its financial management skills and maintain accurate and organized financial reports to assess the performance and progress of the group's forest farmer business.

- (2) Establishing partnerships with financial institutions. KTH can establish partnerships with financial institutions such as credit unions or banks to obtain loans or business capital to enhance their production capacity.
- (3) Exploring alternative funding sources. Government assistance programs often provide grants that do not require repayment, reducing KTH's default risk. Exploring and accessing such alternative funding sources can support the growth and expansion of the KTH.
- (4) Expanding market access. Utilizing social media and online marketplaces, KTH can broaden its product reach and visibility, attracting a larger customer base for its products. This tendency can increase sales and profitability for the KTH.

To increase the indicator of absorbing labor from the group's business (X9C), KTH can implement the following strategies:

- (1) Empowering cooperatives. KTH needs to encourage the formation of cooperatives to manage businesses and enhance labor absorption collectively. Cooperatives can facilitate the establishment of work regulations, provide opportunities for access to broader markets, and foster collaborations with other businesses (Alimuna and Srifitriani 2022).
- (2) Empowering women. Women's participation in KTH activities in Kampar Regency is only around 16.58%, with men dominating the majority. Therefore, KTH should actively promote women's involvement in leadership positions and group membership by ensuring equal access to training, resources, and job opportunities. Increasing women's participation will significantly contribute to labor absorption and contribute to achieving sustainable development goals (Fithriyah 2017).

To increase the indicator of additional business capital sources (X2C), KTH needs to optimize its internal resources by improving efficiency and productivity in its operations. It will help increase internal revenue, which can be used as business capital and reduce reliance on external funding. Dependency on external funding can hinder KTH's goal of achieving self-sufficiency (Krisna et al. 2017). To enhance the indicator of conducting business meetings with stakeholders (X4C), KTH can strengthen the negotiation skills of its members through training on negotiation strategies, fair pricing, and contract management. The government, NGOs, and relevant research institutions should provide support and mentoring to improve the negotiation abilities of KTH members (Sasmita et al. 2022).

KTH can implement educational and outreach programs to increase the indicator of the scope of marketing objectives for KTH's products (X6C). These programs can be organized to educate consumers about the values of KTH products and their benefits to society and the environment. To support these efforts, KTH needs government assistance in organizing product exhibitions and trade fairs. These exhibitions can enhance consumers' understanding and appreciation of KTH products (Suparyana et al. 2023). Involving consumers in these activities can broaden their awareness and understanding of the KTH products and strengthen the relationship between KTH and its consumers. It can lead to better consumer loyalty and trust in the products offered by KTH.

#### 4. Conclusions

The research findings indicate that the most important factors influencing the well-being of KTH in Kampar Regency are the aspects of business management with a path coefficient of 0.474, followed by institutional management and area management. The development model of KTH is built by enhancing the indicators in each management aspect, based on their influence from the

largest to the smallest, using the outer model values. Increasing the involvement of KTH in government/NGO/other institution programs, optimizing the utilization of the group's managed area, and enhancing business capital are key steps in realizing a productive, independent, prosperous, and sustainable KTH.

## Acknowledgments

The authors thank the KTH Halaman Kuyang Lestari, KTH Berkah Bersama, KTH Mandiri Gunung Jati, KTH Rimbun Lestari, KTH Galo-Galo Kuok, KTH Sukma Tani Lada, KTH Sendang Berkah Aryasatya, KTH Bersatu Abadi Jaya, Department of Environment and Forestry (DLHK) of Riau Province, Lancang Kuning University, Riau University, Kampar Kiri Production Forest Management Unit, and Suligi Batu Gajah Production Forest Management Unit for the valuable discussion and support.

## References

- Aguirre-Urreta, M. I., and Rönkkö, M. 2015. Sample Size Determination and Statistical Power Analysis in PLS using R: An Annotated Tutorial. *Communications of the Association for Information Systems* 36(3): 33–51. DOI: [10.17705/1cais.03603](https://doi.org/10.17705/1cais.03603)
- Akpan, I. J., Udoh, E. A. P., and Adebisi, B. 2022. Small Business Awareness and Adoption of State-of-the-Art Technologies in Emerging and Developing Markets, and Lessons from the COVID-19 Pandemic. *Journal of Small Business and Entrepreneurship* 34(2): 123–140. DOI: [10.1080/08276331.2020.1820185](https://doi.org/10.1080/08276331.2020.1820185)
- Alam, M., Getchius, T. S., Schünemann, H., Amer, Y. S., Bak, A., Fatheree, L. A., Ginex, P., Jakhmola, P., Marsden, G. L., McFarlane, E., Meremikwu, M., Taske, N., Temple-Smolkin, R. L., Ventura, C., Burgers, J., Bradfield, L., O'Brien, M. D., Einhaus, K., Kopp, I. B., Morgan, R. L. 2022. A Memorandum of Understanding Has Facilitated Guideline Development Involving Collaborating Groups. *Journal of Clinical Epidemiology* 144: 8–15. DOI: [10.1016/j.jclinepi.2021.12.022](https://doi.org/10.1016/j.jclinepi.2021.12.022)
- Alimuna, W., and Srifitriani, A. 2022. Peran Kelembagaan Kelompok Tani Hutan (KTH) dalam Pengelolaan Hutan Kemasyarakatan (Studi Kasus Hutan Nanga-Nanga Kelurahan Baruga Kecamatan Baruga Kota Kendari Provinsi Sulawesi Tenggara). *Jurnal Georafflesia* 7(1): 104–110.
- Asmoro, H., Susanto, D., and Tjitropranoto, P. 2021. Peningkatan Kualitas Pemberdayaan Kelompok Tani Hutan dalam Pengelolaan Hasil Hutan Bukan Kayu. *Jurnal Penelitian Sosial dan Ekonomi Kehutanan* 18(1): 15–25. DOI: [10.20886/jpsek.2020.17.1.15-25](https://doi.org/10.20886/jpsek.2020.17.1.15-25)
- Bentler, P. M., and Bonett, D. G. 1980. Significance Tests and Goodness of Fit in the Analysis of Covariance Structures. *Psychological Bulletin* 88(3): 5–606. DOI: [10.1037/0033-2909.88.3.588](https://doi.org/10.1037/0033-2909.88.3.588)
- BPS Kabupaten Kampar. 2016. *Potensi Kabupaten Kampar*. KOMINFO Kabupaten Kampar.
- Chin, W. W. 1998. The Partial Least Squares Approach to Structural Equation Modeling. *Modern Methods for Business Research* 295(2): 295–336.
- Chin, W. W. 2010. How to Write Up and Report PLS Analyses. In *Handbook of Partial Least Squares* 2: 655–690). Springer Berlin Heidelberg. DOI: [10.1007/978-3-540-32827-8](https://doi.org/10.1007/978-3-540-32827-8)

- Cronkleton, P., Bray, D. B., and Medina, G. 2011. Community Forest Management and the Emergence of Multi-Scale Governance Institutions: Lessons for REDD+ Development from Mexico, Brazil and Bolivia. *Forests* 2(2): 451–473. DOI: [10.3390/f2020451](https://doi.org/10.3390/f2020451)
- Damanik, I. P. N. 2013. Faktor-Faktor yang Mempengaruhi Dinamika Kelompok dan Hubungannya dengan Kelas Kemampuan Kelompok Tani di Desa Pulokencana Kabupaten Serang. *Jurnal Penyuluhan* 9(1): 31–40. DOI: [10.25015/penyuluhan.v9i1.9856](https://doi.org/10.25015/penyuluhan.v9i1.9856)
- Damanik, S. E., and Purba, S. 2019. Perencanaan Pola Kemitraan dalam Peningkatan Kesejahteraan KPH XIII Kawasan Dolok Sanggul Kabupaten Humbang. *Sebatik* 23(2): 582–591.
- Daniel, J. 2012. *Sampling Essentials: Practical Guidelines for Making Sampling Choices*. SAGE Publications, Inc. California, US. DOI: [10.4135/9781452272047](https://doi.org/10.4135/9781452272047)
- De Mello, N. G. R., Gulinck, H., Van den Broeck, P., and Parra, C. 2023. A Qualitative Analysis of Non-Timber Forest Products Activities as a Strategy to Promote Sustainable Land Use in the Brazilian Cerrado. *Land Use Policy* 132: 106797. DOI: [10.1016/j.landusepol.2023.106797](https://doi.org/10.1016/j.landusepol.2023.106797)
- Djelau, I., Panjaitan, P. B., and Susdiyanti, T. 2014. Kajian Kelembagaan terhadap Keberhasilan Kelompok Tani Hutan Rakyat di Desa Durjela Kecamatan Pulau-Pulau Aru Kepulauan Aru, Maluku. *Journal Nusa Sylva* 14(1): 43–54. DOI: [10.31938/jns.v14i1.140](https://doi.org/10.31938/jns.v14i1.140)
- Ermawati, T., Dalmiyatun, T., and Prayoga, K. 2021. Pengaruh Modal Sosial terhadap Keberlanjutan Gapoktan Ngudi Rukun di Kabupaten Wonogiri. *Jambura Agribusiness Journal* 3(1): 1–14. DOI: [10.37046/jaj.v3i1.10129](https://doi.org/10.37046/jaj.v3i1.10129)
- Estifanos, T. K., Polyakov, M., Pandit, R., Hailu, A., and Burton, M. 2020. The Impact of Protected Areas on the Rural Households' Incomes in Ethiopia. *Land Use Policy* 91: 104349. DOI: [10.1016/j.landusepol.2019.104349](https://doi.org/10.1016/j.landusepol.2019.104349)
- Farida, I., and Setiawan, D. 2022. Business Strategies and Competitive Advantage: The Role of Performance and Innovation. *Journal of Open Innovation: Technology, Market, and Complexity* 8(3): 163. DOI: [10.3390/joitmc8030163](https://doi.org/10.3390/joitmc8030163)
- Fedele, G., Donatti, C. I., Bornacelly, I., and Hole, D. G. 2021. Nature-Dependent People: Mapping Human Direct Use of Nature for Basic Needs Across the Tropics. *Global Environmental Change* 71: 102368. DOI: [10.1016/j.gloenvcha.2021.102368](https://doi.org/10.1016/j.gloenvcha.2021.102368)
- Fithriyah. 2017. Indonesia's Experience: Implementing Gender Responsive Planning and Budgeting. *Jurnal Perencanaan Pembangunan (The Indonesian Journal of Development Planning)* 1(1): 59–75. DOI: [10.36574/jpp.v1i1.9](https://doi.org/10.36574/jpp.v1i1.9)
- Fornell, C., and Larcker, D. F. 1981. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research* 18(1): 39–50. DOI: [10.2307/3151312](https://doi.org/10.2307/3151312)
- Gerten, D., Heck, V., Jägermeyr, J., Bodirsky, B. L., Fetzer, I., Jalava, M., Kummu, M., Lucht, W., Rockström, J., Schaphoff, S., and Schellnhuber, H. J. 2020. Feeding Ten Billion People Is Possible within Four Terrestrial Planetary Boundaries. *Nature Sustainability* 3(3): 200–208. DOI: [10.1038/s41893-019-0465-1](https://doi.org/10.1038/s41893-019-0465-1)
- Hair, J. F., Hult, G. T. M., Ringle, C. M., and Sarstedt, M. 2017. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) Second Edition* (2nd ed.). SAGE Publications, Inc. California, US.

- Hajjar, R., and Oldekop, J. A. 2018. Research Frontiers in Community Forest Management. *Current Opinion in Environmental Sustainability* 32: 119–125. DOI: [10.1016/j.cosust.2018.06.003](https://doi.org/10.1016/j.cosust.2018.06.003)
- Halimah, S. 2022. Pelatihan Pembukuan Sederhana Bagi Pelaku UMKM Madu Lebah Kelompok Tani Hutan (KTH) Sadar Tani Muda di Desa Bojong Murni Kecamatan Ciawi Kabupaten Bogor. *ALMUJTAMAE: Jurnal Pengabdian Masyarakat* 2(3): 196–200. DOI: [10.30997/almujtamae.v2i3.5446](https://doi.org/10.30997/almujtamae.v2i3.5446)
- Hapsari, N. T., and Rokhani. 2020. Modal Sosial Kelompok Tani Hutan Santuso II dalam Pengembangan Kapulaga di Desa Sumberpakem Kecamatan Sumberjambe Kabupaten Jember. *Jurnal Kirana* 1(2): 92–104. DOI: [10.19184/jkr](https://doi.org/10.19184/jkr)
- Hasyim, D. 2013. Kualitas Manajemen Keuangan Usaha Mikro Kecil Menengah (UMKM) (Studi Kasus pada Distribution Store (DISTRO) di Kota Medan). *JUPIIS: Jurnal Pendidikan Ilmu-Ilmu Sosial* 5(2): 105–114. DOI: [10.24114/jupiis.v5i2.1119.g883](https://doi.org/10.24114/jupiis.v5i2.1119.g883)
- Henseler, J., Ringle, C. M., and Sarstedt, M. 2015. A New Criterion for Assessing Discriminant Validity in Variance-Based Structural Equation Modeling. *Journal of the Academy of Marketing Science* 43(1): 115–135. DOI: [10.1007/s11747-014-0403-8](https://doi.org/10.1007/s11747-014-0403-8)
- Henseler, J., Ringle, C. M., and Sinkovics, R. R. 2009. The Use of Partial Least Squares Path Modeling in International Marketing. *Advances in International Marketing* 20: 277–319. DOI: [10.1108/s1474-7979\(2009\)0000020014](https://doi.org/10.1108/s1474-7979(2009)0000020014)
- Hintz, K. S., Kimengsi, J. N., and Pretzsch, J. 2021. How Do Smallholder Forest Farmers' Organizations Manage and Commercialize Wood Products? – A Global Systematic Review. *Forest Policy and Economics* 128: 1–17. DOI: [10.1016/j.forpol.2021.102460](https://doi.org/10.1016/j.forpol.2021.102460)
- Istiqamah, Udiansyah, and Fauzi H. 2021. Kinerja Kelembagaan Kelompok Tani Hutan Pemegang Izin Perhutanan Sosial di Wilayah Kelola Kesatuan Pengelolaan Hutan Kayutangi. *Jurnal Sylva Scientiae* 4(3): 440–451. DOI: [10.20527/jss.v4i3.3744](https://doi.org/10.20527/jss.v4i3.3744)
- Istiqomah, A., and Dwisela, H. S. 2022. Alternatif Pengembangan Pengelolaan Hutan Bersama Masyarakat pada Lembaga Masyarakat Desa Hutan KPH Cepu. *Jurnal Ilmu Pertanian Indonesia* 27(2): 311–320. DOI: [10.18343/jipi.27.2.311](https://doi.org/10.18343/jipi.27.2.311)
- Joshi, P. K., Gulati, A., BIRTHAL, P. S., and Tewari, L. 2004. Economic and Political Weekly Agriculture Diversification in South Asia: Patterns, Determinants and Policy Implications. *Economic and Political Weekly* 39(24): 2457–2467.
- Karim, A. 2017. Mengembangkan Kesadaran Melestarikan Lingkungan Hidup Berbasis Humanisme Pendidikan Agama. *Edukasia: Jurnal Penelitian Pendidikan Islam* 12(2): 309–330. DOI: [10.21043/edukasia.v12i2.2780](https://doi.org/10.21043/edukasia.v12i2.2780)
- Kartono, K. 2008. *Pemimpin dan Kepemimpinan*. PT. Raja Grafindo Persada. Depok, Indonesia.
- Karundeng, M., Walangitan, H. D., and Tasirin, J. S. 2022. Evaluasi Keragaan Kelompok Binaan di Daerah Penyangga Bagian Selatan Taman Nasional Bunaken. *Agri-SosioEkonomi Unsrat* 18(3): 785–794. DOI: [10.35791/agrsosek.18.3.2022.44554](https://doi.org/10.35791/agrsosek.18.3.2022.44554)
- Kassa, K., Gebeyehu, G., Bekele, T., and Abebe, S. 2023. Rehabilitation Options for Degraded Secondary Forests in Adiyo District of Kaffa Zone, Southwest Ethiopia. *Trees, Forests and People* 12: 100394. DOI: [10.1016/j.tfp.2023.100394](https://doi.org/10.1016/j.tfp.2023.100394)
- Khamidi, S. 2013. *Pengaruh Diversifikasi Produk Terhadap Penjualan (Studi Kasus Pada Perusahaan Konveksi "Faiza Bordir" Bangil-Pasuruan [Disertasi]*. Universitas Brawijaya. Malang.

- Kimengsi, J. N., and Balgah, R. A. 2016. Enhancing Community Participation for Rural Development in Central Ejagham of Cameroon: Challenges and Prospects. *International Journal of Community Development* 4(1): 20–32. DOI: [10.11634/233028791604745](https://doi.org/10.11634/233028791604745)
- Kimengsi, J. N., and Ngu, N. D. 2022. Community Participation and Forest Management Dynamics in Rural Cameroon. *World Development Perspectives* 27: 100442. DOI: [10.1016/j.wdp.2022.100442](https://doi.org/10.1016/j.wdp.2022.100442)
- Kirana, M. A., Latifah, S., and Hidayati, E. 2022. Strategi Penguatan Kapasitas Kelompok Tani Hutan Kemasyarakatan Desa Giri Madia Kecamatan Lingsar, Lombok. *Prosiding Seminar Nasional Mahasiswa Kehutanan Indonesia* 1(1): 1–15.
- Koampa, M. V., Olfie, B. L. S., Sendow, M. M., and Moniaga, V. R. B. 2015. Partisipasi Kelompok Tani dalam Kegiatan Penyuluhan Pertanian di Desa Kanonang Lima, Kecamatan Kawangkoan Barat. *Agri-Sosioekonomi* 11(3A): 19–32. DOI: [10.35791/agrsosek.11.3A.2015.10294](https://doi.org/10.35791/agrsosek.11.3A.2015.10294)
- Krisna, D. S., Wardah, and Muhardi. 2017. Persepsi dan Strategi Pengelolaan HKM Desa Leboni Kecamatan Pamona Puselemba (Studi Kasus KPHP, Sintuwu Maroso Kabupaten Poso). *Mitra Sains* 5(3): 68–81.
- Kusmayadi, R. C. R. 2017. Proses Pengambilan Keputusan dalam Keluarga (Studi Mengenai Pekerja Wanita Dalam Industri Pengolahan Tembakau Pr. Tali Jagad di Desa Gondowangi Kecamatan Wagir Kabupaten Malang). *Gender Equality: International Journal of Child and Gender Studies* 3(1): 1–10.
- Lee, C. L., and Yang, H. J. 2011. Organization Structure, Competition and Performance Measurement Systems and Their Joint Effects on Performance. *Management Accounting Research* 22(2): 84–104. DOI: [10.1016/j.mar.2010.10.003](https://doi.org/10.1016/j.mar.2010.10.003)
- Lewis, R. A., and Davis, S. R. 2015. Forest Certification, Institutional Capacity, and Learning: An Analysis of the Impacts of the Malaysian Timber Certification Scheme. *Forest Policy and Economics* 52: 18–26. DOI: [10.1016/j.forpol.2014.12.011](https://doi.org/10.1016/j.forpol.2014.12.011)
- Marasabessy, H. 2018. Kearifan Lokal dalam Pengelolaan Hutan (Studi Kasus Kelembagaan Sasi Hutan di Desa Kailolo Kecamatan Pulau Haruku Kabupaten Maluku Tengah). *Jurnal Hutan Pulau-Pulau Kecil* 2(1): 49–69. DOI: [10.30598/jhppk.2018.2.1.49](https://doi.org/10.30598/jhppk.2018.2.1.49)
- Martuti, N. K. T., Susilowati, S. M. E., Sidiq, W. A. B. N., and Mutiatari, D. P. 2018. Peran Kelompok Masyarakat dalam Rehabilitasi Ekosistem Mangrove di Pesisir Kota Semarang. *Jurnal Wilayah dan Lingkungan* 6(2): 100-114. DOI: [10.14710/jwl.6.2.100-114](https://doi.org/10.14710/jwl.6.2.100-114)
- Maryudi, A. 2016. Arah Tata Hubungan Kelembagaan Kesatuan Pengelolaan Hutan (KPH) di Indonesia. *Jurnal Ilmu Kehutanan* 10(1): 57-64. DOI: [10.22146/jik.12632](https://doi.org/10.22146/jik.12632)
- Mavah, G. A., Funk, S. M., Child, B., Swisher, M. E., Nasi, R., and Fa, J. E. 2018. Food and Livelihoods in Park-Adjacent Communities: The Case of the Odzala Kokoua National Park. *Biological Conservation* 222: 44–51. DOI: [10.1016/j.biocon.2018.03.036](https://doi.org/10.1016/j.biocon.2018.03.036)
- Mir, A. H., Sarma, K., and Upadhaya, K. 2022. Assessing the Effectiveness of Community Managed Forests for Plant Diversity Conservation in Meghalaya, Northeast India. *Plant Diversity* 44(3): 243–254. DOI: [10.1016/j.pld.2021.11.010](https://doi.org/10.1016/j.pld.2021.11.010)
- Musfira, Natsir, M., and Asizah, N. 2022. Pengaruh Modal, Tenaga Kerja, dan Marketplace Terhadap Peningkatan Pendapatan Usaha Mikro Kecil dan Menengah: Pengalaman dari Kota Kendari Sulawesi Tenggara. *Value Added: Majalah Ekonomi Dan Bisnis* 18(2): 65–72. DOI: [10.26714/vameb.v18i2.10214](https://doi.org/10.26714/vameb.v18i2.10214)



- Nambiar, E. K. S. 2021. Strengthening Vietnam's Forestry Sectors and Rural Development: Higher Productivity, Value, and Access to Fairer Markets are Needed to Support Small Forest Growers. *Trees, Forests and People* 3: 100052. DOI: [10.1016/j.tfp.2020.100052](https://doi.org/10.1016/j.tfp.2020.100052)
- Nel, R., Mearns, K. F., Jordaan, M., and Goethals, P. 2022. The Role of Modelling in Resource Management within the Livelihood-Conservation Nexus: A Socio-Ecological Systems Approach to Sand Forest Harvesting, Northern KwaZulu-Natal. *Ecological Informatics* 69: 101600. DOI: [10.1016/j.ecoinf.2022.101600](https://doi.org/10.1016/j.ecoinf.2022.101600)
- Nowotny, S., Hirsch, B., and Nitzl, C. 2022. The Influence of Organizational Structure on Value-Based Management Sophistication. *Management Accounting Research* 56: 100797. DOI: [10.1016/j.mar.2022.100797](https://doi.org/10.1016/j.mar.2022.100797)
- Nuzuliyah, L. 2018. Analisis Nilai Tambah Produk Olahan Tanaman Rimpang. *Jurnal Teknologi dan Manajemen Agroindustri* 7: 31–38. DOI: [10.21776/ub.industria.2018.007.01.4](https://doi.org/10.21776/ub.industria.2018.007.01.4)
- Okthalamo, V., Iskandar, D. A., and Masturiatna, A. 2022. Implementasi Program Kemitraan Konservasi di Taman Nasional Bukit Barisan Selatan. *Jurnal Penelitian Ekosistem Dipterokarpa* 8(2): 111–124. DOI: [10.20886/jped.2022.8.2.111-124](https://doi.org/10.20886/jped.2022.8.2.111-124)
- Pokorny, B., Robiglio, V., Reyes, M., Vargas, R., and Patiño Carrera, C. F. 2021. The Potential of Agroforestry Concessions to Stabilize Amazonian Forest Frontiers: A Case Study on the Economic and Environmental Robustness of Informally Settled Small-Scale Cocoa Farmers in Peru. *Land Use Policy* 102: 105242. DOI: [10.1016/j.landusepol.2020.105242](https://doi.org/10.1016/j.landusepol.2020.105242)
- Prasetya, H. D. 2014. *Penerapan SNI pada UKM dan ketersediaan Infrastruktur Mutu di Baristand Industri Palembang*. Balai Riset dan Standarisasi Industri Palembang. Palembang.
- Purwantini, T. B., and Suhaeti, R. N. 2018. Irigasi Kecil: Kinerja, Masalah, dan Solusinya. *Forum Penelitian Agro Ekonomi* 35(2): 91–105. DOI: [10.21082/fae.v35n2.2017.91-105](https://doi.org/10.21082/fae.v35n2.2017.91-105)
- Ramadoan, S., Muljono, P., and Pulungan, I. 2013. Peran PKSM dalam Meningkatkan Fungsi Kelompok Tani dan Partisipasi di Kabupaten Bima, NTB. *Jurnal Penelitian Sosial Dan Ekonomi Kehutanan* 10(3): 199–210. DOI: [10.20886/jpsek.2013.10.3.199-210](https://doi.org/10.20886/jpsek.2013.10.3.199-210)
- Resende, F. M., Cimon-Morin, J., Poulin, M., Meyer, L., Joner, D. C., and Loyola, R. 2021. The Importance of Protected Areas and Indigenous Lands in Securing Ecosystem Services and Biodiversity in the Cerrado. *Ecosystem Services* 49: 101282. DOI: [10.1016/j.ecoser.2021.101282](https://doi.org/10.1016/j.ecoser.2021.101282)
- Rimbawati, D. E. M., Fatchiya, A., and Sugihen, B. G. 2018. Dinamika Kelompok Tani Hutan Agroforestry di Kabupaten Bandung. *Jurnal Penyuluhan* 14(1): 92–103. DOI: [10.25015/penyuluhan.v14i1.17223](https://doi.org/10.25015/penyuluhan.v14i1.17223)
- Rochmayanto, Y., Nurrochmat, D. R., Nugroho, B., Darusman, D., Satria, A., Casse, T., Erbaugh, J. T., and Wicaksono, D. 2023. Devolution of Forest Management to Local Communities and Its Impacts on Livelihoods and Deforestation in Berau, Indonesia. *Heliyon* 9(5): 1–16. DOI: [10.1016/j.heliyon.2023.e16115](https://doi.org/10.1016/j.heliyon.2023.e16115)
- Ruhimat, I. S. 2017. Peningkatan Kapasitas Kelembagaan Kelompok Tani dalam Pengembangan Usaha Tani Agroforestry: Studi Kasus di Desa Cukangkawung, Kecamatan Sodonghilir, Kabupaten Tasikmalaya, Provinsi Jawa Barat. *Jurnal Penelitian Sosial dan Ekonomi Kehutanan* 14(1): 1–17. DOI: [10.20886/jpse.2017.14.1.1-17](https://doi.org/10.20886/jpse.2017.14.1.1-17)
- Saboori, B., Alhattali, N. A., and Gibreel, T. 2023. Agricultural Products Diversification-Food Security Nexus in the GCC Countries; Introducing a New Index. *Journal of Agriculture and Food Research* 12: 100592. DOI: [10.1016/j.jafr.2023.100592](https://doi.org/10.1016/j.jafr.2023.100592)

- Safe'i, R., Febryano, I. G., and Aminah, L. N. 2018. Pengaruh Keberadaan Gapoktan terhadap Pendapatan Petani dan Perubahan Tutupan Lahan di Hutan Kemasyarakatan. *Sosiohumaniora* 20(2): 109–114. DOI: [10.24198/sosiohumaniora.v20i2.14349](https://doi.org/10.24198/sosiohumaniora.v20i2.14349)
- Santoso, S. S., Nurrochmat, D. R., Nugroho, B., and Santoso, I. 2019. Keberterimaan Kelompok Tani Hutan pada Pembangunan Kesatuan Pengelolaan Hutan di KPH Yogyakarta dan KPH Wilayah IX Panyabungan. *Jurnal Penyuluhan* 15(2): 169–183. DOI: [10.22500/15201927731](https://doi.org/10.22500/15201927731)
- Sarstedt, M., Hair, J. F., Ringle, C. M., Thiele, K. O., and Gudergan, S. P. 2016. Estimation Issues with PLS and CBSEM: Where the Bias Lies! *Journal of Business Research* 69(10): 3998–4010. DOI: [10.1016/j.jbusres.2016.06.007](https://doi.org/10.1016/j.jbusres.2016.06.007)
- Sasmita, Y., Prihantini, C. I., Nursalam, Musoffan, and Darwis. 2022. Analisis Strategi Pengembangan dengan Analisis SWOT sebagai Kawasan Wisata Unggulan Daerah (Studi Kasus Kawasan Wisata Jumiang Kabupaten Pamekasan). *Jurnal Pemikiran Masyarakat Ilmiah Berwawasan Agribisnis* 8(1): 1–18. DOI: [10.25157/ma.v8i1.6710.g4529](https://doi.org/10.25157/ma.v8i1.6710.g4529)
- Setiaji, K., and Fatuniah, A. L. 2018. Pengaruh Modal, Lama Usaha dan Lokasi terhadap Pendapatan Pedagang Pasar Pasca Relokasi. *Jurnal Pendidikan Ekonomi dan Bisnis (JPED)* 6(1): 1–14. DOI: [10.21009/jped.006.1.1](https://doi.org/10.21009/jped.006.1.1)
- Shyamsundar, P., Sauls, L. A., Cheek, J. Z., Sullivan-Wiley, K., Erbaugh, J. T., and Krishnapriya, P. P. 2021. Global Forces of Change: Implications for Forest-Poverty Dynamics. *Forest Policy and Economics* 133: 102607. DOI: [10.1016/j.forpol.2021.102607](https://doi.org/10.1016/j.forpol.2021.102607)
- Siboro, T. D. 2019. Manfaat Keanekaragaman Hayati terhadap Lingkungan. *Jurnal Ilmiah Simantek* 3(1): 3–6.
- Streukens, S., and Leroi-Werelds, S. 2016. Bootstrapping and PLS-SEM: A Step-by-Step Guide to Get More out of Your Bootstrap Results. *European Management Journal* 34(6): 618–632. DOI: [10.1016/j.emj.2016.06.003](https://doi.org/10.1016/j.emj.2016.06.003)
- Suparyana, P. K., Nabilah, S., and Wahyuningsih, E. 2023. Faktor Internal Eksternal Pengembangan Potensi HHBK Kelompok Mitra Tani di Sekitar Kawasan Hutan Desa Pemepek. *Agroteksos* 33(1): 260–269. DOI: [10.29303/agroteksos.v33i1.832](https://doi.org/10.29303/agroteksos.v33i1.832)
- Supriyanto, Hasan, A., and Ratnawati, V. 2019. Temu Usaha dan Menjalin Kemitraan dengan Pelaku Usaha, dapat Memperbaiki dan Meningkatkan Taraf Hidup Petani. *Jurnal Ekonomi* 27(2): 205–218.
- Susilawati, D., Kanowski, P., Setyowati, A. B., Resosudarmo, I. A. P., and Race, D. 2019. Compliance of Smallholder Timber Value Chains in East Java with Indonesia's Timber Legality Verification System. *Forest Policy and Economics* 102: 41–50. DOI: [10.1016/j.forpol.2019.02.005](https://doi.org/10.1016/j.forpol.2019.02.005)
- Suzette-Lorilla, R., Kefalas, G., Christou, A. K., Poirazidis, K., and Homer Eliades, N. G. 2023. Enhancing the Conservation Status and Resilience of a Narrowly Distributed Forest: A Challenge to Effectively Support Ecosystem Services in Practice. *Journal for Nature Conservation* 73: 126414. DOI: [10.1016/j.jnc.2023.126414](https://doi.org/10.1016/j.jnc.2023.126414)
- Tadesse, T., Teklay, G., Mulatu, D. W., Rannestad, M. M., Meresa, T. M., and Woldelibanos, D. 2022. Forest Benefits and Willingness to Pay for Sustainable Forest Management. *Forest Policy and Economics* 138: 1–9. DOI: [10.1016/j.forpol.2022.102721](https://doi.org/10.1016/j.forpol.2022.102721)
- Tenenhaus, M., Vinzi, V. E., Chatelin, Y. M., and Lauro, C. 2005. PLS Path Modeling. *Computational Statistics and Data Analysis* 48(1): 159–205. DOI: [10.1016/j.csda.2004.03.005](https://doi.org/10.1016/j.csda.2004.03.005)

- United Nations. 2018. *The Sustainable Development Goals Report*. United Nations. Geneva, Switzerland.
- Utami, R. P., and Ratnaningsih, Y. 2018. Implementasi Kemitraan Kehutanan antara Kelompok Tani dengan BKPH Rinjani Barat Pelangan Tastura. *Jurnal Silva Samalas* 1(1): 35–44. DOI: [10.33394/jss.v1i1.3629](https://doi.org/10.33394/jss.v1i1.3629)
- Veronice, V., Helmi, H., Henmaidi, H., and Arif, E. 2018. Pengembangan Kapasitas Petani dan Kelembagaan di Kawasan Pertanian melalui Pendekatan Pengelolaan Pengetahuan (Knowledge Management). *Journal of Applied Agricultural Science and Technology* 2(2): 1–10. DOI: [10.32530/jaast.v2i2.38](https://doi.org/10.32530/jaast.v2i2.38)
- Winata, A., and Yuliana, E. 2012. Tingkat Partisipasi Petani Hutan dalam Program Pengelolaan Hutan Bersama Masyarakat (PHBM) Perhutani. *MIMBAR Jurnal Sosial dan Pembangunan* 28(1): 65–76. DOI: [10.29313/mimbar.v28i1.340](https://doi.org/10.29313/mimbar.v28i1.340)
- Živojinović, I., Nedeljković, J., Stojanovski, V., Japelj, A., Nonić, D., Weiss, G., and Ludvig, A. 2017. Non-Timber Forest Products in Transition Economies: Innovation Cases in Selected SEE Countries. *Forest Policy and Economics* 81: 18–29. DOI: [10.1016/j.forpol.2017.04.003](https://doi.org/10.1016/j.forpol.2017.04.003)