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CORRELATION OF KNOWLEDGE AND COMMUNITY PARTICIPATION IN LAND CONSERVATION-BASED AGROFORESTRY: A CASE STUDY IN TANJUNG AGUNG VILLAGE, LAMPUNG

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ABSTRACT

The conversion of forest land to agriculture has affected the ecosystem in the upstream area of Way Betung Watershed, including Tanjung Agung Village. This study aims to analyze the relationship between knowledge, community participation, and agroforestry land conservation. The study was conducted on 30 respondents using a structured questionnaire, the results of which were analyzed using the Spearman Rank correlation test. The results showed that the level of community knowledge was in the moderate category (mean score 2.3), while the level of participation was high (mean score 3.7). The level of agroforestry land conservation was recorded in the moderate to high category (mean score 3.3). Correlation analysis showed a significant relationship between knowledge and community participation ($\rho = 0.414$, $p = 0.023$) with sufficient closeness, but no significant relationship was found between knowledge and land conservation ($\rho = 0.219$, $p = 0.245$) or participation and land conservation ($\rho = 0.291$, $p = 0.119$). This study highlights that increasing community participation has great potential to support the success of agroforestry conservation, although the contribution of knowledge needs to be strengthened. The novelty of this research lies in the in-depth analysis of the level of relationship between social variables in supporting agroforestry-based conservation in the strategic upstream area of the Way Betung Watershed.

Keywords : *agroforestry, land conservation, community participation, community knowledge*

INTRODUCTION

Land degradation due to forest conversion into agricultural land is one of the main challenges in natural resource management in Indonesia (Zai *et al.,* 2024). In the upstream area of the Way Betung Watershed, especially in Tanjung Agung Village, this phenomenon has threatened ecosystem functions, including water cycle regulation, provision of biodiversity habitat, and soil stability. Degraded land not only reduces productivity but also increases the risk of natural disasters such as floods and landslides (Suryandari *et al.,* 2024). Therefore, an integrative solution is needed to overcome this problem, one of which is through the implementation of an agroforestry system (Wulandari *et al.,* 2020).

Agroforestry has been identified as an effective approach to integrate environmental conservation functions with the socio-economic sustainability of local communities (Aqilla *et al.,* 2024). This system combines forestry plants with agricultural crops and/or livestock in one land management unit, thereby increasing soil fertility, reducing erosion, and providing various economic benefits (Puspasari *et al.,* 2017; Wattimena *et al.,* 2024). In addition, agroforestry plays an important role in mitigating climate change through carbon sequestration and increasing biodiversity in agricultural lands (Wulandari *et al.,* 2021; Prasetyaningtyas *et al.,* 2024).

The implementation of agroforestry at the community level still faces various obstacles. One of the main obstacles is the low level of community knowledge and participation in conservation practices. Local knowledge held by communities is often poorly integrated with scientific knowledge, so that the full potential of agroforestry cannot be realized (Puspasari *et al.,* 2017; Sari *et al.,* 2024). In addition, strengthening institutional capacity and policy support are also needed to expand the adoption of agroforestry, especially in areas with high levels of ecosystem vulnerability (Wulandari *et al.,* 2024).

This study aims to analyze the correlation between the level of knowledge and the Community in land conservation-based agroforestry in Tanjung Agung Village. Previous studies have shown that the level of community participation plays an important role in the success of agroforestry management. Waskhito (2024) identified that active community participation can increase the success of critical land rehabilitation through an agroforestry approach integrated with local wisdom.

The novelty of this study lies in the specific analysis of the relationship between social variables in the context of agroforestry in the strategic upstream area of the Way Betung Watershed. Unlike previous studies that focused more on technical or biophysical aspects, this study provides an in-depth social perspective on the factors that influence the sustainability of agroforestry at the community level. In addition, the quantitative approach used in this study provides empirical evidence that can be used as a basis for formulating policies and program interventions in the future.

METHOD

Location and Time of Research

This research was conducted in Tanjung Agung Village, Lampung Province, which is a buffer village for the Wan Abdul Rachman Forest Park area. This location was chosen because of its close interaction with the conservation area and its relevance in implementing land conservation-based agroforestry. The research was conducted in September - October 2024.

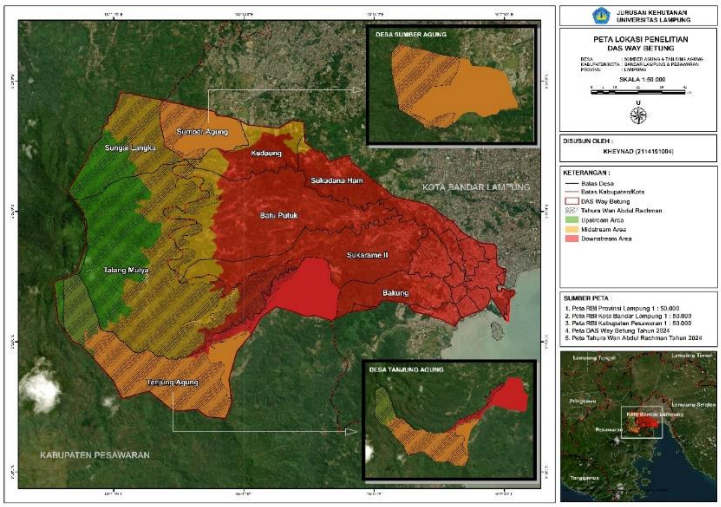

Figure 1. Map of Tanjung Agung Village Research Location

Population and Sample

The population in this study was the community living around the Wan Abdul Rachman Forest Park area. The sample determination was carried out using the *purposive sampling method ,* which uses certain criteria such as age, education level, and occupation (Lenaini, 2021). The number of respondents was 30 people who were members of the KTH (Forest Farmer Group) in the village. This number meets the minimum criteria for correlation statistical analysis (Agustin *et al*., 2024).

Data collection

Primary data were obtained through direct interviews using closed questionnaires that had been tested for validity and reliability (Daruhadi *et al.,* 2024). This research instrument was designed to measure:

1. Community knowledge about the characteristics and benefits of land conservation-based agroforestry.
2. Community participation in the implementation of agroforestry.
3. Land conservation in the context of agroforestry implementation.

Secondary data was obtained through literature studies from journals, reports, and documents related to land conservation and agroforestry (Daruhadi *et al.,* 2024).

Research Instruments

The questionnaire consists of questions arranged based on a Likert scale with a score range of 1-5. The validity of the instrument is tested using a significance value > 0.05, while reliability is measured by a reliability coefficient > 0.7 (Darma, 2021). The test results show that all instruments are valid and reliable with respective reliability values for community knowledge (0.722), community participation (0.797), and land conservation (0.701).

Data analysis

Data analysis was carried out quantitatively and qualitatively. To measure the relationship between variables, the *Spearman rank correlation test was used* with the help of SPSS version

24 software. The correlation results were classified based on the level of closeness of the relationship as follows (Hidayat, 2021):

- 0.00–0.25: Very Weak
- 0.25–0.50: Sufficient
- 0.50–0.75: Strong
- 0.75–1.00: Very Strong

The results of the quantitative analysis are supported by qualitative interpretations that refer to relevant literature to explain the phenomena found in the field.

RESULTS AND DISCUSSION

Respondent Characteristics

This study involved 30 respondents from one village, namely Tanjung Agung Village. Respondents were dominated by people with adult to old age (26-70 years), most of whom worked as farmers. The majority of respondents had secondary education, with an average maximum education of high school level. This shows that most respondents have an educational background that allows them to understand the basics of agroforestry practices because of the opportunity to receive greater information and innovation (Wulandari *et al*., 2021; Wulandari *et al*., 2025).

Level of Public Knowledge

Table 1. Level of Knowledge of the Tanjung Agung Village Community

Agroforestry Land Conservation Level			
Respondents	Score	Respondents	Score
1	2.6	16	3.6
2	3.8	17	2.4
3	2.4	18	3
4	3.8	19	3.4
5	3.8	20	4
6	3.8	21	4
7	3.2	22	3.2
8	3.4	23	2.6
9	3.2	24	3.2
10	2.8	25	3
11	2.8	26	3.4
12	3	27	3.4
13	3.2	28	3.8
14	3	29	3.4
15	4	30	3.4
Average Score			3.3

Source: Researcher Data, 2024

From the questionnaire results, the average score of the community's knowledge level was in the moderate category, namely 2.3 (scale 1-5). Respondents with high scores showed a good understanding of the benefits of agroforestry, including reducing erosion, increasing soil fertility,

and mitigating climate change. Most respondents (80%) had limited knowledge of specific agroforestry techniques, such as crop rotation and integration of certain tree species. Previous studies by Wulandari *et al.* (2024) and Oktoyoki *et al.* (2024) also showed that knowledge gaps are a common challenge in agroforestry adoption.

Level of Community Participation

Table 2. Level of Community Participation in Tanjung Agung Village

Level of Community Participation			
Respondents	Score	Respondents	Score
1	4.25	16	4.25
2	4	17	3
3	3.25	18	4
4	3.75	19	3
5	4	20	4
6	4.5	21	3.75
7	3.75	22	2.5
8	2.75	23	3.5
9	3	24	4
10	4.25	25	3.25
11	4.25	26	3.75
12	3	27	3.5
13	3.5	28	4.5
14	3.25	29	3.75
15	3.75	30	3.75
Average Score			3.7

Source: Researcher Data, 2024

The level of community participation is in the high category with an average score of 3.7. This participation includes involvement in farmer group activities, agroforestry training, and conservation initiatives driven by the local government. Participatory activities indicate that the community has a strong motivation to engage in activities that support environmental conservation, even though limited resources are a challenge (Budiono *et al*., 2024). Similar things were reported by Wulandari *et al*. (2024) and Kaharuddin *et al*. (2020), who found that community participation is often influenced by institutional support and access to resources.

Agroforestry Land Conservation Level

Table 3. Level of Community Participation in Tanjung Agung Village

Agroforestry Land Conservation Level			
Respondents	Score	Respondents	Score
1	2.6	16	3.6
2	3.8	17	2.4
3	2.4	18	3
4	3.8	19	3.4
5	3.8	20	4

6	3.8	21	4
7	3.2	22	3.2
8	3.4	23	2.6
9	3.2	24	3.2
10	2.8	25	3
11	2.8	26	3.4
12	3	27	3.4
13	3.2	28	3.8
14	3	29	3.4
15	4	30	3.4
Average Score			3.3

Source: Researcher Data, 2024

The level of land conservation is in the medium to high category, with an average score of 3.3. Conservation practices carried out include planting shade trees, implementing intercropping systems, and land management based on agroforestry techniques. Several technical and economic constraints hinder the optimization of these practices, such as limited superior seeds and access to technical training. According to Wulandari *et al*. (2021) and Dinata *et al*. (2024), the sustainability of agroforestry is highly dependent on access to modern technology and policy support.

Correlational Analysis

Table 4. Correlation Analysis of Knowledge and Participation in Land Conservation

		Community Knowledge	**Community Participation**	**Land Conservation Efforts**
Community Knowledge	ρ	1,000	0.414*	0.219
	Sign	.	0.023	0.245
Community Participation	ρ	0.414*	1,000	0.291
	Sign	0.023	.	0.119
Land Conservation Efforts	ρ	0.219	0.291	1,000
	Sign	0.245	0.119	.

Source: Researcher Data, 2024

Correlation between Knowledge and Community Participation

The results of the study showed a significant relationship between the level of knowledge and community participation. Better knowledge of the benefits of agroforestry encourages communities to participate more actively in conservation activities (Wulandari *et al.,* 2021). This finding is in line with research by Puspasari *et al.* (2017) and Fitriana *et al*. (2023), which stated that good knowledge can motivate farmers to adopt agroforestry practices. In addition, Wahyudin *et al*. (2024) emphasized that knowledge transfer through training and extension plays an important role in increasing community involvement. Several obstacles were found, such as limited access to technical information and educational resources at the local level (Puspasari *et*

al., 2017). This indicates the need for more systematic interventions, such as community-based education programs facilitated by the government and non-governmental organizations (Wulandari *et al.,* 2021). Research by As'ari *et al*. (2024) highlighted that community participation tends to be more effective if accompanied by strengthening local capacity.

Correlation between Knowledge and Land Conservation

The absence of a significant correlation between knowledge and land conservation indicates that knowledge alone is not enough to drive changes in conservation behavior. This is consistent with findings by Wulandari *et al.* (2024) Sukomardojo *et al*. (2023), which state that economic and social factors are often more dominant in influencing conservation practices than technical knowledge. For example, although communities understand the importance of planting trees to reduce erosion, limited access to superior seedlings and financial support are major obstacles. Therefore, a more holistic approach is needed, including strengthening access to resources and policy support that supports conservation (Budiono *et al.,* 2024). Research by Lase and Hulu (2024) emphasizes the importance of integration between local knowledge and policy support for conservation success.

Correlation between Community Participation and Land Conservation

Although the level of community participation is quite high, no significant correlation was found between the level of participation and community efforts in carrying out land conservation. This may be due to differences in the level of participation (Puspasari *et al.,* 2017). Participation that is symbolic or limited to administrative activities tends to be less effective in producing real impacts on conservation. To increase the effectiveness of participation, a deeper participatory approach is needed, such as involving the community in decision-making and monitoring of conservation activities (Budiono *et al.,* 2024). Research by Kumbara (2024) shows that direct community involvement in the design and implementation of agroforestry programs can significantly improve conservation outcomes.

CONCLUSION AND SUGGESTIONS

This study shows that the level of community knowledge is in the moderate category (mean score 2.3), while the level of participation is high (mean score 3.7). The level of agroforestry land conservation efforts by the community is in the moderate to high category (mean score 3.3). Correlation analysis shows a significant correlation between community knowledge and participation ($\rho = 0.414$, $p = 0.023$) with sufficient closeness, but no significant correlation was found between the level of knowledge and land conservation efforts carried out by the community ($\rho = 0.219$, $p = 0.245$). Likewise with the level of participation and land conservation efforts ($\rho = 0.291$, $p = 0.119$). This shows that knowledge and participation alone are not enough to encourage sustainable land conservation without adequate financial and policy support. It is recommended that conservation programs increase their focus on participatory approaches that directly involve the community since program planning, as well as provide training to improve their technical knowledge.

REFERENCES

Agustin, Y., Wulandari, C., Iswandaru, D., Novriyanti, N., & Prasetia, H. (2024). Korelasi karakteristik dan level persepsi masyarakat dalam melestarikan ekosistem gambut di Tahura Orang Kayo Hitam (OKH). *Jurnal Hutan Tropis*, *12*(2), 211-217.

Aqilla, A. R. (2024). Perhutanan sosial: memberdayakan masyarakat lokal dalam pengelolaan hutan yang berkelanjutan. *Gudang Jurnal Multidisiplin Ilmu*, *2*(6), 437-440.

As' ari, H., Gusliana, H. B., Umami, I. M., Habibie, D. K., & Putri, R. A. (2024). Pemberdayaan masyarakat desa melalui pengembangan potensi lokal di Desa Kesumbo Ampai. *Jurnal Pengabdian kepada Masyarakat Nusantara*, *6*(1), 2470-2477.

Budiono, P., Puspasari, E., Wulandari, C.,…, dan Sari, F. Y. 2024. Village Community Understanding of the Implementation of Environmental Policies based on the Principles of Good Village Governance. *African Journal of Biological Science*, 6(13), 6497-6508.

Darma, B. (2021). *Statistika Penelitian Menggunakan SPSS (Uji Validitas, Uji Reliabilitas, Regresi Linier Sederhana, Regresi Linier Berganda, Uji t, Uji F, R2)*. Guepedia.

Daruhadi, G., & Sopiati, P. (2024). Pengumpulan Data Penelitian. *J-CEKI: Jurnal Cendekia Ilmiah*, *3*(5), 5423-5443.

Dinata, C., Rozaki, Z., Wulandari, R., & Azzahra, I. (2024). Peran pertanian dalam mendukung generasi cemerlang di sektor perekonomian masa depan. In *Seminar Nasional Agribisnis*, 1(1), 55-60.

Fitriana, N. H. I., & Setiawan, R. F. (2023). Peran penyuluhan pertanian dalam proses adopsi inovasi di Desa Sadang, Kecamatan Taman, Kabupaten Sidoarjo. *Jurnal Ilmiah Manajemen Agribisnis*, *11*(2).

Hidayat, A. A. (2021). *Cara praktis uji statistik dengan SPSS*. Health Books Publishing.

Kaharuddin, K., Pudyatmoko, S., Fandeli, C., & Martani, W. (2020). Partisipasi masyarakat lokal dalam pengembangan ekowisata. *Jurnal Ilmu Kehutanan*, *14*(1), 42-54.

Kumbara, L. A. P. R., Umar, U., & Khadafie, M. (2024). Pengaruh pengelolaan kawasan hutan terhadap aspek ekonomi dan sosial pada Kelompok Perhutanan Sosial Batu Akik Kecamatan Sekongkang. *Ganec Swara*, *18*(4), 2103-2112.

Lase, B. R., & Hulu, F. (2024). Model pengelolaan ekologi berbasis kearifan lokal dalam peningkatan kesejahteraan masyarakat di Kabupaten Nias. *Jurnal Manajemen Pendidikan dan Ilmu Sosial (JMPIS)*, *5*(6).

Lenaini, I. (2021). Teknik pengambilan sampel purposive dan snowball sampling. *Historis: Jurnal Kajian, Penelitian dan Pengembangan Pendidikan Sejarah*, *6*(1), 33-39.

Oktoyoki, H., Pratama, B., Putra, Y. P., Novrian, W., Douni, J. B., & Ansiska, P. (2024). Studi kelayakan finansial dan pengembangan spesifikasi teknis agroforestri kopi bagi petani HKm dengan dukungan dana bergulir untuk optimalisasi produktivitas. *JENDELA PENGETAHUAN*, *17*(2), 239-251.

Prasetyaningtyas, O., & Trimurtini, T. (2024). Peran konservasi sumber daya alam hutan terhadap tujuan Sustainable Development Goals (SDGs). *CONSERVA*, *2*(1), 13-21.

Puspasari, E., Wulandari, C., Darmawan, A., & Banuwa, I. S. (2017). Aspek sosial ekonomi pada sistem agroforestri di areal kerja hutan kemasyarakatan (HKm) Kabupaten Lampung Barat, Provinsi Lampung. *Jurnal Sylva Lestari*, *5*(3), 95-103.

Sari, F. P., Munajat, M., Lastinawati, E., Meilin, A., Judijanto, L., Sutiharni, S., ... & Rusliyadi, M. (2024). *Pembangunan Pertanian Berkelanjutan*. PT. Sonpedia Publishing Indonesia.

Sukomardojo, T., Tabran, M., Al Muhtadin, M., Gymnastiar, I. A., & Pasongli, H. (2023). Mendorong perilaku konservasi lingkungan di komunitas pesisir: Pelajaran dari inisiatif berbasis masyarakat. *Jurnal Abdimas Peradaban*, *4*(2), 22-31.

Suryandari, K. A., Makhya, S., Budiono, P., & Amantha, G. K. (2024). Implementasi kebijakan penanggulangan bencana banjir di Perumahan Bataranila Desa Hajimena Kecamatan Natar Kabupaten Lampung Selatan. *Bureaucracy Journal: Indonesia Journal of Law and Social-Political Governance*, *4*(3), 217-231.

Wahyudin, C., Hasbiyah, D., Septiana, M. P., & Zidane, M. R. D. (2024). Collaborative governance dalam peningkatan kesejahteraan masyarakat melalui penyuluhan budidaya

tanaman seledri teknik hidroponik. *Qardhul Hasan: Media Pengabdian kepada Masyarakat*, *10*(3), 215-230.

Waskitho, N. T. (2024). *Pengelolaan Daerah Aliran Sungai Di Indonesia*. UMMPress.

Wattimena, C., Latupapua, L., & Sahureka, M. (2024). Penerapan agroforestry untuk meningkatkan kesejahteraan petani dan konservasi alam di Negeri Liliboy, Kecamatan Leihitu Barat, Kabupaten Maluku Tengah. *Jurnal Pengabdian Masyarakat Inovasi Indonesia*, *2*(1), 183-190.

Wulandari, C., Bakri, S., Idayanti, P., Zhafira, G., Ghifari, Y.G., Febryano, I.G., Herwanti, S. and Budiono, P. 2021. 9% Overall Similarity of the paper entitle" Roles of Rubber Agroforestry to Support the Sustainability of Protection Forest through Community Forestry Program in Lampung Province, Indonesia". *E3S Web of Conferences*. eISSN: 2267-1242.

Wulandari, C., Harianto, S. P., & Novasari, D. (2021). Pendugaan Stok Karbon pada Pola Tanam Agroforestri Sederhana dan Agroforestri Kompleks di KPH Batutegi, Kabupaten Tanggamus. *Jurnal Belantara*, *4*(2), 113-126.

Wulandari, C., Harianto, S.P. and Novasari, D., 2020. *Pengembangan agroforestri yang berkelanjutan dalam menghadapi perubahan iklim*.

Wulandari, C., Kurniasari, N., Bakri, S., Dewi, B. S., & Safe'i, R. (2024). Perception of Forest Farmer Groups as a Mediating Variable in Achieving Goals as Members of the Forestry Partnership. *Jurnal Sylva Lestari*, *12*(2), 401-417.

Wulandari, C., Latifah, L. N., Kaskoyo, H., Fitriana, Y. R., Erdian, Z., Kurniawan, V. A. T., ... & Zaidi, M. (2025). Community Social Capital in Supporting Ecosystem Recovery in Rawa Kidang of Way Kambas National Park. *Journal of Multidisciplinary Applied Natural Science*, 5(1), 200-217.

Wulandari, I., Abdoellah, O. S., Sunardi, S., Husodo, T., Suparman, Y. 2021. Pemahaman petani terhadap sistem agroforestry di Kecamatan Kertasari Kabupaten Bandung. *ETHOS: Jurnal Penelitian dan Pengabdian kepada Masyarakat*, 9(2), 296-306.

Zai, B., Surbakti, N., Natalia, N., Sirait, R., & Purba, B. (2024). Tantangan pengelolaan sumber daya alam berbasis kearifan lokal pada pertanian Indonesia. *Innovative: Journal Of Social Science Research*, *4*(6), 4882-4897.