

INDEX AND STATUS OF SUSTAINABLE FOREST MANAGEMENT IN SOCIAL AND ECONOMIC DIMENSIONS BY SUMBER SARI FOREST FARMER GROUP IN WAN ABDUL RACHMAN GRAND FOREST PARK, LAMPUNG PROVINCE

Muhammad Ikhlasul Amal¹, Hari Kaskoyo^{1,2,3*}, Rini Nurindarwati⁴, Rahmat Safe'i^{1,2,3}

¹ Department of Forestry, Faculty of Agriculture, University of Lampung, Bandar Lampung

² Graduate Program of Forestry, University of Lampung, Bandar Lampung

³ Graduate Program of Environmental Science, University of Lampung, Bandar Lampung

⁴ Technical Implementation Unit of the Conservation Forest Management Service in Wan Abdul Rachman Grand Forest Park, Bandar Lampung

* Email: hari.kaskoyo@fp.unila.ac.id

Received: 18/06/2025, Revised: 05/08/2025, Approved: 08/08/2025

ABSTRACT

The Index and Sustainability Status play an important role in ensuring the sustainable management of Forest Resources. The objective of this study is to analyze the index value and sustainability status of the management of Wan Abdur Rachman Grand Forest Park in the Sumber Sari Forest Farmers Group in social and economic dimensions. This research employs qualitative and quantitative approaches through observations and interviews. The community sample was obtained using a census method. The data collected were analyzed using multidimensional scaling with the Rapid Fisheries Assessment software. This software is used to assess sustainability status in social and economic aspects of the management. The research results indicate that the forest management in Wan Abdur Rachman Grand Forest Park by Sumber Sari Forest Farmers Group is categorized as quite sustainable. This status is reflected by the high sensitivity values in the community income attribute and accessibility (economic dimension), as well as the community participation attribute in management and the level of education of the community (social dimension). The improvement of road infrastructure, the selection of high-value commodities, training in forest product processing, and the socialization of forest product marketing need to be carried out by the government to achieve a status of very sustainable management.

Keywords : sustainable forest resource management; wan abdul rachman grand forest park; sustainability; conservation partnership.

INTRODUCTION

The utilization of Forest Resources (SDH) can improve human welfare; however, it can also cause serious environmental damage and threaten the sustainability of ecosystems, one of which is in the Wan Abdul Rachman Grand Forest Park (Tahura WAR). Tahura WAR is the only grand forest park located in Lampung Province, and administratively Tahura WAR is directly adjacent to the city of Bandar Lampung and Pesawaran Regency. The important value of Tahura WAR is as a life-supporting system area, especially in water management, preventing erosion, producing clean air, and serving as a center for biodiversity conservation that must be maintained in its integrity. However, recently there have still been frequent issues such as deforestation and illegal logging in this area. One of the problems is that in 2020, there were 25 cases of illegal logging of sonokeling wood (Fikri *et al.*, 2022). To address this issue, it is important to adopt an approach that involves various parties by integrating economic, social, and environmental interests.

One approach that has proven effective is through conservation partnerships (Wibowo and Nasvian, 2022). Conservation partnerships are collaborations between the government, non-governmental organizations, the private sector, the community, and other stakeholders to achieve sustainable natural resource conservation goals (Hardyanti *et al.*, 2023). Its role in the sustainability of natural resources is very important and complex, as it can ensure sustainable management through careful planning, active involvement of all stakeholders, and continuous monitoring (Berliandaldo and Fasa, 2022). In this case, the interests of all parties are accommodated and integrated in decision-making related to management. The active involvement of the community in decision-making and the implementation of conservation policies will give them a sense of ownership of natural resources and encourage broader participation in conservation efforts (Sukomardojo *et al.*, 2023). Sustainable management is our demand to maintain sustainability. This management must consider the balance between ecological, economic, and social aspects. Conservation partnerships are one of the government's efforts to balance the benefits of forests in ecological, social, and economic aspects (Mufidah *et al.*, 2024). Moreover, social and economic aspects often become key factors in determining the success and failure of conservation efforts (Hasibuan *et al.*, 2017).

Social and economic aspects significantly influence the success of conservation efforts in the WAR Tahura area, as the pressure on natural resources stems from the community's daily activities (Susanto *et al.*, 2020), making it essential to understand their social and economic dynamics. The Forest Farmers Group (KTH) Sumber Sari is one of the farmer groups in WAR Tahura with active members and a moderate group class. This KTH has received facilitation several times as an independent KTH to support group activities, thereby adding economic value. Therefore, this research examines how human interaction in terms of social and economic factors contributes to the sustainability of this area. The study aims to determine the index value and sustainability status of forest management in WAR Tahura by KTH Sumber Sari based on two dimensions: social and economic.

METHOD

This research was conducted in the Tahura WAR area, in the working area of the Sumber Sari Forest Farmers Group (KTH), Padang Cermin District, Pesawaran Regency, as shown in Figure 1. The research was carried out in November 2024 using both qualitative and quantitative approaches involving observations and interviews.

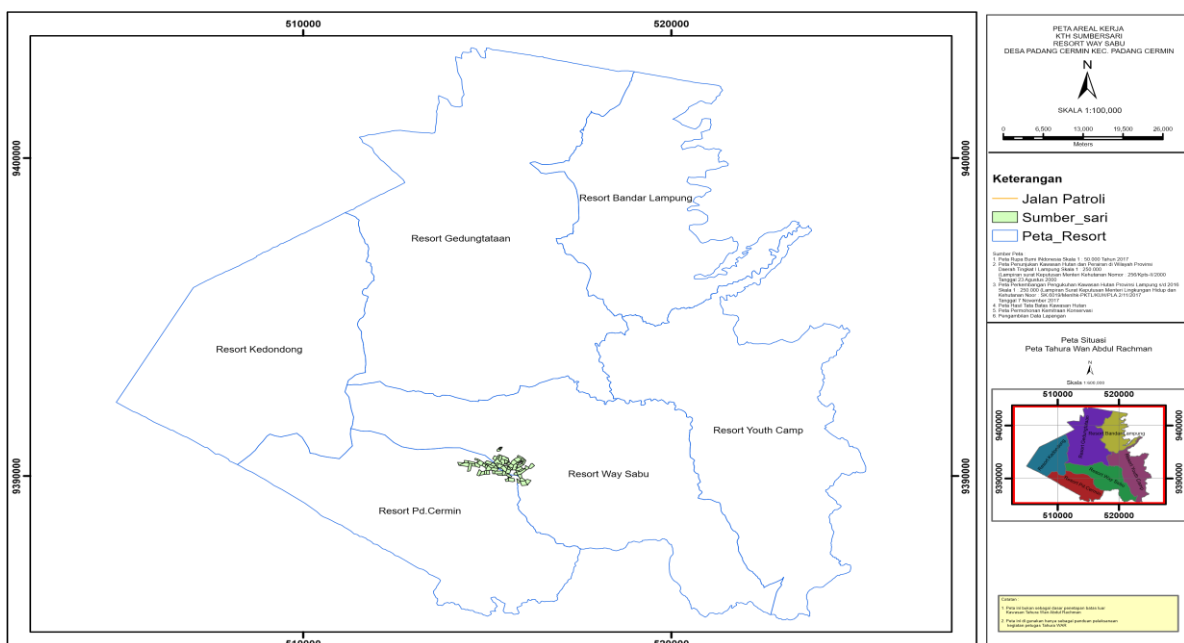


Figure 1. Research Location Map

Community sampling was conducted using a census method. The sustainability status assessment on social and economic aspects in the management of forests by KTH Sumber Sari was carried out using a multidimensional scaling (MDS) approach analyzed through the Rapid Fisheries Assessment (RAPFISH) software. A sample of 45 people was taken by census. The criteria were individuals who had previously engaged in direct activities related to the research object. Data collection was conducted by distributing questionnaires. The questionnaire distributed uses three-tiered answer choices that indicate the measured categories and rankings. An answer choice of 0 means low, an answer of 1 means medium, and an answer of 2 means high. This research was conducted by establishing 2 dimensions, namely economic (4 attributes) and social (5 attributes). The economic dimension attributes include: the government budget for management, accessibility, community income, and utilization of forest products, while the social dimension attributes include: the education level of the community, community knowledge about the benefits of forests, community participation in management, social conflicts, and community awareness of the existence of forests.

Table 1. Determination of attribute values on each dimension of sustainability in the management by the KTH Sumber Sari

Dimension	Attribute	Assessment		Score And Grading Criteria
		Good	Bad	
Economic	Government Budget for Management	2	0	(0) Low (The budget amount for activities (insufficient) (1) Medium (The budget amount for management activities is sufficient) (2) High (The budget amount for management activities exceeds the needs) (Santoso, 2012)
	Accessibility	2	0	(0) Low (difficult to access) (1) Medium (accessible with inadequate infrastructure) (2) High (easy to access) (Santoso, 2012)
	Community income	2	0	(0) Below the Regional Minimum Wage (UMR) (1) Same as the minimum wage (2) Above minimum wage (Santoso, 2012)
	Utilization of forest products	2	0	(0) Low (<10% Family Card (KK)) (1) Medium (10-30% KK) (2) High (>30% KK) (Santoso, 2012)
Social	The education level of the community	2	0	(0) Not in school - elementary school (1) Junior High School - Senior High School (2) Higher Education (Santoso, 2012)
	Community knowledge about the benefits of forests	2	0	(0) Low (1) Medium (2) High (Saman, 2017)

Community participation in management	2	0	(0) Low (1) Medium (2) High (Santoso, 2012)
Social Conflict	2	0	(0) Never (1) once a year (2) ≥ 2 times a year (Santoso, 2012)
Community awareness of the existence of forests	2	0	(0) Low (1) Medium (2) High (Santoso, 2012)

Data that has been processed and analyzed using MDS yielded index values and sustainability status of management in each of its dimensions. If the index value is 0-25, it means that the management is unsustainable; an index value of >25-50 means that the management is less sustainable; an index value of >50-75 means that the management is quite sustainable; and an index value of >75-100 means that the management is very sustainable. The index and sustainability status can be seen in Table 2.

Table 2. Sustainability Status Index of Management

No	Index Value	sustainability category
1.	0-25	Unsustainable
2.	>25-50	Less sustainable
3.	>50-75	Quite sustainable
4.	>75-100	Very Sustainable

Source: Pawiengla *et al.*, (2020)

RESULTS AND DISCUSSIONS

Sustainability Status Based on Economic Dimension

The sustainability index value of the KTH Sumber Sari in the economic dimension is presented in the form of the Ordination of KTH Sumber Sari, the results of which can be seen in Figure 2. The results of the ordination analysis show that the index value of sustainability in the economic dimension is 49.68. This indicates that the management of KTH Sumber Sari in the economic dimension falls into the category of less sustainable due to the low average income of the community, which is still below the Regional Minimum Wage (UMR) of Pesawaran Regency (Karlina *et al.*, 2016). The sustainability index value of the economic dimension needs to be improved through attributes that are sensitive-to-sensitive attribute analysis (leverage of attributes) (Marhesa *et al.*, 2022).

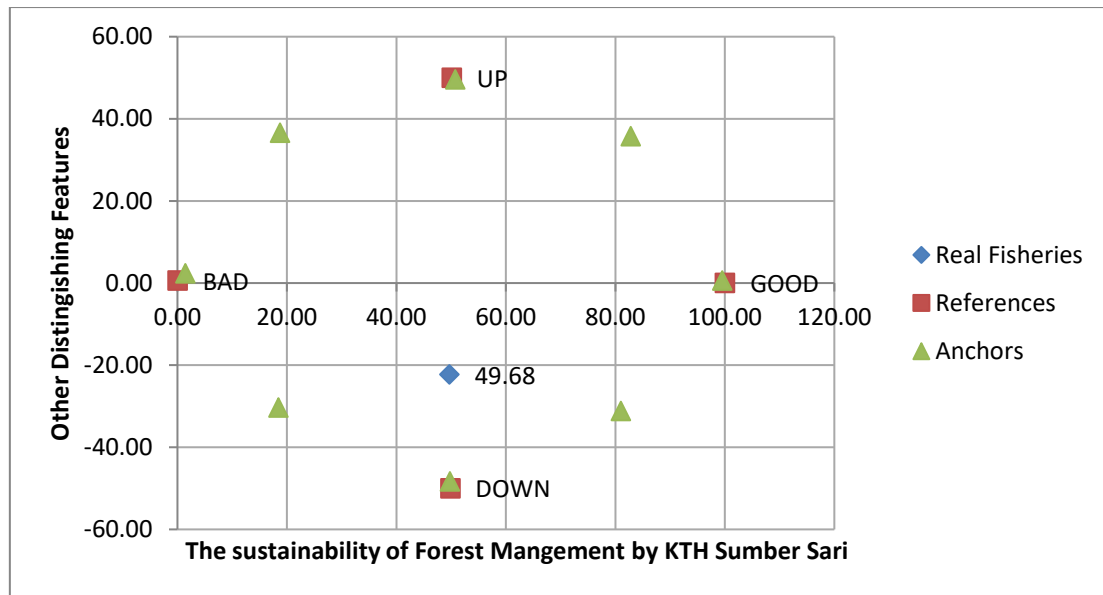


Figure 2. RAP-KTH Sumber Sari ordinance economic dimension

The above analysis produces the Root Mean Square (RMS) value for each attribute of the economic dimension presented in Figure 3. The results of the sensitive attribute analysis of the economic dimension indicate that there are two sensitive attributes in their management, namely community income (24.52) and accessibility (24.20). The community income attribute is sensitive because the average community income is below the minimum wage of Pesawaran Regency. The accessibility attribute is sensitive due to limited infrastructure access, such as roads that are difficult to traverse during the rainy season. The community in KTH Sumber Sari derives its main income from agricultural activities through an agroforestry system. They manage forestland by planting various commodities such as cocoa, coffee, and other food crops. Senoaji's research (2011) reveals that the accessibility present in a forest area will affect the income of the community within it. Good accessibility can increase the income of the forest community by opening economic opportunities, improving connectivity to the market, and enhancing access to education and training.

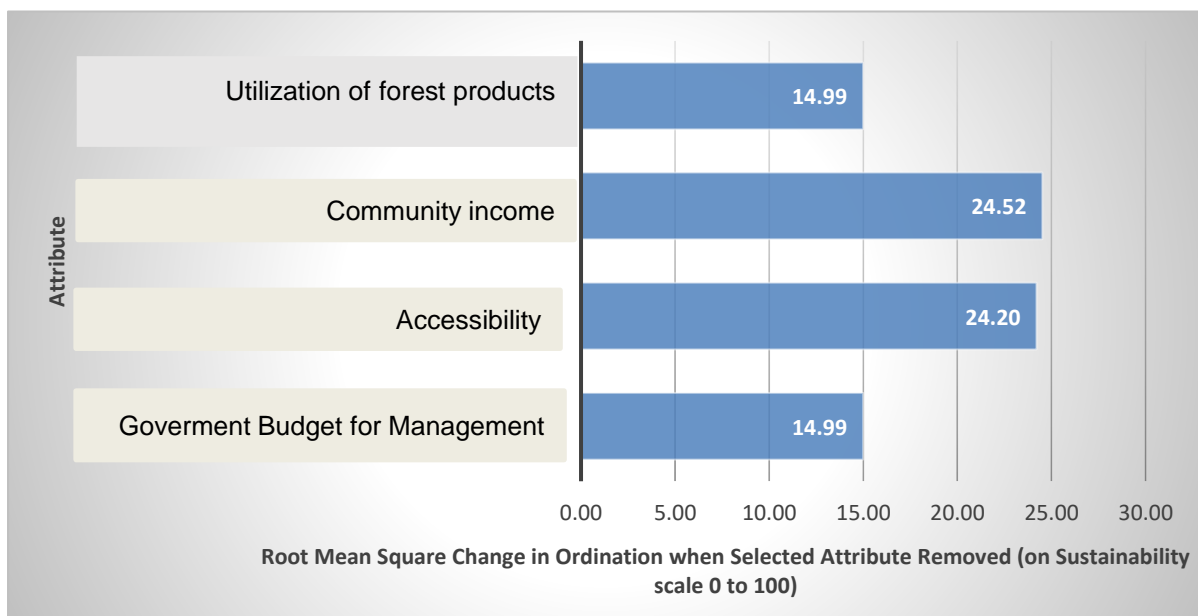


Figure 3. Analysis results of Leverage attributes in the economic dimension.

Sustainability Status Based on Social Dimension

The sustainability index value of KTH Sumber Sari in the social dimension is presented in the form of an Ordination of KTH Sumber Sari, the results of which can be seen in Figure 4. The results of the ordination analysis show that the sustainability index value in the social dimension is 61.52, thus falling into the category of quite sustainable due to the lack of community participation in management. This indicates that sensitive attributes in this dimension still require maintenance and management at a sustainable level.

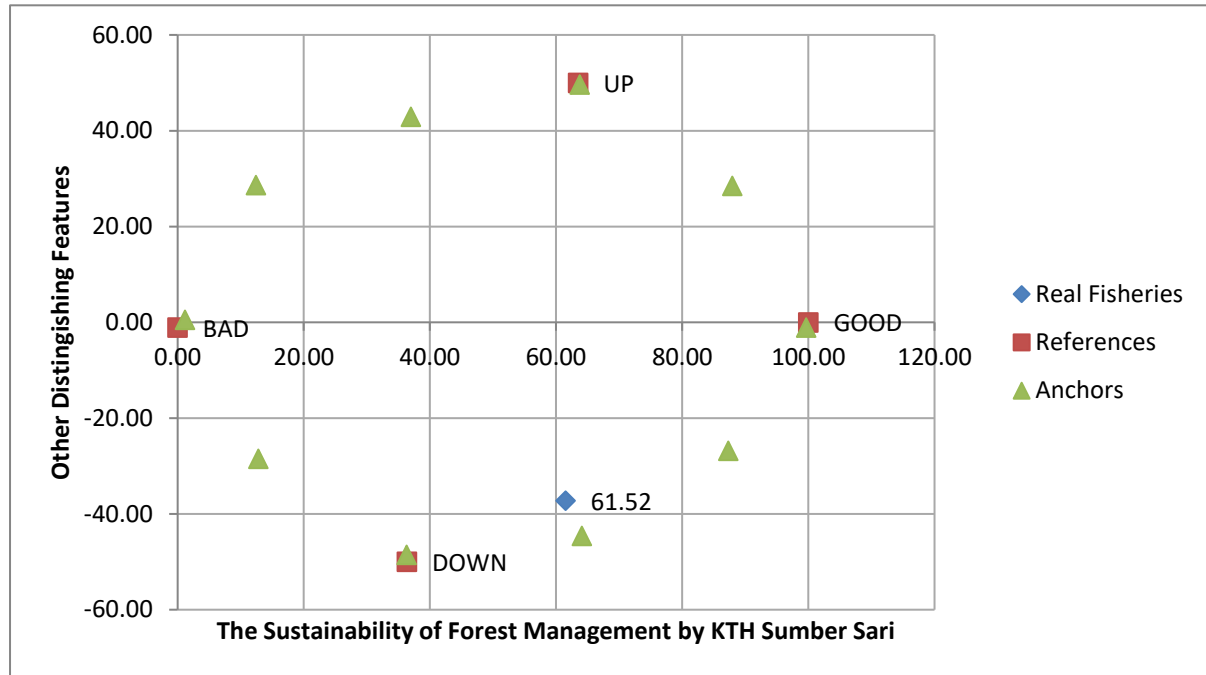


Figure 4. RAP-KTH Sumber Sari ordination social dimension

The sensitive attributes in the social dimension were analyzed using sensitivity analysis (leverage of attributes), the results of which can be seen in Figure 5. The most sensitive attributes in the social dimension are the role of community participation in management (22.25) and the education level of the community (13.65). These two attributes are the most sensitive because they have the highest RMS values among other attributes. The sensitivity of the community participation attribute in management is caused by the low community participation in KTH Sumber Sari in managing its forest. The sensitivity of the community education level attribute is due to the average highest education level of the community being elementary school. Evtasari's (2016) study revealed that the level of education can influence a person's participation because facing global issues in society requires educated, skilled individuals who are fully aware of confronting development challenges.

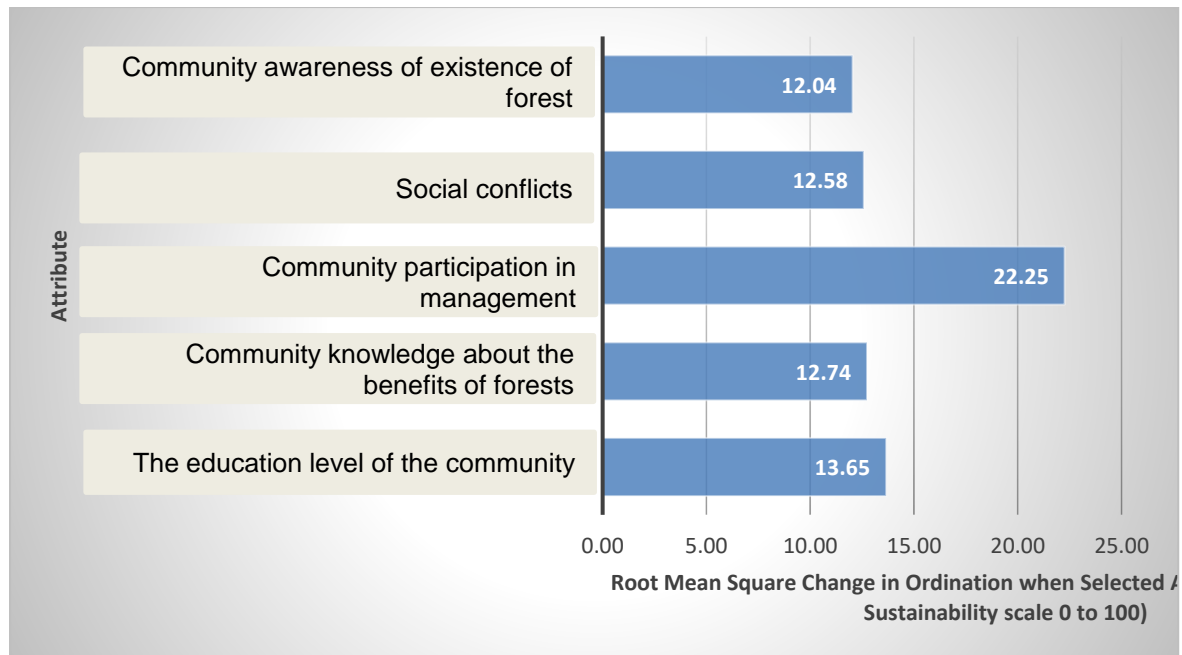


Figure 5. Analysis results of Leverage attributes in the social dimension

Multi-dimensional analysis of sustainability status

Based on the results of the MDS analysis, it was found that the multidimensional sustainability status of the management of Tahura WAR in KTH Sumber Sari is quite sustainable, with an index value of 55.6%. However, if we look at the sustainability of each dimension, it can be stated that the economic dimension falls into the less sustainable status, while the social dimension falls into the quite sustainable status. This quite sustainable status is reflected by the sustainability index values for each dimension. The sustainability index values are listed in Table 3.

Table 3. Index and sustainability status of management in KTH Sumber Sari

No.	Dimensions of Sustainability	Index	indicator
1.	Economic	49,68	Less sustainable
2.	Social	61,52	Quite sustainable

The sustainability index values of both dimensions can be visualized in the form of a line diagram shown in Figure 6. The index values for the economic dimension (49.68) and the social dimension (61.52), when summed, result in a value of 111.2. This sum is then divided by 2 (the number of dimensions), yielding an average value of 55.6. This indicates that the average index value is at a quite sustainable status. Improving the sensitive attributes that affect the index values of the economic and social dimensions is a way to ensure that the index value can continue to be improved in the future and achieve a status of very sustainable.

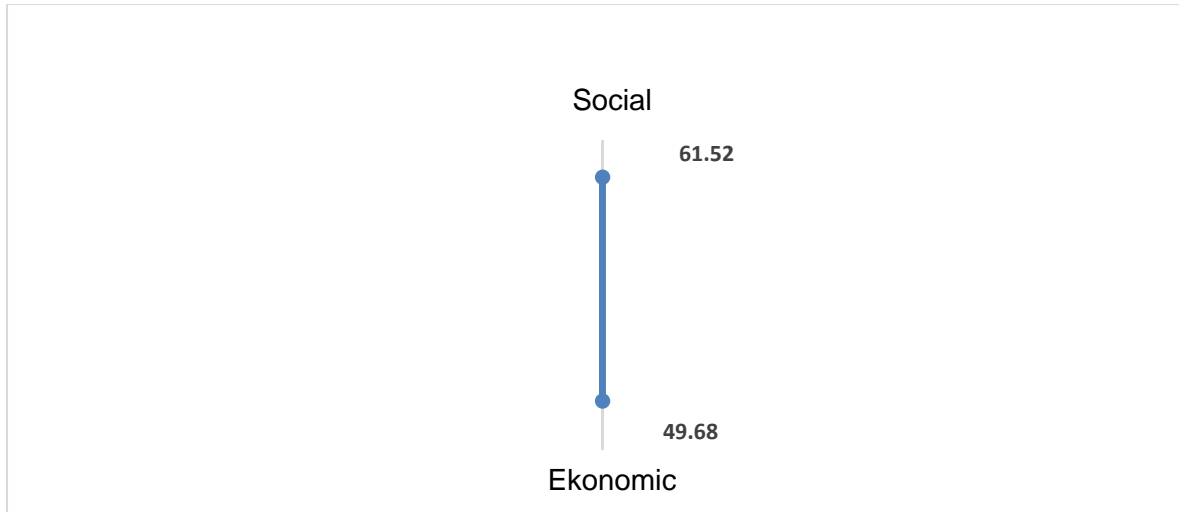


Figure 6. Line diagram of the sustainability management of KTH Sumber Sari.

When compared to other studies, the index and multidimensional sustainability status of the management of Tahura WAR in KTH Sumber Sari appear to be higher. The study by Pattimahu *et al.* (2010) in the mangrove forest of West Seram obtained an index value of 36.08%, or a status of less sustainable, while the research by Bosire *et al.* (2008) in the coastal area of Makassar City obtained an index value of 41.09%, or also a status of less sustainable. This difference may be due to the choice of dimensions and indicators that are adjusted to the existing local problems, resulting in different index values. According to Susilo *et al.* (2010), in assessing sustainability status, it is not only about grouping management dimensions but also about how each dimension can encompass the widest possible indicators.

CONCLUSION AND RECOMMENDATION

The sustainability status of the management of WAR Tahura in KTH Sumber Sari falls into the category of quite sustainable. This status is obtained due to the high sensitivity values in the attributes of community income and accessibility (economic dimension), as well as the attributes of community participation in management and the education level of the community (social dimension). The government needs to improve road infrastructure, select high-value commodities, provide training for forest product processing, and socialize marketing strategies for forest products to achieve a very sustainable status in its management.

ACKNOWLEDGMENTS

The author expresses their deepest gratitude to the staff of UPTD Tahura WAR for granting permission, providing facilities, and assisting during the field research.

REFERENCES

- Berliandaldo, M., & Fasa, A. W. H. (2022). Pengelolaan geowisata berkelanjutan dalam mendukung pelestarian warisan geologi: Perspektif collaborative governance. *Jurnal Inovasi*, 19(1), 79-97.
- Bosire, J. O., Dahdouh-Guebas, F., Walton, M., Crona, B. I., Lewis Iii, R. R., Field, C Field, J.G. Kairo & Koedam, N. (2008). Functionality of restored mangroves: a review. *Aquatic botany Journal*, 89(2), 251-259.
- Evtasari, W. R. (2016). Partisipasi masyarakat dalam program pengelolaan hutan bersama masyarakat di Desa Bajulan Kecamatan Loceret Kabupaten Nganjuk. *Jurnal Publika*, 4(2), 1-10.
- Fikri, A. A., Darmawan, A., Hilmanto, R., Banuwa, I. S., Agustiono, A., & Agustiana, L. (2022). Pemanfaatan platform Google Earth Engine dalam pemantauan perubahan tutupan

- lahan di Taman Hutan Raya Wan Abdul Rachman. *Journal of Forest Science Avicennia*, 5(1), 46-57
- Hardyanti, H., Isdarmanto, I., & Damiasih, D. (2023). Upaya strategi pemberdayaan komunitas lokal dalam pengembangan ekowisata Taman Nasional Komodo Kabupaten Manggarai Barat. *Ulil Albab: Jurnal Ilmiah Multidisiplin*, 2(7), 2598-2614.
- Hasibuan, S. H., Sunkar, A., & Santosa, Y. (2017). Identifikasi peubah sosial ekonomi penentu keberhasilan konservasi keanekaragaman hayati. *Jurnal Media Konservasi*, 22(2), 156-163.
- Karlina, E., Kusmana, C., Marimin, M., & Bismark, M. (2016). Analisis keberlanjutan pengelolaan hutan lindung mangrove di Batu Ampar, Kabupaten Kubu Raya, Provinsi Kalimantan Barat. *Jurnal Analisis Kebijakan Kehutanan*, 13(3), 201-219.
- Marhesa, R. H., Hakim, L., & Pangestuti, E. (2022). Analisis keberlanjutan Desa Wisata Ngargoretno, Kecamatan Salaman, Kabupaten Magelang. *Jurnal Tata Kota Dan Daerah*, 14(1), 25-34.
- Mufidah, S., Febryano, I. G., Puspasari, E., Bakri, S., Nurindarwati, R., & Sugiantoro, S. (2024). Kemitraan konservasi di Taman Hutan Raya Wan Abdul Rachman, Provinsi Lampung: Faktor-faktor pendukung dan penghambatnya. *Jurnal Belantara*, 7(1), 163-177.
- Pattimahu, D. V., Kusmana, C., Harjomidjojo, H., & Darusman, D. (2010). Analisis nilai keberlanjutan pengelolaan ekosistem hutan mangrove di Kabupaten Seram Bagian Barat, Maluku. *Forum Pascasarjana*, 33(4), 239-249.
- Pawiengla, A. A., Yunitasari, D., & Adenan, M. (2020). Analisis keberlanjutan usahatani kopi rakyat di Kecamatan Silo Kabupaten Jember. *Jurnal Ekonomi Pertanian dan Agribisnis*, 4(4), 701-714.
- Saman, R. U. (2017). *Pengelolaan Ekosistem Mangrove Secara Berkelanjutan Di Kabupaten Bolaang Mongondow Selatan, Provinsi Sulawesi Utara*. Tesis. Institut Pertanian Bogor. Bogor.
- Santoso, N. (2012). *Arahan kebijakan dan strategi pengelolaan kawasan mangrove berkelanjutan di Muara Angke Daerah Khusus Ibukota Jakarta*. Disertasi. Institut Pertanian Bogor. Bogor.
- Senoaji, G. (2011). Kondisi sosial ekonomi masyarakat sekitar hutan lindung bukit daun di Bengkulu. *Jurnal Sosiohumaniora*, 13(1), 1-17.
- 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.
- Susanto, D., Faida, L. R. W., Lubis, F. R. H., & Hanisaputra, R. (2020). Interaksi masyarakat sekitar dengan kawasan Cagar Alam dan Cagar Alam Laut Pangandaran. *Jurnal Belantara*, 3(2), 97-104.
- Susilo, S. B., Fauzi, A., Soedharma, D., & Bengen, D. G. (2010). *Keberlanjutan pembangunan pulau-pulau kecil: sudi kasus kelurahan Pulau Panggang dan Pulau Pari, Kepulauan Seribu, DKI Jakarta*. Disertasi. Institut Pertanian Bogor. Bogor.
- Wibowo, N. F. S., & Nasvian, M. F. (2022). Strategi komunikasi lembaga konservasi alam dalam menjalankan program pemberdayaan masyarakat. *Jurnal Sosial Politik*, 8(1), 109-122.