

The Role of South Malang Coastal Communities in Local Wisdom-Based Environmental Management

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Abstract

The coastal communities of South Malang play a significant role in preserving the environment through various activities rooted in local wisdom passed down through generations. This study aims to analyze the role of the South Malang coastal communities in environmental management based on local wisdom. Using a descriptive qualitative approach, this research explores various forms of local wisdom, such as traditional customs, sustainable natural resource utilization practices, and cultural values that support environmental preservation. The findings reveal that coastal communities actively contribute to coral reef conservation, mangrove area management, and sustainable marine resource utilization by applying ecological principles. The support of local communities through traditional rituals and social norms has also proven effective in maintaining ecosystem balance. This study underscores that engaging coastal communities through a local wisdom-based approach can serve as a relevant strategy to integrate ecological and social dimensions in sustainable environmental management.

Keywords: Local wisdom, Environmental management, Coastal communities.

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1. Introduction

Indonesia, as the largest archipelagic country in the world, has a long coastline with rich coastal ecosystems. One of the regions with great coastal potential is the Malang area, whose beaches directly border the Indian Ocean. This region is home to coastal communities that rely on natural resources for their daily lives. However, uncontrolled exploitation of coastal resources can lead to environmental degradation, making it essential to adopt a local wisdom-based approach to maintain ecosystem balance (Widiana & Wikantiyoso, 2018; Lukito & Boediningsih, 2022).

Coastal resources are often continuously exploited without considering their preservation and balance (Ketti, 2020). According to Putu Oka Ngakan in (Pariani & Sarjan, 2024), local wisdom is referred to as the value system or way of life of local

residents in communicating wisely with their living environment. Local wisdom represents the wisdom of an environment embedded in the lives of people in a particular place or region, thus referring to specific localities and communities (Suhartini, 2009). The prospect of local wisdom is essential for communities to maintain existing local wisdom and to shift their mindset back to a holistic perspective. This allows natural resources and the environment owned by the community to be utilized and preserved properly. Coastal communities play a crucial role in environmental management by wisely utilizing and controlling coastal and local resources, raising environmental awareness, and actively participating in activities that support both community welfare and environmental sustainability (Kiptiah et al., 2022; Villalon et al., 2024).

The Clungup Mangrove Conservation (CMC) Institute helps the community to collaborate on mangrove conservation and preserve nature on the south coast of Malang Regency. This includes the location of Tambakrejo Village, Sumbermanjing Wetan District, Malang Regency. This beach is an ecotourism area managed by the local Sendang Biru community participating in the Sendang Biru Nature Bhakti Foundation and EJE (East Java Ecotourism Forum) with a total area of 177.24 ha consisting of 77.09 ha of mangroves, 10 ha of coral reefs and 96.24 protected forests (Isdianto et al., 2020). Mangrove conservation through replanting not only has a positive impact on nature but can make a significant contribution to advancing the economy of the local community. The location can be used as an educational tourism area that produces enormous benefits for the education of residents. Currently, the role of the government, the community, and the private sector for sustainable development programs is through the action of planting and rehabilitating mangroves on surrounding beaches damaged by abrasion (Imron & Saiful Anwar, 2019).

Empirically, local wisdom has successfully prevented damage to environmental functions (Weningtyas & Widuri, 2022). Community participation is influential because it is a method to obtain information about the circumstances, needs and attitudes of the community towards a program, the community will feel ownership and ensure its sustainability if they are involved in the planning, implementation and monitoring and evaluation processes and, participation is the right of every citizen protected by law (Kurniawan et al., 2015). Through what has been explained, the purpose of this research is to analyze the role of coastal communities in South Malang through environmental management based on local wisdom.

This article presents novelty in understanding the role of coastal communities in South Malang in environmental management based on local wisdom. One of the main aspects of this research is the integration of traditional values and customs with environmental conservation strategies. Rituals such as Petik Laut and Ambal Warso are not only preserved as cultural heritage but also serve as a means of conserving coastal ecosystems.

Unlike the study by Indrawati (2019), which focuses on a single aspect of conservation, such as sustainable fishing practices, this study broadens the scope by examining traditional rituals, community participation, and ecotourism contributions. Furthermore, compared to (Fatristya & Sarjan, 2024), which highlights the negative impacts of industrial and tourism activities, this research emphasizes how local wisdom can adapt to modern pressures through community collaboration and LSM.

This study also highlights a participatory approach to conservation, where local communities actively engage in mangrove rehabilitation, ecotourism management, and the implementation of sustainable practices without relying on government or external

institutional interventions. Focusing on a case study in South Malang, particularly in the Sendang Biru area and Clungup Mangrove Conservation (CMC), this article provides in-depth insights into how communities maintain ecological and economic balance while simultaneously enhancing economic well-being through ecotourism development and the wise utilization of natural resources.

A. *Theoretical Foundation*

The coastal area of Tiga Warna Beach is a large-scale fishing industry. The location, located in Tambakrejo Village, Sumbermanjing Wetan District, can be developed as a large-scale fishing port because it benefits from the typology of the beach according to (Akbar, 2017). Local wisdom as an environmental management system refers to knowledge and practices passed down from generation to generation relating to the sustainable use of natural resources (Sinapoy, 2018). The coastal communities of South Malang have strong traditions and knowledge regarding marine ecosystems, including the management of fishery resources and mangrove plants. This practice not only aims for their survival but also to maintain the balance of the ecosystem (Arifianto, 2018).

Utilization of coastal resources often does not pay attention to the preservation and balance of the environment, causing the state of natural resources to be threatened and has the potential to degrade its natural wealth, so that people are expected to be able to protect their environment which is a source of life for the village community through ecological knowledge according to (Arifianto, 2018). Coastal communities in South Malang are active in conservation activities, such as mangrove planting and coral reef protection. These activities are based on local knowledge about the importance of these ecosystems for community welfare and environmental sustainability. Mangrove planting, for example, not only serves as a protection against coastal abrasion, but also as a habitat for various marine species (Harahab & Setiawan, 2017).

Local wisdom in environmental management can be defined as the relationship between humans and nature which includes norms, traditions, and traditional cultural values (Wardhani et al., 2023; Pratama et al., 2024). The impact of local wisdom practices on the environment local wisdom-based practices are proven to have a positive impact on the environment. According to research by Indrawati (2019), traditional fish management by coastal communities, such as the use of environmentally friendly fishing gear, has helped maintain fish populations and prevent overfishing. This shows that local wisdom not only contributes to resource conservation but also provides economic benefits to the community and helps preserve cultural heritage (Aryani & Kertopati, 2024).

Challenges in environmental management Although coastal communities have strong local wisdom, they face significant challenges. Climate change, pollution, and exploitation of natural resources by outsiders pose serious threats to the sustainability of local practices. Increased industrial and tourism activities in coastal areas have led to environmental degradation, which has a direct impact on people's lives. Therefore, it is important to integrate local wisdom in environmental management policies (Fatristya & Sarjan, 2024)

2. Method

This study used a descriptive qualitative method with a field survey approach, questionnaires, and interviews to analyze the role of coastal communities in South Malang in local wisdom-based environmental management by Tito (2022). The main variables in this study include local wisdom, which includes traditions, customs, and

community practices in protecting the environment; community participation, which assesses the level of community involvement in environmental conservation such as mangrove planting and coral reef protection; and environmental impact, which measures the extent to which the application of local wisdom contributes to ecosystem balance and sustainability of the coastal environment.

This research is located around the Malang Regency area, precisely in Sumbermanjing Wetan District, Tambak Rejo Village, Sendang Biru Hamlet. The research focuses on how the community manages and maintains the coastal environment using a local wisdom-based approach.

The data collection technique is a literature study by utilizing literature review and internet searching. The literature review is sourced from various scientific reading that accountable and relevan to the topic needed in this article. Meanwhile the in ternet searcing is used to obtaon data necessary for map creatin.

Data collection in this research was conducted using questionnaires and interview with stakeholders or managers og Tiga Warna Beach, as well as the loacal coastal around Tiga Warna Beach. Documentation was also used in this research to illustrate the environmental conditions of the coastal area Tiga Warna Beach. Figure. 1 presents the map of the research area.

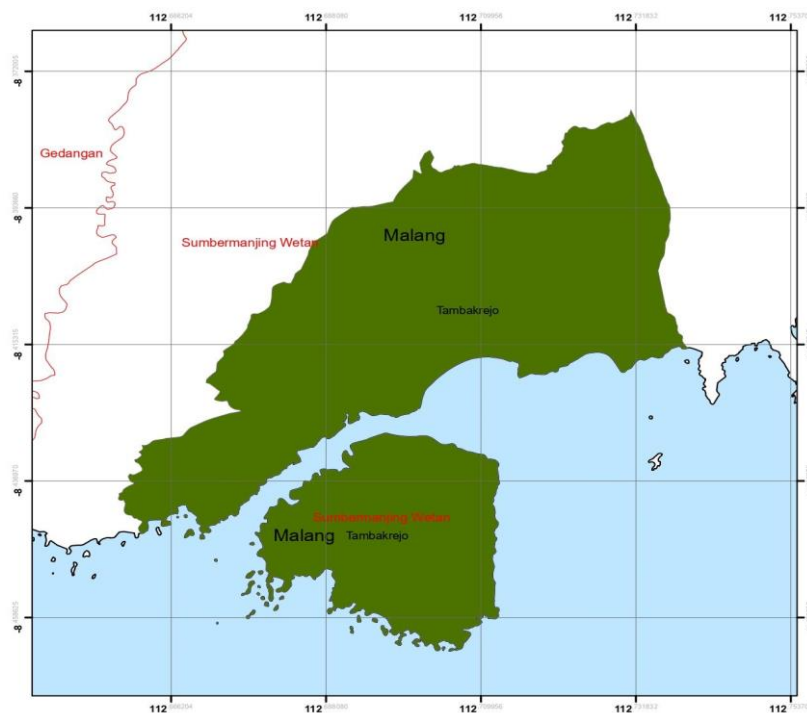


Figure 1. Research Location Tambak Rejo Village

Table 1. Interview Guidelines for Community Leaders/River Stakeholders (*key informants*)

No.	Interview guidelines	Rational
1.	Informant data (name, age, gender, educational background , type of work)	Socio-demographics

2.	How often are you involved in environmental management activities in coastal areas?	Community role in environmental management
3.	What activities do you usually do related to environmental management?	
4.	Do you feel that coastal communities have an important role in preserving the environment?	
5.	Have you ever attended training or socialization on environmental management?	
6.	Where did the training come from?	
7.	Who provides the training?	
8.	Are there local wisdom practices related to environmental management in your area?	Environmental Management Based on Local Wisdom
9.	If so, please mention an example of such local wisdom!	
10.	How important is the role of local wisdom in environmental management?	
11.	Do you think local wisdom is still relevant to be applied in environmental management today?	
12.		
13.	Do you understand the customary rules or traditions related to environmental management?	Understanding and Practicing Local Wisdom.
14.	Do you apply these rules in your daily life?	
15.	What local wisdom traditions or practices do you most often follow in protecting the environment?	
	- Rituals of respect for nature - Prohibition of cutting down certain trees - c. rules for limited utilization of natural resources - d. traditional irrigation system - Traditional waste management (e.g. burning organic waste) - others.	

16.	Are you aware of government programs that support local wisdom-based environmental conservation?	Involvement in Government and Non-Government Programs
17.	If yes, what programs do you know about a. Village greening program b. forest conservation program c. Clean water management program d. Waste management program e. others.	
18.	Are you involved in these programs? Is there support from non-governmental organizations in environmental management in your area?	
20.	Do you think local wisdom-based environmental management in your area has had a positive impact?	Environmental Management Impact and Evaluation
21.	Do you feel any changes in the quality of the environment after the implementation of local wisdom?	
22.	What sanctions are given if there is a violation of local wisdom?	

The method used in this research is qualitative with a survey approach. The use of descriptive qualitative methods was chosen in order to provide an overview of coastal community participation in environmental management using local wisdom that developed in the local community. Data were obtained through direct observation and interviews with local residents.

3. Results and Discussion

Sendang Biru Hamlet is an area located in Sumbermanjing Wetan Subdistrict, Malang Regency, precisely located in the South coastal area of Malang Regency, where Sendang Biru Hamlet has a coast that is directly adjacent to the Indian Ocean. Geographically, Sendang Biru Hamlet is located at Coordinates 8° 26' - 8° 30' LS and 112° 38' - 112° 43' East.

According to Wicaksono 2018 in (Sofyan, 2023) Overall Sendang Hamlet has an area of 2,735,850 km², which includes land areas, mountains and hills. But in general, the topography of Sendang Biru Hamlet is hilly with moderate to steep slopes, there are two leading sectors of Sendang Biru Hamlet, namely tourism and fisheries, which are based on the geographical location and potential of the Sendang Biru Hamlet area.

From these conditions, Sendang Biru Hamlet has great potential in the economic support of the community, this also resulted in the presence of immigrants from various regions in Indonesia. The influx of immigrants in Sendang Biru Hamlet has existed since the 1980s, the immigrants came from Kalimantan, Sulawesi, Banyuwangi, Jember, and Madura (Sofyan, 2023). This causes there are various tribes and religions in Sendang Biru

Hamlet, but even though they come from different tribes and religions they still have their own uniqueness or local wisdom as the Sendang Biru Hamlet Community, one of which is in maintaining or managing their coastal environment as the flagship area of Sendang Biru Hamlet.

Local wisdom is knowledge developed by the local community so that it presents the values or behavior of the local community, one of which is how the community interacts with the environment wisely (Nasihuddin, 2017). In environmental management, the principle of local wisdom has a function that can enrich awareness in managing the environment because the principle comes from laws that are present and develop from the community so that voluntary implementation occurs (Nasihuddin, 2017).

In Sendang Biru Hamlet, there are several local wisdoms such as *Petik Laut*, a celebration that aims to thank the almighty for the sea products they get. The Petik Laut ritual is held by the Sendang Biru community on every September 27. As a fishing community with diverse cultural backgrounds, the ritual is also full of various paraphernalia of a traditional ceremony and the values that accompany it. The process of Petik Laut ritual lasts about 4 days, marked by the joy and excitement of Sendang Biru fishermen community for their welfare and work during the sea. The atmosphere of Sendang Biru beach is very festive. In Pondokdadap harbor, various attractions are held for the community, such as game competitions, exhibitions of marine products, musical performances, lion dance and so on.

The profound meaning of the Petik Laut ritual is very closely related to the existence of the Sendang Biru fishing community and its local wisdom system, namely the local wisdom system in managing natural resources, both forest, coastal and marine resources and fish resources. Natural resource management is a reciprocal relationship between humans and the surrounding nature. Mrs Siti Fatimah said the sea picking ritual is conducted on September 27. to participate in the ritual, boat owners are required to pay a fee of approximately 200,000 IDR per boat, while those without a boat are not obligated to make any payment. The collected funds are entrusted to the head of the ritual committee to prepare offerings and other necessities for the ceremony. In addition, there is *Ambal Warso*, a prayer ritual to ask for the safety of fishermen, this ritual has existed since 2011 which is present because of the development of knowledge by the local community and also fishermen are one of the main jobs of the Sendang Biru Hamlet Community, this ritual is usually held on every September 21.

Local wisdom owned and preserved by the Sendang Biru Hamlet Community is the ethics or attitude of the Sendang Biru Hamlet Community in maintaining the cleanliness of the coastal area and surrounding commodities as an economic support for the Sendang Biru Hamlet Community. There is a non-governmental organization in Sendang Biru Hamlet whose main focus is environmental management, namely the *Bhakti Alam Sendang Biru Foundation*, all members of which are the people of Sendang Biru Hamlet. This foundation is also the processing of tourist attractions in the coastal area of Sendang Biru Hamlet, namely CMC Tiga Warna Beach and Clungup Beach.



Figure 2. CMC Beach conservation area

To protect the environment around the coastal area, every luggage or item that has the potential to become garbage will be checked by the manager before visitors enter the coastal area, this is done by the manager in order to reduce waste because it damages the ecosystem around the coastal area, besides that the CMC Beach area is also a conservation area (Figure 2). In addition, there are activities in the form of mangrove conservation which are usually carried out by the Sendang Biru Community with students and the local government, this is done to maintain the balance of the ecosystem in the coastal area (Fig. 4). As a self-help community, *Yayasan Bhakti Alam Sendang Biru* also involves the community in environmental management, namely the existence of mutual cooperation activities to clean the environment around the coast which is carried out once a week besides that *Yayasan Bhakti Alam Sendang Biru* provides socialization training to residents regarding environmental management they also have activities. Together with children in Sendang Biru Hamlet, such as the introduction of nature to children which can foster a sense of love for the surrounding environment so that there will be a sense of wanting to protect the surrounding environment (Figure 3).



Figure 3. Activities of Yayasan Bhakti Alam Sendang Biru



Figure 4. One Form of Mangrove Conservation

Local wisdom arising from the thoughts of the people of Sendang Biru Hamlet in terms of environmental management is basically a form of gratitude and gratitude to the Almighty because the life of the Sendang Biru Hamlet Community is always in line with nature and mutual respect, not only to fellow humans but environmental sustainability should also be maintained. Based on the results of interviews conducted with the manager of the CMC Beach tourist attraction, Mr. Yanto said that usually mangrove seed planting activities are carried out in the beach area carried out by students, the cleanliness of the beach area is also maintained by conducting beach cleaning activities in mutual cooperation involving the local community, managers and local government, this is a form of environmental management around the CMC beach area.

Based on an interview with the manager Mr. Mahesa Danu, who is also a fisherman. Coastal areal cleanliness is maintained through regular cleaning activities conducted by the management. The local community plays a crucial role in preserving the cleanliness of the coastal environment.

4. Conclusion

The role of South Malang coastal communities in local wisdom-based environmental management is important. The people of Sendang Biru Hamlet, as part of the coastal area, implement sustainability practices through tradition, local knowledge, and active participation in conservation activities such as mangrove planting, coral reef protection, and traditional rituals such as petik laut. In addition, the involvement of non-governmental organizations such as Yayasan Bhakti Alam Sendang Biru helps strengthen the collective in protecting the environment through educational activities and mutual cooperation actions.

This local wisdom practice not only has a positive impact on environmental conservation but also contributes to improving the welfare of local communities. Thus, local wisdom-based environmental management can be an effective model for achieving a balance between economic needs and environmental conservation in a sustainable manner.

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