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Socio-Economic Characteristics of Communities in the Utilization of Natural Resources in the Southern Coastal Area of West Lombok

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ABSTRACT

This study examines the social, economic, and institutional characteristics of communities in the southern coastal region of West Lombok. The research was conducted in six villages within the Lembar and Sekotong sub-districts using observation, interviews, and focus group discussions (FGDs). The findings reveal that coastal communities possess strong social capital, as reflected in their solidarity and mutual cooperation in addressing shared challenges. Their sources of livelihood are diverse, ranging from fishing, farming, and livestock raising to small-scale enterprises. Annual household incomes range from IDR 8.7 to 15.6 million. On a per capita basis, income is estimated at approximately IDR 5,958 to 12,534 per person per year. It is recommended that further research be conducted on strategies to enhance the economic resilience of coastal communities in anticipation of climate change

INTRODUCTION

The southern coastal region of West Lombok, encompassing the sub-districts of Sekotong and Lembar, is a strategic area rich in natural resources, both terrestrial and marine (Burhanuddin et al., 2020). This region is renowned for its scenic beaches, capture fisheries potential, aquaculture, and small-scale mining resources (Nur Syamsi & Lee, 2021). In terms of regional development, the southern coast of West Lombok has also received attention from both local and national governments due to its crucial role in supporting community economic resilience and its vital ecological functions (Hilyana et al., 2022).

Communities residing in this coastal area exhibit distinctive socio-economic characteristics. Social capital, in the form of mutual cooperation (gotong royong), kinship, and solidarity, remains strongly embedded and serves as a critical mechanism for navigating daily challenges as well as disaster-related risks (Ichsan & Waru, 2019). Economically, the livelihood structures are generally mixed, with many residents relying on multiple sources of income (Rosadi et al., 2022). A fisherman may also work as a farmer, livestock raiser, or small-scale miner. This flexibility reflects an adaptive capacity to utilize the locally available natural resources.

However, the diversity of economic activities has not yet significantly improved overall welfare (Hilyana et al., 2022; Sanofa et al., 2024). Community income levels remain low, and access to education, healthcare services, and environmental protection continues to pose major challenges. Therefore, understanding the socio-economic characteristics of communities and their utilization of natural resources in this region is essential for formulating development policies that are equitable, sustainable, and responsive to local needs, as well as to the threats posed by climate change and natural resource exploitation.

Theoretical Review

Various studies highlight the importance of collaborative and contextual approaches in coastal resource management in Indonesia, particularly in

the West Lombok region. Sanofa et al. (2024) emphasize that coastal development strategies must balance ecological conservation with economic utilization. A case study in Teluk Saleh demonstrates that community involvement in conservation-based ecotourism can improve local welfare while preserving the environment.

Rosadi et al. (2022) further underline that the impact of Marine Protected Areas (MPAs) on community well-being is significant only when there is active participation and equitable benefit distribution. Social capital, such as trust and community cohesion, is crucial to the success of MPAs in enhancing quality of life.

Within the framework of blue economy development, (Sari, 2024) argue that cross-sector collaboration—between government, communities, the private sector, and NGOs—is a key foundation for sustainable marine management. Such collaboration must be built on transparency, clearly defined roles, and strong institutional support.

A study by Burhanudin & Saleh (2022) offers a unique perspective by highlighting the contribution of the Indonesian Navy (TNI AL) in empowering coastal communities through training programs, maritime agriculture, and entrepreneurship. Military involvement represents a non-conventional strategy that strengthens both economic and social resilience.

Regarding environmental restoration, two studies on mangroves demonstrate the effectiveness of community-based approaches. (Sukarman et al., 2020) assert that mangrove restoration in Lembar Village has had dual ecological and economic impacts—particularly through community fisheries and ecotourism. Meanwhile, (Sukuryadi et al., 2021) frames mangrove restoration as a climate change adaptation strategy, emphasizing the importance of policy integration and active community participation in planning and monitoring processes.

Overall, the literature affirms that successful coastal management requires cross-sectoral, community-based approaches that are responsive to the socio-economic characteristics of local populations. Synergies among conservation,

economic development, and social resilience should be strengthened as a strategic direction for coastal policy and practice in West Lombok.

METHODS

This study employed a descriptive method to illustrate and analyze phenomena or events based on actual conditions or situations. The primary objective of the descriptive method is to provide a

clear and detailed depiction of a problem, event, or population without manipulating variables or establishing causal relationships (W. Gulo, 2002).

The study was conducted in two sub-districts: Lembar and Sekotong, located in West Lombok Regency. From these two sub-districts, three coastal villages from each area were selected as the research sites, as follows:

Table 1. Site Study, Subdistricts, Number Villages

Subdistricts	Number Villages	Name of Villages
Lembar	3	1. Lembar 2. Lembar Selatan 3. Labuhan Tereng
Sekotong	3	1. Cendi Manik 2. Sekotong Tengah 3. Sekotong Barat

Source: Sekotong Subdistrict Statistic, 2023

Data collection was carried out using observation, in-depth interviews, and Focus Group Discussions (FGDs). Observation involved systematically observing and recording behaviors, events, or phenomena related to the research subject. In-depth interviews were conducted to extract detailed information from pre-selected respondents. FGDs were employed to gather insights from a group of informants in a facilitated setting, guided by a set of prepared key questions.

Respondents were selected using a quota cluster sampling technique. Each village was assigned a quota of 12 respondents, clustered to represent various elements within the community, including: village officials, fishers, farmers, micro and small enterprise (MSME) actors, community and religious leaders, youth, and women's representatives. In total, the study involved 72 respondents across the six selected villages.

Variable and Data Analysis

The study focused on two main variables: (1) Social and institutional variables, which examined several parameters of social capital, including formal and informal social and institutional values that positively contribute to

family and community harmony. These parameters reflect both formal systems (e.g., village governance) and informal mechanisms (e.g., mutual support and social norms); (2) Economic variables, which explored parameters related to community economic activities across various sectors, household income levels, and potential business opportunities that can be developed.

Social data analysis employed descriptive interpretation of data gathered through observations, interviews, and FGDs to identify patterns, relationships, and meanings within the collected information. This approach aimed to provide a deeper understanding of the social phenomena being studied. Economic data were also analyzed descriptively, focusing on community economic resources, the diversity of livelihood activities, and income distribution across these sectors (Kusnadi, 2025).

RESULTS AND DISCUSSION

Characteristics and Utilization of Natural Resources

There are at least five prominent natural resources considered important by the residents living in coastal areas. The significance of these resources is viewed not only from an economic

perspective but also in relation to their social and environmental roles. The five key natural resources include mangroves, agriculture, livestock, coastal/marine areas, and fish/shrimp ponds (Figure 1).

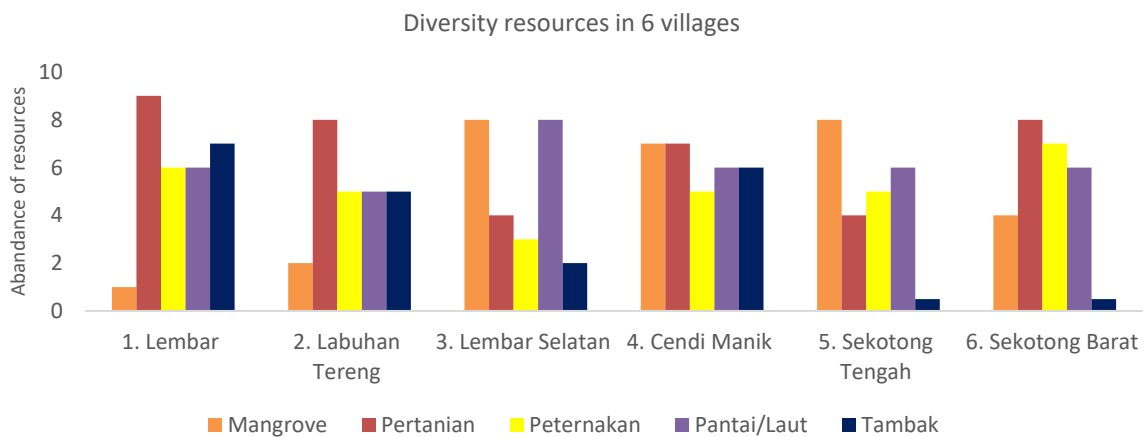


Figure 1. Diversity and Abundance of Resources in the Study Area

Based on figure 1 above, mangrove resources are perceived as highly important, particularly in the villages of Lembar Selatan, Cendi Manik, and Sekotong Tengah. The largest mangrove distribution is found in Cendi Manik, followed by Lembar Selatan and Sekotong Tengah. Coastal and marine resources are considered essential across all villages, as a large proportion of the population relies on fishing for their livelihoods. This condition aligns with previous research findings, which emphasize the role of mangroves as a key factor in protecting the income sources of coastal communities (Rosadi et al., 2022; Subair et al., 2014; Wika & M Baiquni, 2016).

Figure 2 illustrates the concentration of mangrove resources in the three aforementioned villages. Meanwhile, other resources—agriculture,

livestock, and aquaculture—are the primary assets for the other three villages: Lembar, Labuhan Tereng, and Sekotong Barat. Beaches are also considered highly important, particularly in Lembar Selatan, where the Cemara coastal area serves as a major site for beach tourism.

There are eight mangrove species identified in the study area, with *Rhizophora apiculata* being the most dominant, followed by *Avicennia marina* and *Ceriops tagal* (Lingkungan et al., 2024; Santoso & Syukur, 2024). *Rhizophora* species are widely distributed across all study sites. The utilization of mangrove resources varies between villages, and in general, six types of mangrove uses were identified (see Table 2).

Table 2. Diversity Used of Coastal Area and Mangrove

Name of Village	Diversity of used					
	Mangrove ecotourism	Shellfish and Crab Harvesting	Silvo fisheries mangrove	Mangrove Processed Products	Pond	Beach tourism
Lembar		√			√√√	√√
Labuhan Tereng	√	√	√		√	√
Lembar Selatan	√√	√√	√			√√√√
Cendi Manik	√√	√√	√√		√√	√√
Sekotong Tengah	√√√√	√√	√√	√		√
Sekotong Barat	√	√√	√√			√

Note: √ very low used √√√√√ very high used

Mangroves are undoubtedly one of the main sources of livelihood for coastal communities. Local residents rely on daily harvesting of crabs, shellfish, and fish found beneath mangrove canopies, and also utilize mangrove areas to develop fish farming systems, particularly silvofisheries. The use of mangroves for tourism is particularly prominent in Sekotong Tengah, Lembar Selatan, and Cendi Manik villages. Tourism management in these areas is handled by local tourism awareness groups (Pokdarwis) in collaboration with village-owned enterprises (BUMDes).

Communities also generate income through mangrove seedling production. Residents in the three villages—Cendi Manik, Lembar Selatan, and Sekotong Tengah—possess the skills and capacity for mangrove nursery cultivation. Their seedlings have been sold to various stakeholders, including the NTB Watershed and Protected Forest Management Agency (BPDAS NTB), to support forest and land rehabilitation programs.

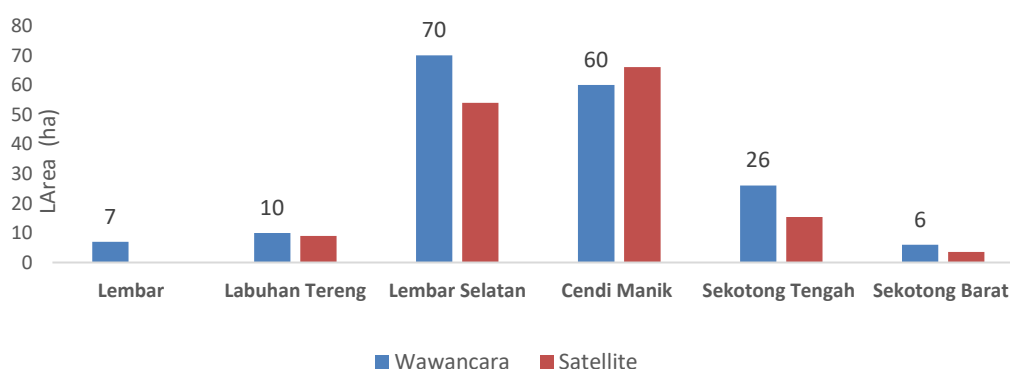


Figure 2. Mangrove area Based on Data Interview and Satellite Imagery

Agricultural resources in the coastal area are quite diverse, ranging from utilization for rice fields, dry fields/upland farms, plantations, home gardens,

and livestock. In this study, the exact area of each type of

utilization could not be determined, but their estimated values of use could be assessed, as presented in Table 3.

Table 3. Diversity Resources Used of Agriculture in Coastal

Name of Villages	Variety used				
	Ricefields	Dry fields	Garden	Yard	Farm breeder
Lembar	√√√	√√√	√√	√	√√
Labuhan Tereng	√√	√√	√	√	√√
Lembar Selatan	√	√	√	√	√√
Cendi Manik	√√	√√	√	√	√√
Sekotong Tengah	√	√	√	√	√
Sekotong Barat	√√	√√	√	√	√√

Note : √ very low used √√√√√ very high used

The most prominent agricultural resources in the coastal areas include dryland fields (ladang/tegalan), irrigated rice fields (sawah), gardens, and livestock farming. Tidal or floodplain farming systems are not present in these regions. Coastal rice fields generally offer planting opportunities two to three times per year due to relatively consistent water availability, in contrast to higher-altitude agricultural zones where planting is typically limited to once or twice annually. Yields from irrigated rice fields range from 3 to 5 tons per hectare, while yields from dryland fields average 1 to 2 tons per hectare.

The most commonly raised livestock in these coastal communities are cattle and goats. Goats are typically self-owned, while cattle are often raised through a shared-ownership system known locally as ngadas, in which residents raise cattle owned by others and share the profits equally. Farmers usually care for two to four cattle at a time, and under this arrangement (with a 1:1 share between owner and caretaker), the average calf production per farmer is one to two calves per year.

Marine-based activities include small-scale fishing, boat rental services, micro and small enterprises (MSMEs) operating in beach tourism areas, as well as the harvesting of crabs, shellfish,

and fish. Coastal livelihoods also involve salt farming and aquaculture (fish ponds). These upstream activities are often complemented by downstream processes such as the marketing of seafood products by women and the processing of marine products into shrimp paste (terasi), salted fish, and fish crackers.

Social and Institutional Aspects

The community possesses strong social capital, particularly in terms of participation in activities related to public interest. Residents are known to support one another during times of hardship or when facing collective challenges that require joint action (Nur Syamsi & Lee, 2021).

This social capital is evident in community-led efforts toward disaster mitigation and adaptation, including responses to tidal flooding (rob) and other hazards. For instance, in the villages of Lembar Selatan and Cendi Manik, residents have collectively built tidal flood barriers. In the case of Cemara, Lembar Selatan, a community-constructed embankment now stretches approximately 2 kilometers, with a height of 0.5 meters. The estimated construction cost, if monetized, ranges from IDR 700 million to 1 billion.

From an institutional perspective, the communities have formed various social groups based on sectoral and thematic needs. These include fisher groups, farmer groups, tourism awareness groups (Pokdarwis), and small enterprise groups. In

terms of disaster preparedness, the six villages have proactively responded by establishing mechanisms such as Desa Tangguh Bencana (Disaster Resilient Villages), Desa Proklam (Climate Change Program Villages), and SIBAT (Community-Based Disaster Preparedness Teams). These initiatives reflect a high level of community participation and collaboration, particularly in the protection and sustainable utilization of mangrove ecosystems (Cholid et al., 2015; Godoy & De Lacerda, 2015; Permata Sari et al., 2022).

Livelihoods and Income

The livelihoods of coastal residents are highly diverse, with fishing, farming, and livestock rearing being the most prominent occupations. Household members involved in income-generating

activities are not limited to men; women also contribute, particularly in specific roles within these sectors. In villages with fish and salt ponds, both fishers and farmers are often engaged in aquaculture and salt production activities.

In general, most residents do not rely on a single occupation. Depending on only one source of income is considered insufficient and risky in terms of food security and overall household resilience. Therefore, multiple livelihood strategies are common. For instance, a fisherman may also be a farmer; a fisher may raise livestock; a farmer may engage in mining activities in addition to animal husbandry, and so on. The following section presents an overview of the different types of livelihoods and estimated figures for each (see Table 4).

Table 4. Diversity of Livelihoods

Diversity of livelihoods	Description	Estimation of income (IDR)*
1. Farmer	Dryland farmers typically cultivate their land twice a year—once for rice and once for secondary crops and vegetables. Rice yields range from 1.5 to 2 tons per hectare and are primarily used for household consumption. On average, land ownership among these farmers is about 0.5 hectares.	2.100.000
	The harvested vegetables and secondary crops are partly consumed by the household and partly sold in local markets. Common secondary crops include soybeans and maize, while frequently grown vegetables consist of various types of legumes.	600.000
2. Animal husbandry	Most farmers raise livestock under a ngadas (profit-sharing) system, with each household typically managing 2 to 4 animals. Under this arrangement, the farmer raises livestock owned by another party and shares the profits equally. On average, one cow gives birth once per year. The market price of a calf aged between 6 to 12 months is approximately IDR 6 million per head.	6.000.000
3. Fishermen	Small-scale fishers generally operate within a maximum range of 2 kilometers from the coastline, using <i>ketinting</i> -type boats equipped with 5-horsepower engines. Their fishing activities involve both	4.800.000

Diversity of livelihoods	Description	Estimation of income (IDR)*
	<p>netting and line fishing. The average daily catch ranges from 3 to 5 kilograms, with a market value of approximately IDR 90,000 to 150,000 per day. On average, fishers go to sea around 20 days per month.</p> <p>Crab and shellfish harvesting is commonly conducted within mangrove areas. These activities take place almost daily, with crab harvesting typically carried out by men and shellfish gathering (mainly clams) by women. Daily earnings from these activities vary and are relatively modest, ranging from IDR 30,000 to 50,000. The effective number of harvesting days per month is estimated at around 20 days.</p>	4.800.000
4. Micro, small and medium enterprises	<p>Prominent economic activities in the coastal area include micro and small-scale businesses, particularly home-based kiosks or stalls located near residential areas and tourism sites. These businesses sell a variety of goods such as basic necessities, snacks, processed products, and food and beverages. On weekends (Saturdays and Sundays), sales volumes in tourism locations can increase by three to five times compared to regular weekdays. Daily earnings under normal conditions range from IDR 75,000 to 100,000, while on peak days income can reach up to IDR 300,000.</p> <p>Food processing enterprises are generally conducted at the household level, either individually or in small groups. Processed food products typically include traditional snacks and cakes. Production takes place almost daily, with an effective working period of about 25 days per month. The average daily income from these activities ranges from IDR 50,000 to 100,000.</p>	18.000.000
5. Pond	<p>Milkfish (<i>Chanos chanos</i>) and mud crab (<i>Scylla spp.</i>) aquaculture are managed by local communities, typically on small-scale plots measuring around 10 x 10 meters. Crabs are raised within the same pond area as the milkfish, using integrated polyculture systems. Land ownership varies; while some plots are owned by local residents, others are leased by farmers from outside landowners who reside outside the village.</p> <p>Milkfish (<i>Chanos chanos</i>) and mud crab (<i>Scylla spp.</i>) aquaculture are managed by local communities, typically on small-scale plots measuring around 10 x 10 meters. Crabs are raised within the same</p>	3.000.000
		6.000.000

Diversity of livelihoods	Description	Estimation of income (IDR)*
	pond area as the milkfish, using integrated polyculture systems. Land ownership varies; while some plots are owned by local residents, others are leased by farmers from outside landowners who reside outside the village.	
6. Wage laborer	Tourism-related services provide additional income opportunities for coastal residents, especially in villages with beach attractions. Community members are engaged in various roles, such as boat rentals, parking services, homestay management, tour guiding, and food stalls near tourist areas. These activities are often seasonal and most active on weekends and holidays. In addition, some residents work as agricultural laborers, construction workers, or skilled tradespeople. The average daily wage for such work is approximately IDR 80,000. However, employment opportunities in these sectors are limited, with an estimated average of 60 working days per year.	12.000.000 4.800.000
7. Village officials	Allowance 2 – 3 million/month .	
8. Others	Many individuals engage in informal or irregular employment, seizing any available work opportunities they are physically capable of performing. This type of livelihood often includes a mix of agricultural labor, construction work, and small-scale or artisanal mining. A significant portion of the community is involved in informal mining activities, where income is highly uncertain and dependent on chance, as earnings vary greatly from day to day and are not guaranteed.	6.000.000

Note: 1 US \$ = IDR 15,000

As previously explained, most residents do not rely on a single source of income; instead, they typically engage in multiple types of work throughout the year. This pattern is common not only in coastal areas but also in agricultural communities across Indonesia (Atpriani et al., 2018; Hilyana et al., 2022). The flexibility to engage in diverse livelihood activities is made possible by the availability of time. For example, fishers usually work at night and are

thus able to engage in farming or livestock-related activities during the day.

Similarly, farmers are usually busy only during the 3–6 month agricultural season, leaving the remainder of the year open for other income-generating activities, such as wage labor or service-based work. The following section presents an estimate of household income for farmers and fishers based on a combination of different livelihood activities (see Table 5).

Table 5. Estimation of Income Based on Diversity Livelihoods

Main job	Combination of livelihoods	Income (IDR)
1. Farmer	• Farmer – breeder	8.700.000
	• Farmer – breeder – wage laborer	13.500.000
	• Farmer–breeder–small mining	14.700.000
2. Fishermen	• Nelayan – Petani	12.300.000
	• Nelayan – Petani – Peternak	18.300.000
	• Nelayan – Tambang Emas	15.600.000

Sources: Primary Data is Analyzed

When adjusted to a per capita basis, and assuming an average household size of four members, the estimated daily income for farmers and fishers ranges from approximately IDR 5,958 to IDR 12,534 per capita. This amount is lower compared to the income of wetland farmers or forest farmers (Markum et al., 2025).

CONCLUSION

The socio-economic conditions of communities in coastal areas can be described as follows: residents possess relatively strong social capital, particularly in terms of mutual assistance in addressing personal, household, kinship, group, and community-related issues. These positive social values also play an important role in disaster contexts, especially for climate change mitigation and adaptation efforts.

Livelihood sources in coastal communities are diverse. Prominent activities include fishing, farming, livestock rearing, aquaculture, small and medium enterprises (SMEs), agricultural and carpentry services, and small-scale mining. In general, people do not depend on a single occupation. Instead, they engage in multiple livelihood strategies—for instance, a fisherman may also be a farmer, a farmer may raise livestock, and a livestock keeper may also work in mining.

Annual household income from these varied sources ranges from approximately IDR 8,700,000 to

15,600,000. When calculated on a per capita basis, assuming an average household size of four members, the estimated annual income for farmers and fishers ranges from about IDR 5,958 to 12,534 per capita.

As a recommendation, further research is needed on strategies to enhance the economic resilience of coastal communities in anticipation of climate change, particularly through the diversification of income sources from both marine and non-marine sectors.

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