

Empowering Coastal Fishermen Through the Sustainable Livelihood Framework: A Study of Marine Resource Management in Kenjeran, Surabaya

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ABSTRACT: This study analyzes the empowerment of fishermen in Kenjeran, Surabaya, through the *Sustainable Livelihood Framework* (SLF) approach. Although the area holds considerable potential in fisheries and marine tourism, fishermen continue to face major challenges, including limited human, physical, and financial capital, development pressures, and declining catches. This research employs a qualitative method with in-depth interviews, observation, and documentation. The informants consisted of fishermen leaders, village officials, community institutions, and related government agencies. The findings reveal that social capital in the form of community solidarity and natural capital in the form of marine resources remain available, yet their utilization is suboptimal due to limited access to markets, technology, and capital. Fishermen adopt adaptive strategies through livelihood diversification, such as seafood trading and marine tourism services. However, these strategies tend to be subsistence-based and are not fully integrated with institutional or policy support. The SLF approach provides a comprehensive understanding of fishermen's livelihood assets, vulnerability contexts, and adaptive strategies. The results highlight the need for skill enhancement, environmentally friendly technologies, stronger local institutions, and coastal ecosystem conservation. The main recommendation of this study is the importance of synergy among government, community, academia, and the private sector in participatory and sustainable marine resource management. Such synergy is expected to improve the welfare of Kenjeran fishermen while ensuring the sustainability of coastal ecosystems for future generations.

KEYWORDS: Empowerment; Fishermen; Sustainable Livelihood Framework; Kenjeran; Coastal

INTRODUCTION

Coastal communities are among the most vulnerable groups to social, economic, and environmental changes due to their high dependence on marine resources and limited access to capital and technology (Anisa et al., 2022). Traditional fishers face pressures from declining catch yields, rising operational costs, and coastal development policies that have not fully prioritized the welfare of local communities (Haryanto et al., 2021; Fitriani et al., 2020). These conditions are also evident in the coastal area of Kenjeran, Surabaya, which is one of the centers of traditional fisheries with economic activities based on capture fisheries and marine tourism (Prasetyo et al., 2021; Fitri et al., 2021; Wibowo et al., 2023). According to data from the Central Bureau of Statistics (BPS), the number of fishers in Surabaya City declined significantly from 2016 to 2021, although a slight increase was recorded in 2022 (BPS Kota Surabaya, 2023). This phenomenon highlights the importance of an in-depth analysis of the livelihoods of Kenjeran fishers through the Sustainable Livelihood Framework to understand their assets, strategies, and livelihood sustainability challenges (Chambers & Conway, 1991; Scoones, 1998). The following table presents the number of fishers in Surabaya City from 2016 to 2022.

Table 1. Number of Fishers in Surabaya City, 2016–2022

Year	Number of Fishers
2016	2266
2017	2066
2018	2045
2019	2033
2020	1976

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2021	1800
2022	1896

Source: Central Bureau of Statistics (BPS) Surabaya City, 2023

Table 1 shows a declining trend in the number of fishers in Surabaya City from 2016 to 2021, indicating a significant reduction in the fishing workforce over this period. The number of fishers decreased from 2,266 in 2016 to 1,800 in 2021, reflecting increasing pressures on traditional fishing livelihoods, such as declining fish stocks, rising operational costs, and limited economic alternatives. Although a slight increase was observed in 2022, with the number rising to 1,896 fishers, this recovery remains modest and does not fully offset the overall downward trend. These changes suggest growing vulnerability among coastal communities and underscore the importance of sustainable livelihood interventions to strengthen the resilience of traditional fishers in Surabaya.

The coastal area of Kenjeran in Surabaya City is one of the maritime regions with significant potential in capture fisheries and marine tourism, where the majority of residents work as traditional fishers (Prasetyo et al., 2021; Wibowo et al., 2023). However, this potential has not yet translated into optimal welfare, as fishers continue to face various constraints, including declining catch yields, limited technology, weak market access, and pressures from coastal development that give rise to competing interests (Adhitya, 2024; Riski, 2024). These conditions exacerbate the socio-economic vulnerability of fishing communities, which largely remain dependent on subsistence-based livelihood systems (Ferina, 2021; Yogatama, 2022). On the other hand, the emergence of livelihood diversification through seafood trading and marine tourism services indicates the presence of adaptive strategies, although these have not yet been sufficient to fully enhance livelihood sustainability (Anjani & Puspaningtyas, 2023; Natarajan et al., 2022). Therefore, the application of the Sustainable Livelihood Framework is essential to analyze livelihood assets, adaptive strategies, and empowerment opportunities for Kenjeran fishers in order to achieve community welfare and coastal ecosystem sustainability (DFID, 1999; Scoones, 1998).

Previous studies have shown that the Sustainable Livelihood Framework (SLF) is an effective approach for analyzing the livelihood strategies of coastal communities across various contexts, including fisheries and community-based tourism sectors (Fitri et al., 2021; Legatzke et al., 2024; Sidiq, 2020). Several studies emphasize the importance of strengthening the five key capitals—human, social, natural, physical, and financial—as the foundation for improving welfare and resilience in coastal communities (Kapembwa et al., 2021; Kry et al., 2020). Nevertheless, most existing research focuses on coastal areas outside East Java and has not sufficiently integrated institutional, social, and public policy dimensions in a comprehensive manner (Kunjuraman, 2023; Mazikana, 2023). In fact, urban coastal areas such as Kenjeran, Surabaya, face more complex challenges due to pressures from urbanization, coastal reclamation, and spatial planning changes that may undermine the sustainability of fishers' livelihoods (Sudarmadji, 2024; Taufiq & Azizah, 2020). Therefore, this study is crucial in providing an in-depth empirical analysis of livelihood asset conditions, adaptive strategies, and the formulation of empowerment policies for Kenjeran fishers through the application of the Sustainable Livelihood Framework (DFID, 1999; Scoones, 1998).

This study aims to analyze the livelihood asset conditions of Kenjeran fishers based on the five main components of the Sustainable Livelihood Framework, namely human, social, natural, physical, and financial capital (DFID, 1999; Scoones, 1998). This analysis is expected to identify factors influencing fishers' adaptive strategies in responding to economic and coastal environmental dynamics (Anjani & Puspaningtyas, 2023). In addition, the study highlights the role of local institutions and local government policy support in strengthening the capacity of coastal communities to achieve sustainable livelihoods (Fitri et al., 2021; Sidiq, 2020). Theoretically, this study contributes to the development of the literature on the application of the Sustainable Livelihood Framework in urban coastal areas, which remains relatively limited in Indonesia (Legatzke et al., 2024). Practically, the findings are expected to provide strategic recommendations for local governments, community organizations, and other stakeholders in designing more inclusive, participatory, and sustainable empowerment policies for Kenjeran fishers.

The novelty of this research lies in the application of the Sustainable Livelihood Framework to analyze fisher empowerment in an urban coastal area experiencing development pressures and economic transformation, such as Kenjeran, Surabaya. Most previous studies have focused on rural coastal areas or small islands, with limited attention to large urban coastal contexts characterized by high social and ecological complexity (Kunjuraman, 2023; Mazikana, 2023). This study addresses this gap by adopting an integrative approach that links livelihood asset conditions, local institutional dynamics, and fishers' adaptive strategies in response to environmental change livelihoods (Fitri et al., 2021; Sidiq, 2020). Furthermore, this study incorporates regional policy dimensions and community participation into the SLF analysis, aspects that have rarely been emphasized in previous coastal empowerment studies (Fitri et al., 2021). Through this approach, the research is expected to make a significant scholarly contribution to strengthening the understanding of sustainable livelihoods in urban coastal communities in Indonesia (Dewi et al., 2020; Legatzke et al., 2024).

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The socio-economic conditions of fishers in the coastal area of Kenjeran reflect the vulnerability commonly observed in urban coastal communities, where income levels, educational attainment, and ownership of productive assets remain relatively low (Ferina, 2021). Based on survey data from the Surabaya City Marine and Fisheries Office (2023), the average monthly income of Kenjeran fishers ranges from IDR 1,500,000 to IDR 2,500,000, which is significantly below the Surabaya City Minimum Wage (UMK) of IDR 4,725,479 in 2023. This condition is further exacerbated by household economic dependence on fishing activities that are highly influenced by seasonal patterns and weather conditions (Beygmoradi et al., 2021). In addition, most fishers do not own their own boats and work as fishing laborers, resulting in limited access to catch yields and economic returns (Fitri et al., 2021). Low educational levels also constrain their ability to access alternative employment opportunities or adopt more efficient fishing technologies (Kunjuraman, 2023; Legatzke et al., 2024). These conditions reinforce the argument that fisher empowerment should focus on enhancing human capacity and economic access through the Sustainable Livelihood Framework (DFID, 1999; Scoones, 1998).

The coastal area of Kenjeran faces considerable environmental pressure due to urbanization, coastal reclamation, and increasing marine pollution over the past decade (Sudarmadji, 2024). Coastal infrastructure development, including reclamation projects and beach tourism areas, has often reduced fishing grounds and limited community access to marine (Adhitya, 2024; Suryani & Mubarak, 2023). According to a report by the Surabaya City Environmental Agency (2023), marine water pollution levels in the waters of Kenjeran have increased, with concentrations of organic substances and solid waste exceeding environmental quality standards. In addition, abrasion and sedimentation phenomena have further degraded coastal ecosystems, resulting in declining marine biota populations and reduced fish catches (Fitria et al., 2024). These environmental pressures not only reduce fishers' economic productivity but also intensify the vulnerability context within the Sustainable Livelihood Framework, particularly with respect to natural and physical capital, which form the primary foundation of their livelihoods (DFID, 1999; Scoones, 1998). Therefore, empowerment efforts for Kenjeran fishers must incorporate ecological sustainability as an integral component of long-term livelihood strategies (Fitri et al., 2021; Sidiq, 2020).

In response to economic pressures and coastal environmental degradation, Kenjeran fishers have developed various adaptive strategies to sustain their livelihoods (Fitri et al., 2021). One commonly adopted strategy is economic diversification, whereby members of fishing households engage in non-fishing activities such as seafood trading, operating food stalls, or providing marine tourism services (Wibowo et al., 2023). This diversification serves as an important strategy to reduce dependence on declining fish catches caused by environmental changes (Ferina, 2021). Based on field data from the Surabaya City Marine and Fisheries Office (2023), approximately 42% of fishing households in Kenjeran have additional income-generating activities beyond fishing. However, most of these activities remain informal, low-income, and lack adequate institutional (Legatzke et al., 2024). From the perspective of the Sustainable Livelihood Framework, this condition indicates that fishers' livelihood strategies are more reactive than transformative, as they are not yet fully supported by strengthened human, social, and financial capital (DFID, 1999; Scoones, 1998). Therefore, capacity building, market access, and institutional support are critical elements for strengthening the long-term economic resilience of Kenjeran fishers (Prasetyo et al., 2021).

Local institutions and local government policies play a crucial role in strengthening the sustainability of coastal community livelihoods, including those of Kenjeran fishers (Kunjuraman, 2023). Over the past five years, the Surabaya City Government has implemented various empowerment programs, including skills training, fishing gear assistance, and the development of community-based marine tourism (Surabaya City Marine and Fisheries Office, 2023; Central Bureau of Statistics of Surabaya City, 2023). However, the effectiveness of these programs remains limited, as they have not been accompanied by adequate strengthening of fisher institutions and cross-sectoral coordination (Wibowo et al., 2023). Most fisher groups remain informal and lack strong organizational structures, thereby restricting access to assistance, capital, and market (Legatzke et al., 2024). This condition indicates that weaknesses in social and institutional capital directly affect the limited adaptive strategies available to fishers (Kunjuraman, 2023). Therefore, strengthening fisher institutions through the establishment of cooperatives, joint business groups, and integration into local policy systems represents a strategic step toward enhancing the socio-economic resilience of coastal communities (DFID, 1999; Scoones, 1998).

Based on the preceding discussion, it can be concluded that the challenges faced by Kenjeran fishers encompass interrelated economic, social, environmental, and institutional dimensions that significantly affect the sustainability of their livelihoods (Mazikana, 2023). Declining fisheries productivity, limited human capital, and weak institutional support hinder fishers' ability to escape cycles of economic vulnerability (Hsu & Peng Li-Pei, 2023). Furthermore, pressures from urbanization and coastal environmental degradation increase the risk of livelihood loss for communities dependent on marine resources (Adhitya, 2024; Sudarmadji, 2024). Therefore, this study focuses on analyzing fisher empowerment through the Sustainable Livelihood Framework to understand how the five livelihood capitals—human, social, natural, physical, and financial—interact in shaping adaptive strategies and opportunities for strengthening the capacity of coastal communities (DFID, 1999; Scoones, 1998). This approach is not only theoretically relevant for examining the complexity of fishers' livelihoods but also offers practical contributions to the formulation of equitable, participatory, and sustainable coastal development policies (Legatzke et al., 2024;

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Wibowo et al., 2023). Accordingly, the findings of this analysis are expected to serve as a foundation for developing more adaptive empowerment strategies for Kenjeran fishers in response to socio-economic and environmental changes, as well as a reference for future research on coastal resource management in Indonesia.

METHOD

This study employs a qualitative approach with a case study design to gain an in-depth understanding of the livelihood conditions of Kenjeran fishers based on the Sustainable Livelihood Framework (SLF) (Creswell & Creswell, 2018). The research site was purposively selected, as Kenjeran represents an urban coastal area facing pressures from urbanization, environmental degradation, and complex socio-economic dynamics (Wibowo et al., 2023). Research informants included boat-owning fishers, fishing laborers, seafood traders, marine tourism operators, community leaders, and local government representatives, who were selected through purposive sampling and snowball sampling techniques (Dewi et al., 2020). Primary data were collected through in-depth interviews, participant observation, and field documentation, while secondary data were obtained from reports of the Surabaya City Marine and Fisheries Office, publications from the Central Bureau of Statistics, and coastal policy documents (BPS Kota Surabaya, 2023). The research instrument consisted of a semi-structured interview guide developed based on the five livelihood capitals within the SLF—human, social, natural, physical, and financial capital—which serve as the foundation for mapping capacity, vulnerability, and livelihood dynamics (DFID, 1999; Scoones, 1998). In this context, the SLF was used to examine the relationships between the vulnerability context, asset ownership, transforming structures and processes, and the livelihood strategies developed by fishers in response to environmental and socio-economic changes. The stages and interrelationships among the research components are visualized in Figure 1 as the main conceptual framework guiding the overall analytical process.

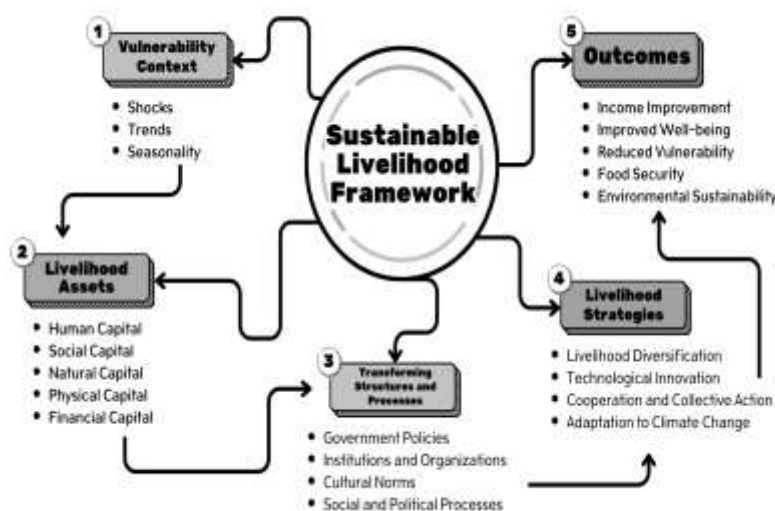


Figure 1. Visualization of Research Stages

Source: Processed and adapted by the authors based on DFID (1999) and Scoones (1998).

Data analysis was conducted using the interactive analysis model proposed by Miles, Huberman, and Saldaña (Miles et al., 2014), which consists of data reduction, data display, and conclusion drawing. All collected data were categorized according to the main components of the SLF to assess how fishers develop livelihood strategies—such as livelihood diversification, technological innovation, strengthening group cooperation, or adaptation to climate. The SLF framework was also applied to evaluate livelihood outcomes, including income improvement, vulnerability reduction, food security, and environmental sustainability. This approach enables a structured analysis of how interactions among livelihood assets and local policy frameworks shape the performance of fishers' livelihoods (Kunjuraman, 2023; Legatzke et al., 2024). Research validity and reliability were strengthened through source triangulation, method triangulation, and member checking to ensure the accuracy of data interpretation and consistency of findings (Creswell & Creswell, 2018). Thus, this methodological approach not only generates a comprehensive empirical understanding of the conditions of Kenjeran fishers but also provides a robust analytical foundation for formulating more adaptive and sustainable coastal empowerment policy recommendations.

RESULTS AND DISCUSSION

Kenjeran Coastal Area

The Kenjeran coastal area is one of the centers of traditional fisheries activities in Surabaya City, located along the eastern coast and directly bordering the Madura Strait. As an urban coastal area, Kenjeran faces complex socio-ecological dynamics, including population growth, marine tourism activities, coastal land-use conversion, and declining water quality. Data from the Central Bureau of Statistics (BPS) presented in this thesis indicate that the number of fishers in Surabaya experienced a significant decline from 2016 to 2021 before increasing again in 2022. This trend reflects structural pressures on the sustainability of fishers' livelihoods, including limited fishing grounds, changes in marine conditions, and spatial competition with non-fisheries sectors.

Beyond changes in the number of fishers, the social characteristics and human resource conditions of the Kenjeran sub-district community provide important insights into their livelihood capacity. Demographic data show that educational attainment is dominated by primary school (elementary) and senior secondary school graduates, with a considerable proportion of residents still classified as having no formal schooling. This condition is closely associated with limited access to information, low technological adaptability, and continued dependence on traditional fishing practices. On the other hand, social structures based on mutual cooperation (*gotong royong*), the presence of fisher groups, and seafood business actors constitute important social capital that supports community resilience. To illustrate the human capital of the Kenjeran community, the composition of residents' educational attainment is presented below. A comprehensive overview of the educational conditions of the Kenjeran coastal community is shown in Table 1.

Table 1. Educational Attainment of the Kenjeran Coastal Community, 2024

Educational Level	Number
No/Not Yet Attended School	1,915
Did Not Complete Primary School	222
Completed Primary School	1,184
Completed Junior Secondary School	740
Completed Senior Secondary School	2,413
Diploma I–III	106
Bachelor's Degree	825
Master's Degree	61
Doctoral Degree	7

Source: Processed by the author (2025)

Application of the Sustainable Livelihood Framework in Empowering Coastal Fishers of Kenjeran

Vulnerability Context

Shocks

Shocks are a major factor influencing the sustainability of Kenjeran fishers' livelihoods, encompassing extreme weather events, fluctuations in fish prices, fisheries policies, and coastal environmental degradation. Climate change has led to increasingly unpredictable high waves and strong winds, often forcing fishers to suspend fishing activities and resulting in income uncertainty as well as a higher risk of damage to fishing gear and boats. Economic pressure also arises from fish price volatility, whereby fishers are compelled to sell their catch at low prices while operational costs continue to rise. At the same time, government-imposed restrictions on fishing areas and fishing gear have generated concern among fishers, as these policies are not always accompanied by adequate alternative solutions. These conditions are further exacerbated by pollution and marine ecosystem degradation caused by industrial waste and marine debris, which reduce fish availability and directly affect catch yields. This situation is reinforced by a statement from the Head of Kenjeran Sub-district (2025):

“Extreme weather has indeed become one of the main constraints for fishers here. Restrictions on fishing areas also create concern. We are trying to provide alternative livelihood training for affected fishers.”

Changes in fisheries policies and regulations also constitute significant shocks for Kenjeran fishers, particularly restrictions on fishing grounds or bans on certain fishing gear that are often implemented without adequate transitional solutions. Meanwhile, pollution and ecosystem degradation resulting from industrial waste and plastic debris continue to reduce fish stocks, leading to declining catches. From the perspective of the Sustainable Livelihood Framework (SLF), these conditions test the resilience and adaptive capacity of fishers in maintaining their livelihoods. This is reflected in the statement of Mr. Hadi (2025):

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"Fish prices fluctuate, and middlemen often push prices too low... sometimes new policies prohibit certain fishing gear, but we are not immediately provided with solutions."

To clarify the various forms of shocks faced by Kenjeran fishers, a summary of the data is presented in Table 2.

Table 2. Shock Data

No.	Category of Shock	Impacts	Strategies	Data Source
1	Extreme Weather (Storms, High Waves, Strong Winds)	Fishers are unable to go to sea for extended periods, income declines, and the risk of damage to fishing gear and boats increases.	Reducing fishing frequency, seeking secondary jobs, joining fisher cooperatives.	Interviews with Kenjeran Fishers (Mr. Hadi, 2025)
2	Economic Crisis and Fish Price Fluctuations	Fish prices frequently drop sharply while operational costs remain high, making it difficult for fishers to cover production costs.	Selling fish through cooperatives or directly to consumers; livelihood diversification such as aquaculture.	Interviews with Fishers and the Head of Kenjeran Sub-district (2025)
3	Restrictions on Fishing Areas and Fishing Gear Regulations	Fishers lose access to productive fishing grounds and face difficulties adapting to new, costly fishing gear.	Attempting to comply with new regulations; seeking government assistance for fishing gear subsidies.	Interview with the Head of Kenjeran Sub-district (2025)
4	Pollution and Marine Ecosystem Degradation	Declining catches due to marine pollution from industrial waste and plastic debris.	Reducing dependence on capture fisheries; shifting to aquaculture or alternative livelihoods.	Field observations and interviews with fishers (2025)

Source: Processed by the author (2025).

These findings indicate the need for fisher empowerment through livelihood diversification, capacity building, and fisheries policies that are more responsive to field conditions.

Trends

Trends in the livelihoods of Kenjeran fishers indicate long-term changes that affect their economic sustainability, particularly through rising operational costs and increasingly stringent fisheries policies. Increases in fuel prices and fishing equipment costs have raised the overall cost of fishing activities, while fish prices remain unstable, resulting in declining profit margins. Small-scale fishers with limited access to subsidies or cooperatives are the most affected. In addition, the implementation of regulations such as fishing area restrictions and the designation of conservation zones under East Java Regional Regulation No. 1 of 2018 on the Coastal Zone and Small Islands Zoning Plan (RZWP3K) has further constrained the operational space of traditional fishers. This condition is reinforced by a statement from the Head of Kenjeran Sub-district (2025):

"Operational costs for fishing have continued to increase, especially due to rising fuel prices. Restrictions on fishing areas have also had a considerable impact. The implementation of the RZWP3K has resulted in several areas that were previously accessible to fishers now being designated as conservation or industrial zones."

The development of the tourism industry and urbanization in the Kenjeran coastal area also constitute long-term trends that affect fishers' access to and control over marine resources. The construction of tourism infrastructure and urban expansion have reduced boat mooring areas, increased marine pollution, and altered coastal land use that was previously dedicated to fishing activities. On the other hand, the tourism sector has created new opportunities for some fishers to shift toward marine tourism businesses or direct seafood sales to tourists. However, not all fishers are able to adapt due to limited skills and continued reliance on traditional fishing methods. These dynamics indicate that long-term trends present both opportunities and pressures, particularly for small-scale fishers facing economic instability and rapid environmental change. This perspective is supported by a statement from Ms. Zurotul Umah, Head of Neighborhood Unit (RT) 05 of Kejawan Lor (2025):

"Many fishers have started to change occupations because fishing has become increasingly difficult. Development and the expansion of tourism areas have caused some boat mooring areas to change their function. Some fishers try to engage in marine tourism businesses or sell to tourists, but not all can adapt immediately."

These statements underscore the need for more adaptive empowerment strategies to enable fishers to survive and capitalize on new economic opportunities amid the ongoing changes in the Kenjeran coastal area. A more detailed overview of the long-term trends affecting fishers' livelihoods is presented in Table 3.

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Table 3. Trends Data

No.	Trend Category	Impacts	Strategies	Data Source
1	Rising Operational Costs (increasing fuel prices, fishing gear, and boat maintenance)	Fishing costs increase, profit margins decline, and some fishers are forced to reduce fishing frequency or change occupations.	Seeking secondary employment, joining cooperatives, adopting more energy-efficient fishing gear.	Interview with the Head of Kenjeran Sub-district (2025)
2	Implementation of East Java Regional Regulation No. 1 of 2018 on RZWP3K (coastal zoning restricts traditional fishing areas)	Areas previously accessible to traditional fishers are now designated as conservation or industrial zones, limiting fishing space.	Negotiating with government authorities for broader access, seeking alternative fishing locations, optimizing fishing technologies appropriate to zoning regulations.	Interview with the Head of Kenjeran Sub-district (2025)
3	Tourism Industry Development and Urbanization (tourism infrastructure development and coastal land-use change)	Reduction of boat mooring areas, increased marine pollution, and loss of access to marine resources in areas now allocated for tourism.	Shifting to marine tourism businesses, selling seafood directly to tourists, seeking alternative mooring sites.	Interview with Zurotul Umah, Head of RT 05, Kejawen Lor (2025)
4	Fish Price Fluctuations (market instability, changing demand, dominance of middlemen)	Fishers often receive low selling prices despite high operational costs; middlemen continue to dominate the market, limiting fishers' bargaining power.	Selling directly to consumers or tourists, forming fisher groups to strengthen bargaining power, participating in digital seafood marketing programs.	Interview with Zurotul Umah, Head of RT 05, Kejawen Lor (2025)

Source: Processed by the author (2025).

Seasonality

Seasonal factors (seasonality) play an important role in determining the sustainability of the livelihoods of Kenjeran fishers because seasonal changes affect fish availability, sea conditions, and income stability. During the rainy season—particularly from December to March—strong winds and high waves often force fishers to stop going to sea, causing a decline in income and increasing dependence on loans from middlemen or cooperatives. Conversely, during the dry season, sea conditions are calmer and catches increase; however, fish prices actually decline due to the abundance of supply in the market. Seasonal fish migration patterns—such as the emergence of Spanish mackerel (tengiri) and pomfret (bawal) at the beginning of the rainy season, as well as scad (kembung) and squid in the middle of the dry season—add to uncertainty and complicate fishers' economic planning. This context demands flexible adaptation strategies so that fishers can survive during the lean season. This is emphasized by the Head of Kenjeran Village (2025):

“Seasonal factors truly constitute a major challenge for fishers. During the rainy season with strong winds, many are unable to go to sea, causing income uncertainty. We are making efforts to provide alternative livelihood training and encourage collaboration with fisher cooperatives.”

To face unpredictable seasonal pressures, many Kenjeran fishers have begun to develop various adaptation strategies, such as business diversification through salted fish production, seafood processing, and involvement in marine tourism activities. Zurotul Umah, Head of Neighborhood Unit (RT) 05 Kejawen Lor (2025), stated:

“The lean season is difficult. Sometimes my husband has to stop going to sea for weeks because of high waves. We are forced to rely on savings or loans; some of my neighbors have now started making salted fish and selling it themselves to survive.”

However, this diversification has not yet been fully able to cover the loss of income during bad weather because many fishers do not have alternative skills or adequate access to capital. A Kenjeran fisher (2025) added:

“During bad seasons, we have no other choice but to work odd jobs—sometimes as parking attendants, sometimes helping out at the fish market.”

These findings show that uncertainty due to seasonal factors remains a serious threat to the welfare of fishers, thus requiring more effective adaptation strategies and protective policies that are able to strengthen their economic resilience throughout the year. To understand the influence of seasonal factors on fishers' activities and income, the supporting data are presented in Table 4 below.

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Table 4. Seasonal Data (Seasonality)

No.	Aspect	Rainy Season	Dry Season	Impact
1	Weather Conditions	Strong winds, high waves, high rainfall	More stable weather, calmer waves	Accident risk increases during the rainy season, but fishing is safer during the dry season
2	Fish Availability	Spanish mackerel and pomfret are more abundant	Scad and squid are abundant	Changes in catch affect fishers' income
3	Fishing Activities	Often suspended due to bad weather	More optimal, more fishing days	Reduced fishing days in the rainy season cause economic uncertainty
4	Fish Prices in the Market	Higher due to limited supply	Tend to decrease due to abundant supply	Fishers' income remains unstable due to price fluctuations
5	Adaptation Strategies	Loans from middlemen, alternative jobs	Business diversification, seafood processing	Fishers seek survival strategies during bad seasons but remain dependent on weather conditions

Source: processed by the author (2025)

Livelihood Assets

Human Capital

Human capital is a key factor that determines the effectiveness of Kenjeran fishers in catching and managing marine resources, encompassing knowledge, skills, experience, and health conditions that directly affect their productivity. Most fishers acquire fishing skills through intergenerational transmission without adequate formal education or technical training, resulting in limited understanding of modern fisheries technology, marketing strategies, financial management, and marine regulations. The low level of education—dominated by graduates of basic education and even some who did not complete schooling—acts as a barrier to accessing information and participating in capacity development. On the other hand, training programs provided by the government and related institutions are still uneven and lack continuity, while health factors such as exposure to extreme weather, unbalanced diets, and limited access to health services further weaken fishers' work capacity. This condition indicates that improving human capital through better education, training, and health services is crucial so that fishers can adapt to environmental changes and utilize marine resources more sustainably. To provide a clearer picture of the educational conditions of the Kenjeran community, data on education levels are presented below as the main indicator of the quality of human capital.

Limited human capital constitutes a major challenge for Kenjeran fishers in improving their welfare, particularly due to low levels of education, minimal training, and limited access to health services. The Head of Kenjeran Village emphasized the importance of enhancing fishers' capacity by stating that:

"Many of our fishers still rely on traditional methods because their education level is low. We have tried to collaborate with relevant agencies to provide training, but not all fishers are able to access it."

This is in line with the account of Hadi, a local fisher, who revealed that low education levels are a major obstacle for them in keeping up with developments in fisheries technology:

"Since childhood we have been taught to go to sea by our parents; now we find it difficult to keep up with developments in fisheries technology."

In addition to education and training factors, health aspects are also an important part of human capital, as conveyed by Zurotul Umah, Head of Neighborhood Unit (RT) 05 Kejawan Lor:

"Fishing is heavy and risky work, but many do not pay attention to their health. Health facilities exist, but they are sometimes difficult to access due to limitations of cost and time."

These three statements illustrate that improving human capital through adequate education, training, and health services is essential so that fishers are able to improve their welfare and adapt to environmental and technological changes. To provide a more comprehensive picture of the condition of human capital among Kenjeran fishers, the complete data are presented in Table 5 below.

Table 5. Human Capital Data

No.	Aspect	Findings	Source of Information
1	Education Level	The majority of fishers have a low level of education, with many having only completed elementary school or not finishing formal education. This condition limits their understanding of modern fishing technologies and marketing strategies.	Education data of Kenjeran Sub-district; Interview with Hadi (fisher)

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No.	Aspect	Findings	Source of Information
2	Training and Capacity Development	Training programs are still limited and unevenly distributed. Some fishers have participated in government-provided training, but not all have access or opportunities to attend such programs.	Interview with the Head of Kenjeran Sub-district
3	Traditional Skills	Most fishers rely on hereditary fishing skills without adopting new technologies, resulting in persistently low productivity.	Interview with Hadi (fisher)
4	Fishers' Health	Fishers face high risks of fatigue, work-related accidents, and illnesses due to exposure to extreme weather conditions. Access to healthcare services remains limited, particularly in terms of costs and available facilities.	Interview with Zurotul Umah (Head of RT 05, Kejawan Lor)
5	Impact on Fishers' Economy	Limited education and skills make it difficult for fishers to increase income or seek alternative livelihoods when fish catches decline.	Interview with the Head of Kenjeran Sub-district; Education data of Kenjeran Sub-district

Source: Processed by the author (2025).

Social Capital

Social capital plays an important role in improving the welfare of Kenjeran fishers, Surabaya, through social networks, community relationships, and the existence of fisher groups that function as forums for communication, coordination, and capacity strengthening. Fisher groups or associations play a role in proposing government assistance, sharing information on sea conditions, and organizing training to improve skills, while fisheries cooperatives serve as important instruments in providing working capital, fishing facilities, and marketing of catches so that fishers can obtain better prices, although their management still faces constraints related to participation and financial management. In addition, the Kenjeran Urban Village Community Empowerment Institution (LPMK), chaired by Moh Yusuf, has a strategic role as a liaison between the community and the government in empowerment programs, including through the establishment of Tourism Awareness Groups (POKDARWIS) to encourage economic diversification through the development of fisheries-based marine tourism. These interventions aim to expand fishers' access to training, capital assistance, and alternative business opportunities, thereby better maintaining their economic resilience. Within the Sustainable Livelihood Framework (SLF), strengthening social capital is a crucial aspect that enhances fishers' adaptive capacity and resilience in facing various economic and environmental challenges.

Although the existence of fisher groups and cooperatives provides various benefits in improving the welfare of Kenjeran fishers, there are still several constraints such as low levels of active member participation and limited access to training and business assistance. To gain a deeper understanding of the role of social capital in fishers' lives, interviews were conducted with several stakeholders. The Head of Kenjeran Urban Village emphasized that:

"Social capital is one of the important aspects in the lives of fishers in Kenjeran... fisher groups and cooperatives play a major role in helping them access markets, obtain government assistance, and improve skills; however, the challenge lies in how these groups can become more active and better organized."

In line with this, the Chair of LPMK Kenjeran, Moh Yusuf, added that:

"LPMK seeks to encourage various initiatives such as the establishment of POKDARWIS to develop fisheries-based tourism, while at the same time expanding access to training and business assistance for fishers... by strengthening social capital, fishers will become more independent and better prepared to face increasingly dynamic economic challenges."

These findings indicate that social capital plays an important role in supporting fishers' access to markets, capital, training, and business diversification, although challenges related to member involvement and the equitable distribution of empowerment programs still need to be addressed in order to optimize their benefits. To provide a more systematic overview of these findings, Table 6 below presents a summary of the main aspects of social capital in the empowerment of Kenjeran fishers.

Table 6. Social Capital Data

No.	Aspect	Findings	Source of Information
1	Role of Fisher Groups	Fisher groups and cooperatives help fishers access markets, obtain government assistance, and improve skills. However, there are still constraints in organization and active member involvement.	Interview with the Head of Kenjeran Urban Village
2	Fisheries Cooperatives	The government provides support through training and access to capital for fisheries cooperatives, but not all fishers receive equal benefits.	Interview with the Head of Kenjeran Urban Village

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No.	Aspect	Findings	Source of Information
3	Tourism Awareness Groups (POKDARWIS)	The establishment of POKDARWIS aims to develop the fisheries-based tourism sector so that fishers do not rely solely on marine catches.	Interview with Moh Yusuf, Chair of LPMK
4	LPMK Initiatives in Fisher Empowerment	LPMK coordinates with various parties to ensure that fishers gain broader access to training and business assistance in order to enhance their independence and competitiveness.	Interview with Moh Yusuf, Chair of LPMK
5	Challenges in Strengthening Social Capital	Active involvement of fishers in groups and cooperatives remains the main constraint in optimizing the benefits of social capital.	Interview with the Head of Kenjeran Urban Village & Moh Yusuf, Chair of LPMK

Source: processed by the author (2025)

Natural Capital

Natural capital is a key factor determining the sustainability of fishers' livelihoods in Kenjeran, Surabaya, as water conditions, fish stocks, and coastal ecosystems directly affect catch productivity and community welfare. In recent years, the Kenjeran coastal area has experienced significant environmental degradation due to marine pollution originating from domestic and industrial waste. This pollution has reduced water quality, disrupted marine ecosystems, and led to a decline in fish catches. Coastal reclamation activities and shoreline abrasion have further increased sedimentation, damaged fish habitats, and forced fishers to travel farther offshore, resulting in higher operational costs. In addition, declining fish stocks have been exacerbated by unsustainable fishing practices, including the use of destructive fishing gear and competition with technologically advanced vessels, which increasingly marginalize traditional fishers. Seasonal factors also influence fish availability, causing sharp declines in catches during certain periods.

The government, together with fishing communities, has undertaken various conservation efforts through coastal zone management and the promotion of sustainable fishing practices. However, implementation remains constrained by low environmental awareness, limited monitoring, and insufficient enforcement against pollution and resource overexploitation. Therefore, more targeted and sustainable natural capital management strategies are required to ensure that marine resources can continue to support the livelihoods of Kenjeran fishers in the long term.

Natural capital challenges in Kenjeran represent a critical factor affecting the sustainability of fishers' livelihoods, particularly due to declining water quality caused by pollution, overexploitation of marine resources, coastal abrasion, and the increasingly severe depletion of fish stocks. The Head of Kenjeran Sub-district stated that:

"Marine pollution in Kenjeran waters has been increasing, mainly due to domestic and industrial waste. Fishers also need to be made more aware of the importance of protecting the environment to preserve marine ecosystems."

This condition is reinforced by the experience of a local fisher, Hadi, who explained:

"In the past, fish were abundant and easy to catch, but now it is becoming more difficult. The seawater is dirty, smells bad, and is full of plastic waste, so we often have to go farther offshore, even as far as Madura."

From a policy perspective, a representative of the Surabaya Marine and Fisheries Office emphasized that:

"Fish stocks in Kenjeran waters have declined significantly due to overexploitation and the use of environmentally unfriendly fishing gear."

Meanwhile, the Head of the Community Empowerment Institution (LPMK) highlighted community dynamics by stating:

"We try to educate fishers to be more environmentally aware, but due to difficult economic conditions, many still use traditional methods that are harmful in the long term."

These statements indicate that natural capital in Kenjeran faces serious challenges stemming from pollution, environmental change, economic pressure, and unsustainable fishing practices. Although both the government and local communities have undertaken various educational and coastal management initiatives, stronger support and more effective implementation are still needed. To provide a clearer overview, Table 7 presents key findings related to natural capital based on interviews and data analysis from this study.

Table 7. Natural Capital Data

No.	Aspect	Findings	Source of Information
1	Water Quality	Marine pollution caused by household and industrial waste has led to a decline in fish catches.	Interviews with fishers and the Head of Kenjeran Sub-district
2	Fish Stocks	A decline in fish catches over recent years due to overexploitation and	Interviews with fishers

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No.	Aspect	Findings	Source of Information
		changes in marine ecosystems.	
3	Impact of Coastal Abrasion	Coastal abrasion alters coastal ecosystems, reducing breeding grounds for fish and marine biota.	Interviews with fishers
4	Weather Changes	Climate change has resulted in extreme weather conditions that limit fishing activities during certain periods.	Interviews with fishers and the Head of Kenjeran Sub-district
5	Management Efforts	Some fishing communities have begun conservation efforts by planting mangroves to reduce abrasion impacts; however, government support remains limited.	Interviews with the Head of Kenjeran Sub-district and fishers

Source: Processed by the author (2025).

Physical Capital

Physical capital is a key determinant of fishers' productivity in Kenjeran Sub-district, Surabaya, particularly in relation to the availability of fishing vessels, fishing gear, and market access. Most fishers still rely on traditional wooden boats equipped with small engines, which limits their fishing range, compounded by the lack of modern fishing gear that constrains work efficiency. The Surabaya City Government has sought to address these challenges by providing assistance in the form of five boat engines, 16 fishing nets with 1.5-inch mesh sizes, and 23 fishing nets with 6-inch mesh sizes, aimed at improving fishers' productivity and income.

However, challenges also persist in the marketing aspect. The Bulak Fish Center and Kenjeran Fish Market have not yet been able to optimally support the distribution of marine products, while fish prices remain volatile and fishers continue to depend heavily on middlemen. The local government, through the Department of Food Security and Agriculture (DKPP) of Surabaya City, has also implemented marine aquaculture training programs as alternative livelihood options, particularly during lean seasons. Nevertheless, fishers still perceive a lack of support during emergency situations. In December 2024, several fishers reported the absence of assistance when extreme weather conditions forced them to stop fishing, highlighting the need for greater attention to basic needs such as fisher insurance schemes and fuel subsidies. With improved fisheries infrastructure and sustained government support, the long-term welfare sustainability of Kenjeran fishers is expected to be better secured.

In supporting fishing activities, the availability of physical capital such as boats, fishing gear, and marketing infrastructure plays a crucial role in determining the effectiveness of fishers' work in Kenjeran. Government assistance in the form of fishing gear and boat engines has indeed contributed to increased productivity; however, constraints remain, including high maintenance costs, limited access to modern technology, and unstable market access. The Head of the Community Empowerment Institution (LPMK) of Kenjeran Sub-district, Moh. Yusuf, emphasized that:

"The fishing gear and boat engines provided have helped increase catches, but there are still many challenges, such as high maintenance costs and limited access to more modern fisheries technology. We hope there will be sustainable programs to strengthen the economic conditions of fishers in Kenjeran."

This statement is reinforced by the Head of Kenjeran Sub-district, who stated that:

"The Surabaya City Government has provided various forms of assistance to fishers in Kenjeran, including fishing gear and aquaculture training programs. We continue to improve fisheries facilities so that fishers can gain better access to markets and modern technology. However, challenges remain, particularly regarding seafood distribution and price stability."

From the fishers' perspective, Hadi also acknowledged both the benefits and the constraints, stating:

"Previously, we had to go fishing with very limited equipment, which made catches unpredictable. After receiving assistance in the form of boat engines and new nets, our work became more efficient. However, fish prices in the market are still unstable, and sometimes we are forced to sell at low prices to middlemen because we have no other options. If the government could help provide fairer market access, our situation would certainly improve."

These accounts indicate that although physical capital assistance has been provided, challenges such as equipment maintenance, limited market access, and dependence on middlemen continue to hinder its optimal utilization. Therefore, strategic measures are required to strengthen the sustainability of fisheries infrastructure in Kenjeran. To provide a clearer overview, Table 8 presents a summary of findings related to the physical capital of Kenjeran fishers based on interviews and data analysis.

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Table 8. Physical Capital Data

No.	Aspect	Findings	Source of Information
1	Availability of Vessels and Fishing Gear	Most fishers in Kenjeran still use traditional wooden boats with low-powered engines. Assistance in the form of fishing nets and boat engines has been provided, but remains limited and unevenly distributed.	Interview with Hadi (Kenjeran Fisher)
2	Market and Catch Distribution	Kenjeran Fish Market and Bulak Fish Center serve as the main distribution hubs; however, many fishers still rely on middlemen due to limited direct access to buyers.	Interview with the Head of Kenjeran Sub-district
3	Supporting Infrastructure	Docking facilities and fish landing sites remain limited. Some fishers reported inadequate mooring spaces for their boats.	Interview with Moh. Yusuf (Head of LPMK Kenjeran)
4	Access to Technology	Limited adoption of modern fisheries technology has resulted in relatively low productivity. Training programs on technology use are still limited.	Interview with Hadi (Kenjeran Fisher)
5	Government Assistance	The government has provided assistance in the form of fishing gear and boat repairs; however, fishers still face constraints related to maintenance costs and access to subsidized fuel.	Interviews with Hadi (Kenjeran Fisher) and the Head of Kenjeran Sub-district
6	Main Constraints	Volatile fish prices and the lack of cold storage facilities make it difficult for fishers to stabilize their income.	Interviews with Hadi (Kenjeran Fisher) and the Head of Kenjeran Sub-district

Source: Processed by the author (2025).

Financial Capital

Financial capital plays a crucial role in supporting the fishing activities of fishers in Kenjeran, Surabaya, as access to adequate funding, savings, and working capital enables them to increase production capacity, repair equipment, and adopt new technologies. However, many fishers face significant barriers in accessing capital, particularly from formal financial institutions such as banks and cooperatives, due to the lack of collateral, low financial literacy, and complex administrative procedures. As a result, fishers tend to rely on informal financing sources such as moneylenders or middlemen, who offer quick access to capital but charge high interest rates, thereby exacerbating their economic burden.

The government has introduced several programs, including the Coastal Community Economic Empowerment Program (Pemberdayaan Ekonomi Masyarakat Pesisir—PEMP) and the Rural Fisheries Business Development Program (Pengembangan Usaha Mina Perdesaan—PUMP). Nevertheless, their implementation remains constrained by uneven distribution of assistance and limited long-term mentoring. Due to limited financial capital, fishers often struggle to repair fishing equipment, purchase fuel, and meet operational costs, resulting in unstable productivity and income. Addressing these challenges requires strategic measures such as simplifying credit procedures through low-interest, collateral-free loan schemes, strengthening fisher cooperatives as accessible financing institutions, and enhancing financial literacy so that fishers can manage their income more effectively. These efforts are expected to improve access to financial capital and contribute to sustainable productivity and welfare among Kenjeran fishers.

Access to financial capital is therefore a critical factor for the sustainability of fishers' livelihoods in Kenjeran; however, many fishers continue to face difficulties in obtaining loans or business capital to support their fishing activities. Although the government provides various assistance programs, limited administrative capacity and lack of information hinder fishers' access to formal financing, ultimately increasing their dependence on middlemen and worsening their economic conditions. The Head of Kenjeran Sub-district stated:

"There are many government assistance programs, such as business capital support and fuel subsidies for fishers. However, the main challenge is that many fishers still do not understand the administrative procedures required to access these programs. We continue to conduct outreach so that they do not rely solely on middlemen."

A similar concern was expressed by Hadi, a fisher from Kenjeran, who explained:

"We have difficulty obtaining capital from banks or cooperatives because the requirements are hard to meet, such as collateral or credit history. As a result, many fishers are forced to borrow from middlemen with high interest rates, so the catch is often already tied up before it reaches the market."

Meanwhile, the Head of the Community Empowerment Institution (LPMK) of Kenjeran Sub-district, Moh. Yusuf, noted:

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“There is a fisher cooperative in Kenjeran, but it has not yet functioned optimally in providing loans due to limited capital. We hope there will be greater support from the government or private sector so that fishers can access low-interest financing without overly burdensome requirements.”

Based on these interviews, it can be concluded that limited access to financial capital remains a major constraint for Kenjeran fishers, characterized by dependence on middlemen, limited cooperative capacity, and complex administrative procedures. Consequently, more effective interventions are required to expand access to financing. To provide a clearer overview, Table 9 summarizes the findings related to the financial capital of Kenjeran fishers based on interviews and data analysis.

Table 9. Financial Capital Data

No.	Aspect	Findings	Source of Information
1	Dependence on Middlemen	Many fishers borrow capital from middlemen due to the difficulty of meeting banking requirements.	Interview with Hadi (Kenjeran Fisher)
2	Government Assistance Programs Not Yet Optimal	Business capital assistance and fuel subsidies are available; however, many fishers do not fully understand the procedures required to access them.	Interview with the Head of Kenjeran Sub-district

Source: Processed by the author (2025).

Structures and Transformational Processes

Government Policies

The government plays a crucial role in supporting the sustainability of fishers' livelihoods in Kenjeran through various policies and programs aimed at improving fishers' welfare while maintaining the sustainability of marine resources. Support has been provided in the form of fisheries facilities and infrastructure assistance, such as boats, boat engines, and fishing nets distributed by the Surabaya City Marine and Fisheries Office (DKP) to fisher Joint Business Groups (Kelompok Usaha Bersama—KUB) as part of the 2023 musrenbang outcomes (Kominfo East Java, 2023). In addition, access to subsidized fuel (BBM) has been made available for small-scale fishers, although the application process remains constrained by lengthy bureaucratic procedures (Migas ESDM, 2023; Kontan Industry, 2023).

The government has also introduced the Fisher Insurance Premium Assistance Program (Bantuan Premi Asuransi Nelayan—BPAN) to protect fishers from occupational risks at sea. However, socialization and outreach remain limited, resulting in low participation rates (KemenPPPA, 2023). Another important regulation is Government Regulation No. 11 of 2023 on Measured Fishing (Penangkapan Ikan Terukur), which regulates fishing zones within Indonesia's Fisheries Management Areas (WPPNRI) to ensure sustainable fish stocks. Nevertheless, its implementation has been constrained by fishers' limited understanding of the regulation (BPK Regulation, 2023).

Beyond physical assistance and regulatory frameworks, the government also provides training programs on fish processing through the Surabaya City Food Security and Agriculture Office (DKPP), aiming to enhance skills and promote livelihood diversification, such as smoked fish and shredded fish production. However, these programs face challenges related to continuity, coverage, limited capital, and restricted market access. Therefore, stronger synergy among government institutions, fisher cooperatives, and financial institutions is required to ensure that empowerment policies and programs operate effectively and deliver tangible, long-term benefits for Kenjeran fishers.

The role of government policy is also reflected in fishers' lived experiences. Hadi, a fisher from Kenjeran, stated:

“The government has provided fishing gear and boats, which we really need. However, we still face difficulties accessing subsidized fuel. The lengthy bureaucracy makes it hard for many small-scale fishers to obtain the promised quota.”

Similarly, the Head of Kenjeran Sub-district, Mr. Yanto, explained:

“At the sub-district level, we fully support existing policies such as fishing gear assistance and training programs for fishers. However, the main issue remains the distribution of subsidized fuel, which is not yet fully smooth. We also hear complaints from fishers about difficulties in understanding the new measured fishing regulations.”

In addition, Yusuf, the Head of the Community Empowerment Institution (LPMK) of Kenjeran, emphasized implementation challenges:

“Although there are many government programs aimed at supporting fishers, implementation barriers remain significant. Many fishers cannot access subsidized fuel due to administrative issues, and they often perceive government policies as lacking transparency.”

From a technical agency perspective, Amalia Kurniawati, Head of the Fisheries Division at the Surabaya City Food Security and Agriculture Office, highlighted the need for policy coordination:

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“We recognize the importance of policy support in maintaining food security, particularly in the fisheries sector. Subsidized fuel programs and fishing gear assistance are intended to reduce the burden on fishers, but implementation on the ground requires stronger inter-agency coordination.”

Overall, while government policies have contributed positively to the livelihoods of Kenjeran fishers, persistent implementation challenges—such as bureaucratic complexity, limited access, and insufficient mentoring—require further attention to ensure that fisher welfare and livelihood sustainability can be achieved optimally.

Table 10. Government Policy Data

No.	Findings	Description	Source of Information
1	Fisheries Facilities and Infrastructure Assistance	The government provides fishing gear, boats, and boat engines to improve fishers’ productivity.	Hadi (Fisher)
2	Government Assistance Programs Not Yet Optimal	Business capital assistance and fuel subsidies are available, but many fishers do not fully understand the procedures required to access them.	Hadi (Fisher)
3	Difficulties in Accessing Subsidized Fuel	Fishers face barriers in accessing subsidized fuel due to lengthy bureaucracy and complex administrative processes.	Hadi (Fisher)
4	Inefficient Distribution of Subsidized Fuel	The distribution of subsidized fuel remains problematic, particularly for small-scale fishers.	Mr. Yanto (Head of Kenjeran Sub-district)
5	Difficulty Understanding Measured Fishing Regulations	Fishers experience difficulties understanding new measured fishing regulations due to limited information and lack of direct assistance.	Mr. Yanto (Head of Kenjeran Sub-district)
6	Challenges in Policy Implementation	Despite numerous programs, implementation is constrained by administrative barriers and limited transparency.	Yusuf (Head of LPMK Kenjeran)
7	Fisher Insurance Assistance (BPAN)	Although BPAN provides protection for fishers, many are unaware of how to access the program due to limited outreach.	Yusuf (Head of LPMK Kenjeran)
8	Need for Inter-agency Synergy	Better coordination among relevant agencies is required to ensure effective implementation of fuel subsidies and fishing gear assistance.	Amalia Kurniawati (Head of Fisheries Division, Surabaya City Food Security and Agriculture Office)
9	Need for Mentoring in Measured Fishing Regulations	Measured fishing regulations require stronger mentoring and assistance to ensure effective adoption by fishers.	Amalia Kurniawati (Head of Fisheries Division, Surabaya City Food Security and Agriculture Office)

Source: Processed by the author (2025).

Institutions and Organizations

Institutions and organizations play a critical role in supporting the sustainability of fishers’ livelihoods in Kenjeran, Surabaya, particularly through fisheries cooperatives that provide access to capital, affordable fishing gear, marketing networks, subsidized fuel, fisher insurance schemes, and training programs delivered by both government agencies and private institutions. However, fisher participation in these formal institutions remains constrained by a long-standing dependency on middlemen (tengkulak), who offer fast and flexible loans but impose high interest rates that ultimately worsen fishers’ economic vulnerability. In addition to cooperatives, financial institutions also contribute through low-interest financing schemes such as the People’s Business Credit (Kredit Usaha Rakyat—KUR) for the fisheries sector. Nevertheless, many fishers experience difficulties accessing these facilities due to strict administrative requirements, including legal business documentation, collateral, and credit history, compounded by limited financial literacy. As a result, fishers often revert to informal lending mechanisms. The effectiveness of institutional support therefore depends heavily on stronger synergy among government agencies, financial institutions, and fisheries cooperatives, particularly in simplifying procedures, strengthening mentoring, and intensifying outreach so that fishers can better understand and access available programs. Strengthening institutional and organizational roles is essential to promote more stable and sustainable livelihoods for Kenjeran fishers while reducing long-term dependence on harmful informal economic mechanisms.

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In practice, various institutions and organizations contribute to supporting fishers' livelihoods by facilitating access to resources, assistance, and business opportunities, ranging from fisheries cooperatives and financial institutions to community-based organizations that act as intermediaries between fishers and government or private-sector programs. However, their effectiveness remains challenged by administrative complexity, limited fisher engagement, and concerns regarding program sustainability. The Head of Kenjeran Sub-district stated:

"The sub-district government consistently tries to facilitate fishers' access to available assistance programs from the city and provincial governments. However, many fishers are not accustomed to formal administrative procedures, which creates obstacles during the application process."

This perspective aligns with the experience of Hadi, a fisher from Kenjeran, who explained:

"I once tried to apply for fishing equipment assistance, but the process was long and required membership in an official group. In the end, I continued to rely on middlemen because it was faster and less complicated."

Meanwhile, Moh. Yusuf, Head of the Kenjeran Community Empowerment Institution (LPMK), emphasized the importance of collective participation:

"We continuously encourage fishers to be more active in community activities and joint business groups. With better coordination, fishers can more easily access assistance and training that can improve their welfare."

These statements highlight that the main challenges lie in limited administrative literacy, continued reliance on informal channels, and the constrained capacity of formal institutions to reach all fishers, despite ongoing empowerment efforts.

Table 11. Institutional and Organizational Data

No.	Findings	Source of Information
1	Financial institutions such as banks and savings-and-loan cooperatives provide credit access for fishers, but strict administrative requirements limit fishers' ability to obtain loans.	Anis Pudji Astutik (Head of Kenjeran Sub-district)
2	Local fisher groups facilitate information sharing on fishing techniques and marketing strategies but remain weak in financial management and business sustainability.	Moh. Yusuf (Head of LPMK Kenjeran)
3	The government provides fishing gear and boats through specific programs; however, the distribution of assistance is uneven and does not always align with fishers' needs.	Hadi (Fisher)

Source: Processed by the author (2025).

Cultural Norm

Cultural norms within the fishing community of Kenjeran play a significant role in shaping livelihoods, work patterns, and survival strategies in response to economic and environmental changes. Long-standing traditions—such as profit-sharing systems, the use of traditional fishing gear, and mutual cooperation (gotong royong)—remain deeply rooted and serve as the foundation of social solidarity among fishers. The value of mutual cooperation is reflected in practices such as jointly repairing boats, sharing information about fishing grounds, and providing financial assistance to fellow fishers facing hardship. In addition, social norms that create hierarchical relationships within the community—where boat owners exert considerable influence over fishing decisions—shape dependent labor relations and often determine the adoption of technology and fishing strategies. Trust in natural signs, including lunar phases, wind direction, and sea currents, continues to guide decisions on when to go fishing, despite the increasing availability of modern technology. From an economic perspective, some fishers still prefer borrowing from middlemen because these arrangements are perceived as more flexible and trust-based than formal financial institutions. Overall, these cultural norms function as a double-edged sword: they strengthen social cohesion on the one hand, while potentially constraining modernization and the adoption of innovations that could improve fishers' welfare on the other. Therefore, empowerment strategies must take local cultural values into account and actively involve community leaders as agents of change so that innovation can be accepted without undermining the social identity deeply embedded within the Kenjeran fishing community.

Within the Kenjeran fishing community, cultural norms strongly influence work patterns, social interactions, and responses to economic and environmental change. Traditions of mutual cooperation, information sharing, and reliance on natural indicators remain integral to daily life, reinforcing social solidarity while enabling fishers to support one another in various situations. The Head of the Kenjeran Community Empowerment Institution (LPMK), Moh. Yusuf, explained:

"Here, fishers still help one another. If someone's boat is damaged or they need capital to go fishing, friends or family usually step in. This has been a long-standing practice."

This view aligns with the experience of Hadi, a fisher from Kenjeran, who emphasized the strong culture of information sharing:

"We often share information about fishing grounds. When someone gets a good catch, they usually inform others. It's not about competition, but helping each other so everyone can earn a living."

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However, certain cultural norms also pose challenges to fisheries modernization, as noted by the Head of Kenjeran Sub-district, Anis Pudji Astutik:

“Many fishers still rely more on natural signs than on technology. Introducing new technology can be difficult when they depend heavily on traditional methods. Nevertheless, we continue to provide understanding so they can become more adaptive without losing their cultural values.”

These perspectives demonstrate that cultural norms are a key factor influencing fishers’ adaptive capacity, functioning both as a source of strength that reinforces solidarity and as a constraint on innovation adoption.

Table 12. Cultural Norms Data

No.	Cultural Norm Aspect	Findings	Source of Information
1	Mutual cooperation and social solidarity	Fishers assist one another in boat repairs, share information on fishing locations, and support families facing economic hardship.	Anis Pudji Astutik (Head of Kenjeran Sub-district)
2	Reliance on natural indicators	Fishers continue to depend on wind changes, sea currents, and bird movements as indicators of fish availability, despite the availability of modern technology.	Hadi (Kenjeran Fisher)
3	Cultural influence on technology adoption	Some fishers are reluctant to adopt modern fishing gear or new methods, preferring traditional practices passed down through generations.	Moh. Yusuf (Head of LPMK)
4	Role of women in household economy	Women participate in fish processing and fish marketing activities, although their involvement is still largely perceived as part of domestic responsibilities.	Anis Pudji Astutik (Head of Kenjeran Sub-district)
5	Occupational regeneration	Younger generations tend to be reluctant to continue the fishing profession due to limited economic prospects, although they remain involved in fisheries-related activities.	Hadi (Kenjeran Fisher)

Source: Processed by the author (2025).

Social and Political Processes

The dynamics of relationships between fishers and various stakeholders—such as government authorities, capital owners, and related institutions—strongly influence the sustainability of fishers’ livelihoods in Kenjeran. Fishers frequently face challenges in accessing policies that effectively support their interests, particularly with regard to fisheries regulations, marine zoning, and access to capital assistance. Although the local government has implemented various policies, including the provision of fishing gear and access to capital through fisheries cooperatives, their implementation has not fully reached all fishers, especially those who continue to use traditional methods and are not affiliated with formal groups. Moreover, fishers’ dependence on capital owners or middlemen to cover operational costs—such as fuel and boat maintenance—forces them to sell their catches at prices determined by these financiers, thereby limiting their ability to obtain fair market value. Local political dynamics further shape these conditions; while fisher groups are sometimes involved in policy discussions on marine resource management, not all aspirations are adequately represented, particularly those of small-scale fishers with limited access to political networks. Institutions such as the Community Empowerment Institution (LPMK) and fisheries cooperatives have the potential to act as intermediaries between fishers and policymakers; however, their effectiveness largely depends on their capacity to advocate for fishers’ interests at more strategic decision-making levels.

Within these social and political dynamics, the relationships among fishers, government agencies, and capital owners play a crucial role in determining welfare outcomes and the sustainability of fisheries-based livelihoods in Kenjeran. Government policies often face implementation challenges, ranging from unequal distribution of assistance and limited access to capital to insufficient fisher involvement in decision-making processes. At the same time, fishers continue to experience constraints such as dependence on financiers and limited information regarding available empowerment programs. Amalia Kurniawati, Head of the Fisheries Division at the Surabaya Food Security and Agriculture Agency (DKPP), emphasized the government’s commitment by stating:

“We have provided various forms of assistance, ranging from fishing gear to access to capital through cooperatives. However, there are still challenges in ensuring equitable distribution, particularly for small-scale fishers who are not yet affiliated with groups or cooperatives.”

Similarly, the Head of Kenjeran Sub-district, Anis Pudji Astutik, highlighted the importance of two-way communication:

“We always strive to bridge fishers’ needs with relevant stakeholders. Assistance programs are already in place, but active participation from fishers is necessary to optimize their utilization.”

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From the fishers' perspective, Hadi explained that access to assistance and policies remains problematic:

"We often do not know how to access assistance or join cooperatives. Many of us still depend on capital owners or middlemen for operational costs."

In addition, Moh. Yusuf, Head of the Kenjeran LPMK, emphasized the need to enhance fisher participation in policy forums:

"Fishers need to be more active in voicing their needs. We at LPMK are ready to assist with advocacy, but fishers must also be more proactive in seizing available opportunities."

Overall, these perspectives indicate a persistent gap between policy design and on-the-ground implementation. Therefore, stronger synergy among government agencies, empowerment institutions, and fishers is required to achieve more equitable and sustainable fisheries governance.

Table 13. Social and Political Processes Data

No.	Aspect	Description	Source of Information
1	Fishers–Government Relations	Fishers feel insufficiently involved in the formulation of fisheries and marine resource management policies. Socialization of assistance programs remains suboptimal.	Amalia Kurniawati (Head of Fisheries Division, DKPP Surabaya), Head of Kenjeran Sub-district
2	Access to Assistance and Capital	Programs providing boats and fishing gear exist, but distribution is uneven. Some fishers remain dependent on capital owners due to difficulties accessing formal financial institutions.	Moh. Yusuf (Head of LPMK Kenjeran)
3	Role of Capital Owners	Small-scale fishers are often bound to capital owners who provide loans under profit-sharing schemes perceived as burdensome, reinforcing economic dependence on middlemen.	Hadi (Kenjeran Fisher)
4	Participation Organizations	Fisheries cooperatives and joint business groups (KUBs) are expected to strengthen fishers' bargaining positions; however, participation remains limited, with many preferring informal financial mechanisms.	Moh. Yusuf (Head of LPMK Kenjeran)
5	Fisheries Regulations and Policies	Implementation of policies related to fishing zones and fisheries and resource management continues to face challenges in the field, particularly in monitoring and enforcement.	Amalia Kurniawati (Head of Fisheries Division, DKPP Surabaya), Head of Kenjeran Sub-district

Source: Processed by the author (2025).

Livelihood Strategies

Diversification

Diversification constitutes a key strategy for enhancing the sustainability of fishers' livelihoods in Kenjeran amid environmental change, fluctuating catch yields, and economic pressures. This strategy is manifested through various supplementary activities, including brackish-water aquaculture using traditional polyculture systems—such as milkfish (*Chanos chanos*), whiteleg shrimp (*Litopenaeus vannamei*), and tiger shrimp (*Penaeus monodon*). However, only a small proportion of fishers are able to engage in aquaculture due to limited access to capital, production inputs, and technical knowledge. In addition, livelihood diversification has developed through value-added processing of marine products, such as fish crackers, shredded fish, and other processed seafood products. These activities are largely undertaken as home-based enterprises by fishers' wives, contributing to household income resilience. Nevertheless, marketing practices remain predominantly conventional, relying on direct sales and informal networks, which significantly constrain market reach and revenue potential.

To enhance business capacity and competitiveness, these small-scale processors require targeted assistance and training in digital marketing. The utilization of online marketplaces, social media, and e-commerce platforms has strong potential to expand market access at national and even international levels, provided that such initiatives are supported by strengthened human capital, basic business management training, and improved access to technology and logistics. If implemented sustainably, diversification through seafood processing could become a critical pillar for strengthening the economic resilience of coastal households in Kenjeran.

In several parts of the Kenjeran coastal area, emerging opportunities related to ecotourism and marine educational tourism have also begun to develop, drawing on the unique cultural practices of fishing communities and coastal ecosystems as key attractions. Activities such as boat-based tourism and mangrove education programs offer alternative income sources beyond

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capture fisheries. This form of diversification has the potential to enhance household economic resilience, reduce vulnerability to seasonal risks, and support the sustainability of marine resources. However, its successful implementation requires structured support in the form of skills training, access to capital, and partnerships with tourism stakeholders, micro and small enterprises, and educational institutions.

Amalia Kurniawati, Head of the Fisheries Division at the Surabaya Food Security and Agriculture Agency (DKPP), emphasized the importance of strengthening downstream activities:

“One form of assistance we continue to promote is seafood processing. Products such as fish crackers and shredded fish from Kenjeran have strong market potential; the key challenge lies in strengthening marketing strategies, including through digital platforms.”

Similarly, the Head of Kenjeran Sub-district, Anis Pudji Astutik, highlighted the role of fisher households, particularly women, in livelihood diversification:

“We see that fisher women in Kenjeran are quite active in home-based enterprises such as producing fish crackers and seafood snacks. However, they need marketing training and support to be able to enter online markets.”

From the fishers’ perspective, Hadi explained the constraints faced at the household level

“So far, I sell fish crackers directly from home. I have regular customers, but if I could sell them online, maybe more people would buy them. I just don’t know how to do it yet.”

In addition, Moh. Yusuf, Head of the Kenjeran LPMK, stressed the importance of facilitation and market access:

“People here are actually very creative. The main problem is marketing. If there were training in digital marketing and product distribution, I believe our processed seafood products could compete more effectively.”

These statements indicate that diversification through seafood processing and digital marketing represents a promising opportunity for improving fishers’ livelihoods. However, constraints related to technology access, capital availability, and capacity-building underscore the need for stronger inter-agency collaboration to promote sustainable improvements in fishers’ welfare.

Table 14. Livelihood Diversification Data

No.	Diversification Aspect	Findings	Source of Information
1	Fisheries Aquaculture	Aquaculture is conducted using traditional polyculture systems (milkfish, whiteleg shrimp, tiger shrimp). Only a small number of fishers engage in aquaculture due to capital constraints.	Amalia Kurniawati (DKPP), Hadi (Fisher)
2	Seafood Processing	Fish crackers and other processed seafood products are produced using conventional methods. The main constraint is limited marketing, largely restricted to direct home-based sales.	Moh. Yusuf (Head of LPMK), Hadi (Fisher)
3	Online-Based Marketing	The potential of online marketing has not been fully utilized. If adopted, products could reach national markets or even be exported.	Anis Pudji Astutik (Head of Kenjeran Sub-district), Moh. Yusuf (Head of LPMK)
4	Government Assistance	Programs providing equipment and capital assistance exist; however, access remains limited for fishers who are not members of formal groups or cooperatives.	Amalia Kurniawati (DKPP), Anis Pudji Astutik
5	Role of Institutions	LPMK and fisheries cooperatives can support fishers in accessing new livelihood opportunities and policy advocacy; however, fisher participation remains relatively low.	Moh. Yusuf (Head of LPMK), Anis Pudji Astutik

Source: Processed by the author (2025).

Technological Innovation

Technological innovation represents an important strategy for enhancing the sustainability of fishers’ livelihoods in Kenjeran, particularly through the adoption of environmentally friendly fishing technologies and the utilization of digital tools for marketing marine products. In terms of fishing gear, many fishers continue to rely on traditional equipment such as gill nets and hand lines, which are relatively inefficient and limit catch productivity. More selective and eco-friendly technologies—such as mini purse seines and environmentally friendly fish traps—are considered capable of increasing catch efficiency while minimizing damage to marine ecosystems. However, the adoption of such technologies remains constrained by high investment costs, limited access to information, insufficient technical assistance, and the fact that many fishers are not formally organized within cooperatives or

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fishing groups, thereby restricting their access to government-supported technological assistance. Moreover, dependence on capital owners or middlemen further limits fishers' autonomy in choosing fishing methods, as they are often required to align with market demands imposed by financiers.

At the same time, the utilization of digital technology remains low, both in the marketing of fresh catches and in the sale of processed seafood products such as fish crackers, shrimp paste, and shredded fish. These products are still predominantly marketed through conventional channels, relying on regular customers and word-of-mouth networks. Low levels of digital literacy, limited training in online marketing, and the absence of continuous mentoring have prevented fishers and home-based entrepreneurs from utilizing digital platforms such as online marketplaces and social media. In fact, digitalization holds significant potential to expand market access, increase product value, and support a more inclusive and sustainable economic transformation for fishing households in Kenjeran.

In responding to contemporary challenges and structural limitations, technological innovation and digitalization are increasingly recognized as strategic instruments for strengthening fishers' livelihoods. Amalia Kurniawati, Head of the Fisheries Division at the Surabaya Food Security and Agriculture Agency (DKPP), emphasized ongoing government efforts to promote technological adoption, while acknowledging existing barriers:

"We have introduced several more efficient and environmentally friendly fishing technologies, but the main constraints lie in the high initial investment costs and fishers' limited skills in operating the equipment."

Similarly, the Head of Kenjeran Sub-district, Anis Pudji Astutik, highlighted digital literacy as a major challenge:

"Many fishers are still unfamiliar with using digital platforms for marketing seafood products. This is a shared challenge that must be addressed so that they are not left behind."

From the perspective of fishers, Hadi explained his difficulties in adopting digital marketing practices:

"I have never sold products online. I usually rely on buyers who come directly to my house. If I were taught and assisted, perhaps my market could be wider."

In addition, Moh. Yusuf, Head of the Kenjeran LPMK, stressed the importance of more intensive mentoring to ensure that the benefits of digitalization can be realized by fishing communities:

"Our fishers have great potential, but they need guidance to be able to use technology effectively. We are ready to collaborate with government agencies or other institutions if training programs are provided."

Taken together, these perspectives indicate that while technological innovation and digitalization offer substantial opportunities to strengthen fishers' economic resilience, their success is highly dependent on inclusive access, capacity-building initiatives, and sustained technical assistance.

Table 15. Technological Innovation Data

No.	Strategic Aspect	Findings	Source of Information
1	Fishing Technology	The introduction of efficient and environmentally friendly fishing gear remains limited due to high costs and limited technical skills among fishers.	Amalia Kurniawati (DKPP Surabaya)
2	Technological Literacy	Low levels of digital literacy among fishers hinder access to information and online marketing opportunities.	Anis Pudji Astutik (Head of Kenjeran Sub-district)
3	Digital Access	Market Seafood sales still rely on direct buyers; no integrated online marketing system has been established.	Hadi (Fisher, Kenjeran)
4	Need Assistance	for Training and continuous mentoring are required to support technology adoption and digital marketing practices.	Moh. Yusuf (Head of LPMK Kenjeran)

Source: Processed by the author (2025).

Cooperation and Collective Action

Cooperation through institutional arrangements such as fishers' cooperatives and the role of the Kelurahan Community Empowerment Institution (Lembaga Pemberdayaan Masyarakat Kelurahan / LPMK) represents a crucial strategy for addressing the socio-economic challenges faced by fishers in Kenjeran. In principle, fishers' cooperatives have significant potential to provide access to financing, collective procurement of fishing gear, and fairer distribution channels. However, this potential has not been fully realized, as many fishers have limited understanding of the benefits of cooperative membership or remain reluctant to join due to past experiences with poor governance and a perceived lack of transparency. As a result, dependence on middlemen persists, weakening fishers' bargaining position in the market.

At the local level, the LPMK plays an important intermediary role by linking fishers' needs with government institutions and external stakeholders through the facilitation of fisher forums, advocacy for the distribution of assistance, and coordination of

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empowerment programs. Despite these efforts, the effectiveness of the LPMK is constrained by limited institutional resources and low levels of active participation among fishers. Strengthening synergy between fishers' cooperatives and the LPMK is therefore essential to create a more sustainable livelihood ecosystem, enhance fishers' capacities, reduce dependency on middlemen, strengthen bargaining power, and open opportunities for cross-sector collaboration. Such synergy is expected to support the development of a strong, community-based, and self-reliant model of fisher empowerment in Kenjeran.

Perspectives from key stakeholders further illustrate the dynamics of cooperation and institutional strengthening in supporting sustainable livelihoods in Kenjeran. Amalia Kurniawati, Head of the Fisheries Division at the Surabaya Food Security and Agriculture Agency (DKPP), emphasized the importance of cooperative development, stating:

"We encourage the establishment and strengthening of fishers' cooperatives so that they have a legal platform to access assistance, financing, and markets. However, the main challenge lies in building trust and active participation among fishers themselves."

Similarly, the Head of Kenjeran Sub-district, Anis Pudji Astutik, highlighted the need for close collaboration by noting:

"Our role is to act as a facilitator so that cooperatives or fisher groups can connect with government programs. However, if fishers remain passive or unwilling to engage, it becomes difficult to achieve meaningful outcomes."

From the fishers' perspective, Hadi expressed skepticism toward cooperative participation:

"I know that there is a cooperative, but I have never joined because I do not really understand how it works. Many of my peers are also hesitant because they are not convinced that it will truly help them."

Meanwhile, Moh. Yusuf, Head of the Kenjeran LPMK, stressed the importance of community involvement, stating:

"We are ready to assist fishers in forming stronger groups or cooperatives. However, active participation from the fishing community is essential. Without their involvement, empowerment programs will remain only on paper."

These viewpoints indicate that while cooperation and collective action offer substantial potential to strengthen fishers' livelihoods, their effectiveness depends heavily on trust-building, transparent governance, and sustained engagement between institutions and fishing communities.

Table 16. Cooperation and Collective Action Data

No.	Strategic Aspect	Findings	Source of Information
1	Role of Fishers' Cooperatives	Cooperatives play a role in distributing assistance and providing access to capital; however, not all fishers are members, limiting their reach.	Amalia Kurniawati (DKPP Surabaya)
2	Government Facilitation	The sub-district government is prepared to facilitate the formation and strengthening of cooperatives or joint business groups at the local level.	Anis Pudji Astutik (Head of Kenjeran Sub-district)
3	Fisher Solidarity	Cooperation among fishers is important for sharing information and strengthening bargaining power, but lack of trust remains a key barrier.	Hadi (Fisher, Kenjeran)
4	Advocacy and Institutional Support	The LPMK is ready to assist fishers in forming cooperatives and to act as a communication bridge between fishers and relevant government agencies.	Moh. Yusuf (Head of LPMK Kenjeran)

Source: Processed by the author (2025).

Climate Change Adaptation

Climate change adaptation has become a crucial strategy for fishers in Kenjeran Sub-district to sustain their livelihoods, particularly as extreme weather events such as strong winds, high waves, and increasingly unpredictable seasonal patterns directly affect fishing time and fishing grounds. In addition to these short-term disruptions, long-term threats such as sea-level rise pose serious risks to coastal areas, aquaculture ponds, and infrastructure supporting fisheries activities. In response to these challenges, some fishers have begun to diversify their livelihoods by engaging in milkfish (*Chanos chanos*) and shrimp aquaculture in brackish-water ponds using polyculture systems. However, not all fishers are able to adopt this strategy due to limited access to land and capital.

Another adaptive strategy observed is the development of small-scale seafood processing activities, such as producing fish and shrimp crackers, which serve as alternative income sources during periods when fishing activities are constrained by adverse weather conditions. Despite its potential, this activity remains largely traditional, home-based, and small-scale, with production processes that rely on simple technology and marketing channels that are still predominantly conventional. Moreover, access to formal training on climate change adaptation and disaster risk mitigation remains limited, with most information obtained informally. This condition highlights the need for a more proactive role from government agencies and supporting institutions in providing education, technical assistance, and facilitation to enhance fishers' preparedness for future environmental risks.

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With appropriate adaptive strategies, fishers in Kenjeran have the opportunity to become more resilient to the impacts of climate change while simultaneously maintaining the sustainability of marine resources that underpin their livelihoods. This is reflected in the perspectives of key informants, which demonstrate how livelihood diversification—particularly through seafood processing—has been gradually adopted by the community. Amalia Kurniawati, Head of the Fisheries Division at the Surabaya Food Security and Agriculture Agency (DKPP), stated:

“We have conducted several training programs on fishery product processing, such as fish crackers and shredded fish. However, the main challenge lies in ensuring that fishers and their families can continuously develop and market these products independently.”

Similarly, the Head of Kenjeran Sub-district, Anis Pudji Astutik, emphasized the strong potential of household-based enterprises but noted persistent marketing constraints:

“Many fishers’ wives are skilled at producing fish crackers, but sales are still limited to neighbors or by-order arrangements. We hope that digital marketing training can help them reach wider markets.”

From the fishers’ perspective, Hadi described how his household copes during periods when fishing is not possible:

“When I cannot go fishing, my wife usually makes fish crackers. But they are only sold to nearby shops. If there were support for online marketing, it could help improve our household economy.”

Meanwhile, Moh. Yusuf, Head of the Kenjeran LPMK, highlighted the importance of long-term assistance:

“The community has started to become more creative, especially fishers’ wives. However, they need continuous mentoring; a single training session is not sufficient. We at the LPMK are ready to facilitate if there are sustainable programs.”

Overall, these perspectives indicate that livelihood diversification through seafood processing has begun to take shape as an adaptive response to climate change. However, its sustainability is highly dependent on continued support in the form of training, technology adoption, and more modern marketing strategies.

Table 17. Climate Change Adaptation Data

No.	Aspect	Findings	Source of Information
1	Climate Change Impacts	Fishers experience unpredictable seasonal patterns and extreme weather conditions that affect fishing yields.	Hadi (Fisher, Kenjeran)
2	Adaptation Strategies	Livelihood diversification through fish cracker production to cope with reduced catches during adverse weather.	Hadi (Fisher, Kenjeran)
3	Constraints	Marketing access remains conventional (customers come directly to households), with limited technology and capital for business expansion.	Hadi (Fisher, Kenjeran)
4	Institutional Support	Government agencies (DKPP), LPMK, and the Sub-district government provide support through MSME training, product development, and digital marketing facilitation, although coverage remains uneven.	Amalia Kurniawati (DKPP), Moh. Yusuf (LPMK), Anis Pudji Astutik (Head of Kenjeran Sub-district)

Source: Processed by the author (2025).

Outcomes

Income Improvement

Income improvement is one of the primary indicators for assessing the effectiveness of livelihood strategies among fishers in Kenjeran Sub-district. The research findings indicate that livelihood diversification has become the most dominant factor contributing to increased household income, particularly through the processing of marine products such as fish crackers, shredded fish (abon ikan), and other value-added seafood products. These activities provide a relatively stable supplementary source of income, especially during periods when fishing activities are constrained by adverse weather conditions or seasonal downturns.

Amalia Kurniawati, Head of the Fisheries Division at the Surabaya Food Security and Agriculture Agency (DKPP), emphasized that training programs on seafood processing and the provision of production equipment have strengthened the economic capacity of fishers’ households, stating:

“Training on seafood processing and the provision of production equipment from DKPP have helped fishers increase their output.”

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Similarly, Moh. Yusuf, Head of the Kenjeran LPMK, highlighted the potential of digital marketing in expanding income opportunities for fishers and home-based entrepreneurs:

“The digitalization of marketing for processed seafood products is considered capable of opening broader income opportunities.”

From the fishers’ perspective, Hadi explained that the fish cracker business run by his wife has become a crucial livelihood buffer when fishing yields decline:

“When I cannot go fishing, my wife usually makes fish crackers from fish. If there were support for online sales, it could help improve our household economy.”

Overall, the increase in fishers’ income in Kenjeran is closely linked to livelihood diversification, institutional support through training and production assistance, and emerging market opportunities facilitated by digitalization. These findings demonstrate that income improvement is not solely dependent on capture fisheries but increasingly supported by adaptive and diversified livelihood strategies.

Table 18. Income Improvement Data

No.	Aspect	Findings	Source of Information
1	Livelihood Diversification	Home-based fish cracker production has been developed by fishers’ households as an alternative source of income.	Anis Pudji Astutik (Head of Kenjeran Sub-district)
2	Technological Innovation	Training on seafood processing and the provision of production equipment from DKPP help fishers increase output.	Amalia Kurniawati (Head of Fisheries Division, DKPP)
3	Traditional Aquaculture	Milkfish and shrimp farming serve as alternative livelihoods when capture fisheries decline, although capital constraints remain.	Hadi (Fisher, Kenjeran)
4	Digital Marketing	The digitalization of marketing for processed seafood products is perceived to expand income opportunities.	Moh. Yusuf (Head of LPMK Kenjeran)

Source: Processed by the author (2025).

Improved Well-being

Improved well-being among fishers is not solely measured by increased income, but also by household economic stability, the ability to meet basic needs, and access to social and economic services. The implementation of empowerment strategies through livelihood diversification, institutional strengthening, and government facilitation has been shown to contribute positively to the overall well-being of fishing communities in Kenjeran.

Amalia Kurniawati emphasized that a more structured empowerment approach, particularly through the application of the Sustainable Livelihood Framework (SLF), can generate long-term impacts on fishers’ welfare, stating:

“If there is a more comprehensive framework such as the SLF, the empowerment process can be more targeted and generate long-term impacts on fishers’ well-being.”

Similarly, the Head of Kenjeran Sub-district, Anis Pudji Astutik, observed that fishing communities have demonstrated local initiative, but require stronger facilitation to ensure that welfare improvements are distributed more evenly:

“If facilitation is provided through a structured approach, I am confident that their well-being will improve.”

From the perspective of fishers, Hadi explained that alternative livelihood activities, such as processed fish products, serve as an important economic buffer for households, although they remain constrained by limited capital and marketing support:

“Having additional activities such as fish processing helps increase income, but we still need capital and marketing assistance.”

Overall, the improvement in fishers’ well-being in Kenjeran emerges from the interaction of economic, social, and institutional factors that mutually reinforce one another. These findings indicate that well-being outcomes are closely linked to sustainable livelihood strategies that go beyond income generation and encompass broader dimensions of social resilience and institutional support.

Table 19. Improved Well-being Data

No.	Aspect	Findings	Source of Information
1	Economic Stability	Fishers involved in livelihood diversification activities (such as seafood processing) experience more stable income over time.	Moh. Yusuf (Head of LPMK Kenjeran)
2	Access	to Access to capital assistance remains limited for small-scale fishers,	Amalia Kurniawati (DKPP)

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No.	Aspect	Findings	Source of Information
	Business Capital	although cooperatives are considered a potential mechanism for improving well-being.	Surabaya)
3	Reduced Dependency	Through institutional strengthening and facilitation, fishers can reduce their dependency on middlemen.	Anis Pudji Astutik (Head of Kenjeran Sub-district)
4	Expectations toward SLF	The application of the SLF is expected to improve sustainable business management and generate direct impacts on fishers' well-being.	Hadi (Fisher, Kenjeran)

Source: Processed by the author (2025).

Reduced Vulnerability

Fishers' vulnerability to extreme weather events, unpredictable fishing seasons, and fluctuations in fish prices represents one of the main challenges to sustainable livelihoods in Kenjeran. Efforts to reduce vulnerability are pursued through livelihood diversification, skills enhancement, and the strengthening of fishers' collective capacity. The findings indicate that fishing households with alternative income-generating activities tend to experience greater economic stability when income from fishing declines.

Hadi described this vulnerability by stating:

"When I cannot go fishing, the crackers are only sold to nearby shops."

This statement reflects how seafood processing activities function as an adaptive strategy when fishing activities are disrupted by environmental or seasonal constraints.

Government support also plays a significant role in reducing vulnerability. Amalia Kurniawati emphasized that training programs and the formation of joint business groups are essential to strengthening fishers' economic resilience, noting:

"DKPP provides livelihood diversification training and encourages fishers to establish joint business groups."

In addition, the role of local institutions such as the LPMK is crucial in bridging fishers with empowerment programs, as highlighted by Moh. Yusuf:

"LPMK helps strengthen business networks and facilitates fishers' access to assistance and training."

Overall, vulnerability reduction strategies in Kenjeran involve an integrated combination of livelihood diversification, capacity building, and institutional collaboration. These strategies enhance fishers' adaptive capacity and reduce their exposure to economic and environmental risks, thereby supporting more resilient and sustainable livelihoods.

Table 20. Reduced Vulnerability Data

No.	Aspect	Findings	Source of Information
1	Economic Resilience	Fishers have begun seeking alternative income sources, such as seafood processing and informal sector activities, to reduce dependence on fishing income.	Hadi (Fisher, Kenjeran)
2	Government Role	The government, through DKPP, provides livelihood diversification training and encourages fishers to form joint business groups.	Amalia Kurniawati (DKPP Surabaya)
3	Role of Local Institutions	LPMK and cooperatives help strengthen business networks and facilitate fishers' access to assistance and training programs.	Moh. Yusuf (Head of LPMK Kenjeran)
4	Sub-district Support	The sub-district administration promotes collaboration among stakeholders and facilitates access to empowerment program information for small-scale fishers.	Anis Pudji Astutik (Head of Kenjeran Sub-district)

Source: Processed by the author (2025).

Food Security

Food security in the coastal community of Kenjeran is highly dependent on the sustainability of fisheries resources and the ability of fishers to maintain continuity of production. Capture fisheries and seafood processing play a crucial role in providing affordable protein-based food sources for local communities. Livelihood diversification through seafood processing not only increases economic value but also extends the shelf life of fish products, thereby contributing to greater supply stability and food availability.

Local government efforts to promote sustainable fishing practices are considered essential to maintaining long-term food security. As stated by Amalia Kurniawati:

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“We continuously encourage environmentally friendly fishing practices to ensure the sustained availability of fish resources.”

Similarly, Anis Pudji Astutik emphasized the importance of community awareness in preserving marine ecosystems to support food sustainability. The integration of capture fisheries, processed seafood products, and environmentally responsible practices enables the Kenjeran community to maintain food security despite challenges posed by seasonal variability and extreme weather conditions.

Overall, the findings indicate that food security in Kenjeran is strengthened through a combination of sustainable resource management, diversification of fisheries-based food products, and institutional support, which together enhance resilience against environmental and economic uncertainties.

Table 21. Food Security Data

No.	Aspect	Findings	Source of Information
1	Fish Availability	Capture fisheries and aquaculture activities help maintain fish supply in coastal areas, although production remains seasonal.	Amalia Kurniawati (DKPP Surabaya)
2	Distribution Management	Seafood products from Kenjeran are not only consumed locally but also distributed to markets outside Surabaya.	Anis Pudji Astutik (Head of Kenjeran Sub-district)
3	Supply Stability	Unpredictable weather conditions limit fishing activities and affect fishers' ability to ensure stable supply.	Hadi (Fisher, Kenjeran)
4	Institutional Role	Institutions such as LPMK and cooperatives support collective fishing activities that contribute to sustainable food supply.	Moh. Yusuf (Head of LPMK Kenjeran)

Source: Processed by the author (2025).

Environmental Sustainability

Environmental sustainability constitutes a critical standard for preserving marine resources that serve as the primary livelihood base for fishers in Kenjeran. The findings indicate that a growing number of fishers have begun to recognize the importance of using environmentally friendly fishing gear and maintaining coastal ecosystems. Through the Department of Food Security and Agriculture (DKPP), the government has conducted education and outreach programs promoting selective fishing gear that minimizes damage to seabed habitats.

As explained by Amalia Kurniawati:

“We continuously promote environmentally friendly fishing practices to maintain ecosystem balance.”

At the local level, Anis Pudji Astutik emphasized the role of community participation in maintaining coastal cleanliness to support long-term environmental sustainability. However, economic pressures still compel some fishers to employ less sustainable fishing methods in order to secure short-term income. This condition highlights the need for stronger institutional support, continuous training, and sustained mentoring to foster environmentally responsible behavior among fishers.

Overall, environmental sustainability in Kenjeran depends on the integration of ecological awareness, supportive policies, and community-based institutions. Such an approach is essential to ensure that environmental protection progresses in parallel with improvements in fishers' economic welfare, thereby reinforcing sustainable livelihoods over the long term.

Table 22. Environmental Sustainability Data

No.	Aspect	Findings	Source of Information
1	Importance Conservation	of Preserving marine ecosystems is considered part of fishers' long-term strategy to prevent resource depletion.	Hadi (Fisher, Kenjeran)
2	Policy Support	The government provides education and awareness programs on sustainable marine ecosystem management.	Amalia Kurniawati (DKPP Surabaya)
3	Role of Local Institutions	LPMK and the sub-district administration encourage environmentally friendly fishing practices, including the use of selective fishing gear.	Anis Pudji Astutik (Head of Kenjeran Sub-district), Moh. Yusuf (Head of LPMK Kenjeran)

Source: Processed by the author (2025).

CONCLUSIONS

Based on the findings of this study on fisher empowerment in Kenjeran Sub-district using the Sustainable Livelihood Framework (SLF), it can be concluded that strengthening the five core livelihood capitals—human, natural, physical, financial, and social—has a significant influence on enhancing the capacity and economic resilience of coastal communities. Although the SLF has not been formally implemented as an integrated policy framework, various livelihood-oriented interventions—such as livelihood diversification, training in fishery product processing, improved access to financial resources, and institutional support—have demonstrated tangible contributions to increased income, economic stability, and household welfare among fishers. The findings further indicate that alternative livelihood strategies play a crucial role in reducing vulnerability to seasonal uncertainty, extreme weather events, and price fluctuations, thereby providing a strong foundation for the development of more adaptive and sustainable livelihoods.

Furthermore, this study highlights that environmental sustainability and food security are two interrelated and mutually reinforcing components in building ecosystem-based coastal livelihoods. The growing environmental awareness among fishers, combined with educational interventions and policy support from local government, presents a positive prospect for more responsible and sustainable marine resource management. Looking forward, stronger synergy among government institutions, local organizations such as LPMK and cooperatives, and the active participation of fishing communities is a key prerequisite for the more systematic and effective implementation of the SLF. In this regard, the SLF offers a relevant and strategic framework for strengthening the socio-economic resilience of fishers in Kenjeran while simultaneously safeguarding the sustainability of coastal and marine ecosystems in the long term.

REFERENCES

- 1) Adhitya, T. E. (2024). *Bermasalah Dengan Nelayan, Proyek Kawasan Pesisir Kenjeran Jadi Gunjingan di DPRD Surabaya*. Inews Surabaya. <https://surabaya.inews.id/read/466838/bermasalah-dengan-nelayan-proyek-kawasan-pesisir-kenjeran-jadi-gunjingan-di-dprd-surabaya>
- 2) Anisa, Murti, I., & Rahmandanik, D. (2022). Strategi Pengembangan Fasilitas Wisata Pantai Kenjeran Lama Dalam Meningkatkan Kepuasan Masyarakat. *Junral Penelitian Administrasi Publik*, 2(4).
- 3) Beygmoradi, A., Homaei, A., Hemmati, R., Arco, J. Del, & Fernández-Lucas, J. (2021). Identification of a novel tailor-made chitinase from white shrimp *Fenneropenaeus merguensis*. *Colloids and Surfaces B: Biointerfaces*, 203(April). <https://doi.org/10.1016/j.colsurfb.2021.111747>
- 4) BPS Kota Surabaya. (2023). *Kecamatan Kenjeran Dalam Angka 2023* (A. Rosyadi (ed.)). BPS Kota Surabaya.
- 5) Chambers, R., & Conway, G. R. (1991). Sustainable rural livelihoods: practical concepts for the 21st century. *IDS Discussion Paper*, 296(September).
- 6) Creswell, J. W., & Creswell, J. D. (2018). Research Design Qualitative, Quantitative, And Mixed Methods Approaches. In H. Salmon (Ed.), *Writing Center Talk over Time* (Fifth Edot). SAGE Publications, Inc. <https://doi.org/10.4324/9780429469237-3>
- 7) Dewi, M. R., Nurfani, H. D., Aisyah Borneo, A. N., & Arung, R. (2020). Analisis Peran Stakeholder Dalam Pengembangan Agropolitan Kabupaten Kutai Kartanegara. *SPECTA Journal of Technology*, 4(1), 35–40. <https://doi.org/10.35718/specta.v4i1.156>
- 8) DFID. (1999). Sustainable livelihoods guidance sheets, section 2.1. Department for International Development (DFID). *Departement for International Development*, 2.2. <http://www.livelihoodscentre.org/documents/20720/100145/Sustainable+livelihoods+guidance+sheets/8f35b59f-8207-43fc-8b99-df75d3000e86>
- 9) Ferina, N. N. D. A. (2021). Strategi Adaptasi Nelayan di Kenjeran, Kecamatan Sukolilo, Kota Surabaya, Provinsi Jawa Timur dalam Menghadapi Ekologinya. *Jurnal Indonesia Sosial Teknologi*, 2(1).
- 10) Fitri, Z., Sugihardjo, & Wibowo, A. (2021). Penghidupan Berkelanjutan Rukun Nelayan Tanggulangin Kecamatan Klirong Kabupaten Kebumen. *La'ot Ilmu Kelautan*, 3(2), 54–69.
- 11) Fitria, A. D., Khetri, A. C., Salwa, F., Haridani, H., Manik, H. F., Khairani, K., Dasopang, L. M., Lestari, N., Rahmawati, N., Sagala, S. S., & Arika, R. (2024). Perilaku Dan Sikap Karakteristik Serta Ekonomi Masyarakat Pesisir di Dusun XIV Desa Percut. *El-Mujtama: Jurnal Pengabdian Masyarakat*, 4(2), 953–963. <https://doi.org/10.47467/elmujtama.v4i2.4542>
- 12) Hsu, K., & Peng Li-Pei. (2023). Understanding vulnerability and sustainable livelihood factors from coastal residents in Taiwan. *Marine Policy*, 155. <https://doi.org/https://doi.org/10.1016/j.marpol.2023.105793>
- 13) Kapembwa, S., Gardiner, A., & Pétursson, J. G. (2021). Small-scale fishing: Income, vulnerability and livelihood strategies at Lake Itzhi-Tezhi, Zambia. *Development Southern Africa*, 38(3), 331–352. <https://doi.org/10.1080/0376835X.2020.1746636>
- 14) Kry, S., Sasaki, N., Datta, A., Abe, I., Ken, S., & Tsusaka, T. W. (2020). Assessment of the changing levels of livelihood

Empowering Coastal Fishermen Through the Sustainable Livelihood Framework: A Study of Marine Resource Management in Kenjeran, Surabaya

- assets in the Kampong Phluk community with implications for community-based ecotourism. *Tourism Management Perspectives*, 34(October 2018), 100664. <https://doi.org/10.1016/j.tmp.2020.100664>
- 15) Kunjuraman, V. (2023). A revised sustainable livelihood framework for community-based tourism projects in developing countries. *Current Issues in Tourism*, 26(4), 540–546. <https://doi.org/10.1080/13683500.2022.2116563>
 - 16) Legatzke, H., Current, D., & LaPan, C. (2024). Applying the Sustainable Livelihoods Framework to Examine the Efficacy of Community-Based Tourism at Equitably Promoting Local Livelihood Opportunities. *Tourism Planning and Development*, 1–21. <https://doi.org/10.1080/21568316.2024.2391509>
 - 17) Mazikana, A. T. (2023). The relevance of the Sustainable Livelihoods Framework as a tool for facilitating rural development in Zimbabwe. *AT-TAWASSUTH: Jurnal Ekonomi Islam*, VIII(I), 1–19.
 - 18) Miles, Huberman, Michael, A., & Saldana, J. (2014). Qualitative Data Analysis: A Methods Sourcebook and The Coding Manual for Qualitative Researchers. *Technical Communication Quarterly*, 24(1). <https://doi.org/10.1080/10572252.2015.975966>
 - 19) Natarajan, N., Newsham, A., Rigg, J., & Suhardiman, D. (2022). A sustainable livelihoods framework for the 21st century. *World Development*, 155, 105898. <https://doi.org/10.1016/j.worlddev.2022.105898>
 - 20) Prasetyo, M. A., Musta'in, M., & Ikhwan, H. (2021). Pemberdayaan Potensi Wisata Pantai Kenjeran Surabaya. *Jurnal Teknik ITS*, 9(2), 2–7. <https://doi.org/10.12962/j23373539.v9i2.57116>
 - 21) Riski, P. (2024). *Ancaman Reklamasi Pesisir Surabaya Bagi Nelayan dan Lingkungan*. VOA Indonesia. <https://www.voaindonesia.com/a/ancaman-reklamasi-pesisir-surabaya-bagi-nelayan-dan-lingkungan/7800621.html>
 - 22) Scoones, I. (1998). Sustainable rural livelihoods: a framework for analysis. *IDS Working Paper*, 72(January 1998), 22. http://forum.ctv.gu.se/learnloop/resources/files/3902/scoones_1998_wp721.pdf
 - 23) Shafa Jihan Anjani, & Anggraeny Puspaningtyas. (2023). Dampak Kondisi Lingkungan Pesisir Terhadap Sosial Ekonomi Penduduk Kenjeran Surabaya. *Eksekusi : Jurnal Ilmu Hukum Dan Administrasi Negara*, 2(1), 01–14. <https://doi.org/10.55606/eksekusi.v2i1.725>
 - 24) Sidiq, R. S. S. (2020). Strategy Coastal Community Panglima Raja Village in Sustainability of Life. *Sosiohumaniora*, 22(3), 281. <https://doi.org/10.24198/sosiohumaniora.v22i3.27728>
 - 25) Subianto, A., Mashoed, Subagio, H., & Yunus, M. H. (2017). *Buku Kerja Sama Antar Daerah* (A. Subianto, Mashoed, H. Subagio, & H. Yunus, M (eds.); Cetakan Pe). Brilliant PT. Menuju Insan Cemerlang Landmark Modern ShopHouse A-17 Jl.Indragini 12-18 Surabaya.
 - 26) Sudarmadji. (2024). *Proyek SWL di Pesisir Kenjeran Tidak Mendapat Persetujuan Nelayan*. Surabaya Suara Merdeka. <https://surabaya.suaramerdeka.com/surabaya/106113202009/proyek-swl-di-pesisir-kenjeran-tidak-mendapat-persetujuan-nelayan>
 - 27) Suryani, A., & Mubarak, A. (2023). Analisis Aspek Keberlanjutan Lingkungan Berbasis Konservasi Warisan Alam dan Pengelolaan Sumber Daya pada Objek Wisata Pantai Penyu Nagari Ampiang Parak Kabupaten Pesisir Selatan. *Jurnal Manajemen Dan Ilmu Administrasi Publik (JMIAP)*, 5(1), 97–104. <https://doi.org/10.24036/jmiap.v5i1.610>
 - 28) Taufiq, A., & Azizah, S. (2020). Kebijakan Pengembangan Wisata Pantai Kenjeran Surabaya Dan Konflik Nelayan. *Jurnal Analisa Sosiologi*, 9(2), 567–582. <https://doi.org/10.20961/jas.v9i2.40072>
 - 29) Wibowo, M. S., Paninggiran, H. N. K., & Heptanti, U. (2023). *Peningkatan Sumber Daya Manusia Kelompok Sadar Wisata Dalam Pengelolaan Pantai Indah Kemangi Kabupaten Kendal*. 4(2), 158–168. <https://doi.org/10.36276/jap.v4i2.458>
 - 30) Yogatama, A. N. (2022). BAGAIMANA PERAN SUMBER DAYA MANUSIA DALAM PENGEMBANGAN SEKTOR PARIWISATA? STUDI PADA PARIWISATA PANTAI DI KABUPATEN BLITAR. *Journal of Global Business and Management Review*, 4(1). <https://doi.org/10.37253/jgbmr.v4i1.6766>



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