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# Adaptive Strategy and Integration of Income Sources in The Financial Management of Fishermen's Households in Lanrisang Village, Regency Pinrang Faces Season Uncertainty

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ABSTRACT

Seasonal uncertainty poses significant challenges to fishing households by disrupting fishing activities and creating instability in household income. In response, fishing communities may rely on local resources and alternative economic activities to maintain their livelihoods. This study aimed to examine the adaptive strategies and financial management practices of fishing households in Sumpang Saddang in responding to seasonal uncertainty. A qualitative approach with a case study design was employed. Data were collected through observation, unstructured interviews, literature review, and documentation. The study involved 11 informants, consisting of the Head of the Sumpang Saddang Neighbourhood and 10 heads of fishing households selected based on their ability to represent the conditions of local fishing communities. The findings revealed that fishing households adopted active and flexible adaptive strategies through business diversification and the utilisation of local resources, particularly fishponds, agriculture, and other economic activities. Household financial management involved combining income from fishing activities with earnings from alternative businesses to meet household needs when income from the sea was uncertain. Furthermore, the integration of fisheries and agrarian activities, including fishing, fish farming, agriculture, and other businesses, formed a local resource-based economic buffer system. This study highlights the importance of livelihood diversification and integrated resource utilisation in strengthening the economic resilience of fishing households. These findings provide practical insights for developing community-based livelihood programmes and local policies that support income stability and household resilience amid seasonal uncertainty.

## 1. Introduction

Climate change has become a major global concern because of its environmental, social, and economic consequences, particularly for communities whose livelihoods depend heavily on natural resources. In Indonesia, where many communities live in coastal areas, climate variability poses significant challenges to the sustainability of fishing activities and household income. Sartika and Mokompit (2024) explained that climate change is an important issue in Indonesia because of the country's extensive archipelagic geography, which exposes fishing communities to environmental fluctuations that affect their economic conditions. Similarly, Azizah (2025) highlighted that fishermen are particularly vulnerable to unpredictable weather and seasonal uncertainty because their economic activities depend directly on natural conditions. Limited adaptive capacity further increases their economic vulnerability and threatens the sustainability of their livelihoods. These challenges indicate that the resilience of fishing households depends not only on environmental conditions but also on their ability to manage financial resources and develop alternative sources of income.

The economic vulnerability of fishing households is also associated with limitations in financial literacy, entrepreneurial capacity, and business management. Idrus et al. (2024) observed that coastal communities frequently face constraints

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in human resource development, entrepreneurial motivation, financial management, and the adoption of information technology for marketing. These limitations suggest that seasonal uncertainty affects fishing households through two interconnected mechanisms: fluctuations in natural resource availability and limited capacity to manage household finances and diversify economic activities. At the policy level, Presidential Regulation No. 98 of 2021 concerning the Implementation of Carbon Economic Value provides a framework for climate change mitigation and carbon economic value implementation (Presidential Regulation No. 98 of 2021, 2021). Within this broader policy context, strengthening livelihood diversification and supporting the adaptive capacity of vulnerable communities are important considerations for improving economic resilience. Consequently, examining household financial management as part of fishermen's adaptive strategies is relevant to understanding how local communities respond to seasonal uncertainty.

Financial management provides an important perspective for understanding how fishing households maintain economic stability under uncertain conditions. Amelia (2024) identified financial management as an adaptive measure that can strengthen household capacity to respond to climate change. Hidayat et al. (2024) similarly explained that sound financial management can serve as an instrument for mitigating risks associated with uncertain catches. From a practical perspective, financial management involves organizing income and expenditure to meet household needs, control financial risks, and achieve financial objectives (Lanori, 2024). This understanding is consistent with the broader conception of financial management as a process of planning, obtaining, utilizing, and controlling financial resources to achieve individual objectives (Dewi et al., 2025). For fishing households, these practices may involve allocating income from different economic activities, adjusting expenditure to seasonal conditions, and utilizing alternative resources when fishing income declines. Financial management therefore provides a useful analytical perspective for examining how livelihood diversification contributes to household economic resilience.

Previous studies have identified several adaptive strategies employed by fishing communities in response to seasonal and environmental uncertainty. Putra and Syafiola (2024) found that seeking alternative employment, including seasonal work outside the region, was a dominant response among communities facing seasonal uncertainty, whereas income diversification through fish farming remained relatively limited. In contrast, Wahyuni and Sutrisno (2026) described an adaptive strategy that enabled fishermen to remain connected to their maritime livelihoods while utilizing local environmental potential, including coastal ecotourism. Their findings illustrate how adaptation may involve adjusting economic activities to environmental changes rather than abandoning established livelihoods. Juniarsih et al. (2024) also identified several adaptive measures, including improving fishing equipment, diversifying livelihoods, developing alternative pathways for beach tourism, and supporting community socioeconomic interests and safety. Collectively, these studies demonstrate that fishing households employ diverse strategies to address seasonal uncertainty. However, the relationship between livelihood diversification, the utilization of local resources, and household financial management requires further examination, particularly where alternative economic activities remain connected to the fisheries sector.

More broadly, Dewi et al. (2025) emphasized the importance of adaptive responses in supporting the economic sustainability of fishing communities and mitigating risks associated with seasonal uncertainty. Retno et al. (2025) conceptualized adaptive strategies as adjustments in production patterns, financial management, time allocation for fishing, business diversification, and risk management when environmental conditions become unpredictable. These perspectives suggest that adaptation involves more than short-term survival; it also requires deliberate economic adjustments that sustain household livelihoods. Nevertheless, the existence of different adaptive strategies does not necessarily explain how income from alternative activities is integrated into household financial management or how such integration maintains economic continuity during periods of uncertainty.

This issue is particularly relevant in Lanrisang Village, Pinrang Regency, where preliminary observations and interviews indicated that fishermen

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respond to seasonal uncertainty through different economic activities. Some households engage in agricultural businesses, while others remain involved in the fisheries sector through fishpond operations and fish cultivation in rice fields. Unlike strategies centered primarily on migration or a transition to tourism, these practices indicate the potential integration of coastal and agrarian economic activities within the same household livelihood system. This integration may enable households to maintain access to productive resources and alternative income when marine fishing becomes less reliable. Putri Amalia Imran and Imran Rosadi (2025) emphasized that household economic stability is supported by business diversification, the utilization of local potential, and transparent and accountable financial management. However, the extent to which these elements operate together as an adaptive mechanism in Lanrisang Village remains insufficiently explained.

The research problem addressed in this study is therefore the limited understanding of how fishing households integrate livelihood adaptation, diversified income sources, and household financial management to respond to seasonal uncertainty. Specifically, this study aims to analyze the adaptive strategies adopted by fishing households in Lanrisang Village, Pinrang Regency, and examine how the integration of income sources from fisheries, agriculture, and other economic activities supports household financial management under uncertain seasonal conditions. The study contributes theoretically by connecting livelihood adaptation and household financial management within a local resource-based economic resilience perspective. Practically, its findings are expected to provide insights for fishing households, community stakeholders, and policymakers in developing livelihood diversification initiatives and financial management practices that strengthen household economic stability. The novelty of this study lies in its focus on the integration of coastal and agrarian resources as an economic buffer system, highlighting how fishing households may maintain livelihood continuity by diversifying activities without entirely abandoning the fisheries sector.

## 2. Literature Review

### 2.1. Conceptual and Theoretical Foundations

Adaptive strategies refer to the adjustments made by fishing households to respond to environmental changes and seasonal uncertainty while maintaining livelihood continuity. Such strategies include changes in livelihood activities, the utilization of local resources, and business diversification (Amelia, 2024; Ramadhan, 2025; Retno et al., 2025; Siswidiasti & Aida Kurniawati, 2025). Seasonal uncertainty affects fishing schedules, catches, operational costs, and household income, requiring fishermen to develop flexible economic responses. In this context, household financial management plays an important role in allocating income, prioritizing expenditure, and maintaining household needs when marine income fluctuates (Hidayat et al., 2024; Octaviani & Atmadja, 2025). Income diversification through fishponds, agriculture, gardens, and other businesses provides alternative sources of earnings that can complement fishing income. The utilization of local resources and the development of family businesses can further support household economic stability and independence (Idrus et al., 2024; Putri Amalia Imran & Imran Rosadi, 2025). Accordingly, this study conceptualizes adaptive strategies as flexible livelihood adjustments, income integration as the combination of earnings from fisheries and other economic activities, and household financial management as the process of organizing and allocating these resources to maintain economic continuity amid seasonal uncertainty.

### 2.2. Review of Empirical Studies

Previous studies have identified various adaptive strategies among fishing communities. Putra and Syafiola (2024) found that fishermen often seek alternative employment or seasonal work outside their local areas, while diversification that maintains their involvement in fisheries remains relatively limited. In contrast, Wahyuni and Sutrisno (2026) demonstrated that fishermen can utilize local environmental potential, including coastal ecotourism, without completely abandoning their maritime livelihoods. Juniarsih et al. (2024) identified livelihood diversification, adjustments to fishing equipment, and the development of other economic activities as responses to environmental uncertainty. Research on financial management has also emphasized budgeting, financial recording, expenditure prioritization, decision-making, and financial planning as important practices for

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managing fluctuating income (Octaviani & Atmadja, 2025). Meanwhile, Idrus et al. (2024) highlighted the importance of entrepreneurial capacity, financial management, and marketing in strengthening fishing households' economic activities. Putri Amalia Imran and Imran Rosadi (2025) further emphasized local resource utilization and business diversification as means of supporting economic stability, while Saroh et al. (2025) highlighted income evaluation and risk management in sustaining fishing businesses. Collectively, these studies indicate that livelihood diversification, local resource utilization, and financial management are important responses to economic uncertainty, although their implementation varies according to local conditions and available resources.

### 2.3. Identification of the Research Gap

Although previous studies have examined livelihood adaptation, business diversification, and household financial management, the integration of these dimensions within a single household economic system requires further investigation. Existing research has primarily discussed alternative employment, seasonal work, coastal tourism, adjustments to fishing equipment, or financial practices such as budgeting and expenditure management (Juniarsih et al., 2024; Octaviani & Atmadja, 2025; Putra & Syafiola, 2024; Wahyuni & Sutrisno, 2026). Less attention has been given to how fishing households combine marine income with earnings from fishponds, agriculture, gardens, and other businesses while incorporating these sources into household financial management. This gap is particularly relevant in Sumpang Saddang, Lanrisang Village, Pinrang Regency, where coastal and agrarian resources provide opportunities to develop complementary livelihoods. Therefore, this study examines how fishing households respond to seasonal uncertainty through flexible livelihood strategies and integrate income sources to support household financial continuity. Its distinctive contribution lies in understanding diversification not merely as the addition of occupations but as a local resource-based economic buffer within household financial management.

### 2.4. Development of the Conceptual Framework

The conceptual framework links seasonal uncertainty with adaptive strategies, income integration, and household financial management. Seasonal uncertainty affects fishing activities and income predictability, encouraging households to diversify their livelihoods through fishing, fishponds, agriculture, gardens, and other businesses. The income generated from these activities is integrated into household financial management through resource allocation and expenditure prioritization. This process may support household economic resilience by reducing dependence on marine income alone. The framework is developed from the study's qualitative approach and guides the examination of how fishing households utilize local resources and organize multiple income sources to maintain livelihood continuity.

### 2.5. Hypotheses or Research Propositions

Because this study uses a qualitative case study approach, research propositions are formulated instead of statistical hypotheses. **Proposition 1:** Fishing households respond to seasonal uncertainty through active and flexible adaptive strategies, including the utilization of local resources and livelihood diversification, consistent with Amelia (2024), Ramadhan (2025), and Retno et al. (2025). **Proposition 2:** Fishing households integrate income from marine activities with earnings from fishponds, agriculture, gardens, and other businesses to reduce dependence on a single income source, as reflected in the studies of Juniarsih et al. (2024), Putra and Syafiola (2024), and Putri Amalia Imran and Imran Rosadi (2025). **Proposition 3:** The contribution of income diversification to household financial continuity is reflected in how households allocate available resources and prioritize expenditure when income fluctuates, consistent with Octaviani and Atmadja (2025). **Proposition 4:** The integration of fisheries and agrarian activities can function as a local resource-based economic buffer that supports household livelihood continuity during seasonal uncertainty, drawing on Idrus et al. (2024), and Putri Amalia Imran and Imran Rosadi (2025). These propositions guide the analysis of the adaptive strategies and financial management practices of fishing households in Sumpang Saddang, without assuming that all households adopt identical strategies or experience the same outcomes.

## 3. Research Method

### 3.1. Research Design

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This study employed a qualitative approach with a case study design to examine adaptive strategies and the integration of income sources in the financial management of fishing households facing seasonal uncertainty. Efendi et al. (2025) explained that qualitative research seeks to explore and understand the meaning of social problems experienced by individuals or groups. The case study approach was selected to investigate the phenomenon in depth by collecting information through multiple data collection procedures within a specific context. This design was considered appropriate for examining how fishing households adjust their livelihood activities, utilize local resources, and manage income from different economic activities to maintain household financial continuity.

### 3.2. Research Context and Setting

The research was conducted in Lingkungan Sumpang Saddang, Kelurahan Lanrisang, Kabupaten Pinrang, Indonesia. This location was selected because fishing households in the area engage in diverse livelihood activities, including marine fishing, fishpond cultivation, agriculture, and other businesses. The coexistence of coastal and agrarian resources provides a relevant context for examining how households respond to seasonal uncertainty by combining different income sources. The study focused on the adaptive strategies and financial management practices of traditional fishing households in this setting.

### 3.3. Population and Sample / Research Participants

The research participants consisted of 11 informants selected based on their relevance to the research objectives and their ability to provide information about the socioeconomic conditions of local fishing households. Abdussamad et al. (2024) explained that informants in qualitative research provide information about social situations involving actors, places, and activities. Similarly, Moniaga et al. (2024) emphasized that informants should possess the competence and knowledge required to provide relevant information and clarify issues associated with the research. The informants comprised 10 traditional fishing household representatives and one supporting informant, namely the Head of the Sumpang Saddang Neighbourhood. The main informants included six fishermen diversifying their businesses into the agricultural sector, three fishermen diversifying their businesses into the farming sector, and one fisherman diversifying into another economic activity. The neighbourhood head was included to provide contextual information about the population and socioeconomic characteristics of the community. The selection of these informants was intended to capture diverse experiences of livelihood diversification and household financial management.

**Table 1. Research Informants**

| **Main Informant (Traditional Fisherman)** | **6 Person** | **Fishermen who diversify their business in the agricultural sector** |
|---|---|---|
| Main informants | 3 Person | Fishermen who do Business Diversification in the Farming Sector |
| Main informants | 1 Person | Fishermen who do Diversification in Other Fields. |
| Supporting Informant | 1 Person | Head of Neighbourhood in Sumpang Saddang Village, related to population information in his work area |
| Total Informant | 11 Person | |
| Main Informant (Traditional Fisherman) | 6 Person | Fishermen who diversify their business in the agricultural sector |

*Source: Research data.*

### 3.4. Data Sources and Data Collection

The study relied on qualitative information collected through observation, interviews, and documentation. These techniques were used to obtain information about the experiences of fishing households, their responses to seasonal uncertainty, and their use of alternative economic resources. Observations provided contextual information about the research setting and livelihood activities, while interviews enabled the researcher to explore

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informants' experiences and perspectives. Documentation was used to support the collection and examination of relevant information. Data collection was conducted in accordance with the research focus, with the information obtained guiding further investigation of adaptive strategies, income diversification, and household financial management. The study also incorporated a literature review as part of its data collection procedures.

### 3.5. Measurement of Variables and Research Instruments

Because this study employed a qualitative approach, it did not use statistical variables, numerical measurement scales, or standardized quantitative instruments. Instead, the investigation was guided by the principal concepts of adaptive strategies, integration of income sources, and household financial management. Adaptive strategies were examined through changes in livelihood activities and the utilization of local resources, including fishponds, agricultural land, and other businesses. Income integration was explored by examining how households combined earnings from marine activities with income from alternative economic activities. Household financial management was examined through the ways households organized available income and addressed household needs under uncertain income conditions. Observation, interviews, and documentation served as the principal data collection techniques for exploring these concepts.

### 3.6. Data Analysis Techniques

Data analysis followed a qualitative approach involving the organization, selection, interpretation, and verification of collected information. Sugioyono (2023) described qualitative data analysis as a process of organizing and classifying data to obtain findings consistent with the research objectives. The analysis was guided by the interactive model developed by Matthew B. Miles and A. Michael Huberman, as discussed by Pettalongi et al. (2025). This model involves three main analytical components: data reduction, data presentation, and conclusion drawing or verification. The analytical process was conducted interactively throughout data collection rather than being postponed until all information had been collected. The description of the analytical cycle was also presented by Moniaga et al. (2024).

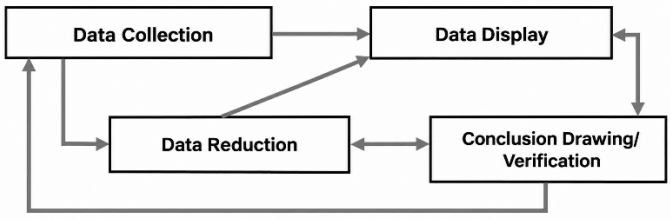



**Fig. 1.** Data Analysis Techniques

The analysis proceeded through four operational stages. First, **data collection** involved gathering information through observation, interviews, and documentation. Second, **data reduction** involved selecting, summarizing, simplifying, and organizing information relevant to the research objectives to identify important themes and patterns. Third, **data presentation** involved organizing the reduced information into descriptive narratives, categories, and relationships between themes. Fourth, **conclusion drawing and verification** involved interpreting the findings and examining whether the conclusions were supported by consistent evidence. These stages enabled the researcher to identify patterns connecting seasonal uncertainty, livelihood diversification, income integration, and household financial management.

### 3.7. Validity, Reliability, and Trustworthiness

The trustworthiness of the findings was addressed through procedures intended to strengthen the credibility and consistency of qualitative information. Moniaga et al. (2024) emphasized the importance of data validity testing in qualitative research, while Pettalongi et al. (2025) discussed the importance of maintaining the validity and reliability of research data. Efendi et al. (2025) identified three relevant procedures: prolonged engagement, persistent observation, and data triangulation. Prolonged engagement involves maintaining sufficient involvement in the research setting to understand the information collected and

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build trust with participants. Persistent observation emphasizes detailed and continuous attention to the research focus. Data triangulation involves comparing information obtained from different sources and collection techniques, as well as considering the timing of interviews. In this study, triangulation was intended to compare interview information with observational findings and to assess the consistency of information collected under different circumstances. These procedures provided a framework for evaluating the credibility of the interpretations and conclusions.

### 3.8. Ethical Considerations

The supplied methodological description does not specify the ethical procedures applied during fieldwork, including informed consent, participant anonymity, confidentiality, data protection, or institutional ethical approval. These details should be confirmed and documented by the researchers before the manuscript is submitted for publication. Any statement concerning ethical approval or participant consent should reflect the procedures actually undertaken and should not be added without supporting information.

### 3.9. Research Procedure

The research procedure followed a sequence consistent with the qualitative case study design. First, the research focus and location were established in accordance with the research problem. Second, informants were selected based on their relevance to the investigation of fishing households' livelihood activities and financial management. Third, information was collected through observation, interviews, documentation, and a literature review. Fourth, the collected information was organized and analyzed through data reduction, data presentation, and conclusion drawing or verification. Finally, the credibility of the interpretations was considered through the data validity procedures described above. The stages were interconnected, allowing insights obtained during data collection and analysis to guide further examination of the research phenomenon.

### 3.10. Methodological Limitations

This study used a qualitative case study design involving 11 informants in Lingkungan Sumpang Saddang, Kelurahan Lanrisang, Kabupaten Pinrang. Consequently, the findings are intended to provide an in-depth understanding of adaptive strategies and household financial management within the specific research context rather than statistical generalizations to all fishing communities. The use of informant accounts, observations, and documentation also means that the findings depend on the relevance, completeness, and consistency of the qualitative information obtained. Nevertheless, the combination of data collection techniques and the application of trustworthiness procedures provide a basis for examining the local patterns of livelihood diversification and income integration. The findings may offer contextual insights for understanding similar fishing communities, although their applicability to other locations requires consideration of differences in environmental conditions, livelihood opportunities, and access to local resources.

## 4. Results and Discussion

### 4.1. Research Results

#### 4.1.1. Sample Description and Descriptive Statistics

**a. The Condition of Fishermen in Lanrisang Village**

Based on the results of the study on the economic condition of the people of Lanrisang Village, especially related to their livelihoods, there are various groups that become the source of livelihood for the community. The data obtained recorded that as many as 596 people had working status in several livelihood sectors. To provide an overview of the position of each livelihood group, the data is presented in the form of a percentage using two calculation bases, namely the percentage of the number of people who are categorised as working and the percentage of the total population of Lanrisang Village as much as 4,012 people.

The presentation with the two calculation bases is intended to provide a more proportional picture of the livelihood structure of the community and the position of each job group in the overall condition of the Lanrisang Village population. The description of the livelihood groups of the people of Lanrisang Village is presented in the following table.

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**Table 2. Livelihood Groups of Lanrisang Village People Based on the Number of Working Population and the Total Population**

| No | Eye group Livelihood | Amount (Soul) | %From Population Work (596) | % From Total Population (4,012) |
|---|---|---|---|---|
| 1. | Farmer | 294 | 49,33% | 7,33% |
| 2. | Fisherman | 187 | 31,38% | 4,66% |
| 3. | Fisherman Labour | 8 | 1,34% | 0,20% |
| 4. | Trade | 3 | 0,50% | 0,07% |
| 5. | PNS | 23 | 3,86% | 0,57% |
| 6. | Police | 2 | 0,34% | 0,05% |
| 7. | Village Equipment | 6 | 1,01% | 0,15% |
| 8. | Others | 73 | 12,25% | 1,82% |
| | Total | 596 | 100,00% | 14,86% |

Referring to the focus of the research, which is to find out the problems faced by the fishing community in dealing with seasonal uncertainty, the existence of the fishing community is an important part of understanding the socio-economic conditions of the Lanrisang Village community. Based on the data in Table 3.1, people who work as fishermen are one of the livelihood groups with a fairly large number. This condition shows that fishery activities have an important role in the livelihood of the people of Lanrisang Village.

Based on the results of the observation of the condition of each region in Lanrisang Village, an image was obtained that the characteristics of the fishing community were quite dominant, especially in the Jampue Neighbourhood and the Sumpang Saddang Neighbourhood. Both regions have a strong relationship with fisheries activities and coastal resources. Why is this research more focussed on the Sumpang Saddang Environment because it has the characteristics of a more diverse source of livelihood, especially in the face of seasonal uncertainty.

The condition of coastal society in the Jampue Neighbourhood, where economic activity is more related to fishery activities, including ponds and seaweed. Meanwhile, the Sumpang Saddang Environment has regional characteristics that allow the community to utilise several alternative sources of livelihood, not only through fishing and pond cultivation activities, but also through agricultural activities supported by the existence of agricultural areas in the region.

The existence of this diversity of livelihoods is an important consideration in research because the uncertainty of the season not only affects the activities of fishermen, but also can affect people's choices in maintaining and combining sources of household income. This condition makes the Sumpang Saddang Environment have a relevant context to examine how fishing households face seasonal uncertainty, including how they utilise alternative livelihoods when fishing activities are hindered by changes in seasonal and environmental conditions.

**b. Characteristics of Economic Life in the Sumpang Saddang Community of Lanrisang Village**

Obtaining a more specific picture of the life of the fishing community in the Sumpang Saddang Neighbourhood, this research is directed to people who have direct activities and experience as fishermen. Respondents or informants who are the target of the research are selected based on their relationship with fishing activities and the family life of fishermen. The description of the respondents who became the target of the research is presented as follows.

**Table 3. Characteristics of Research Informants in Sumpang Saddang Lanrisang Village**

| No | Respondent's Name | Age | Source of Income |
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| | | | |
|---|---|---|---|
| 1. | Amri | 46 Year | Head of Neighbourhood Melaut, Pertanian, Tambak |
| 2. | Fatahuddin | 40 Year | Melaut, Pertanian |
| 3. | Basman | 46 Year | Melaut, Tambak |
| 4. | Saharuddin | 33 Year | Melaut, Tambak |
| 5. | Hamzah | 54 Year | Melaut, Tambak |
| 6. | Sudirman | 62 Year | Melaut,Pedagang Ikan |
| 7. | Kaseng | 51 Year | Melaut,Tambak |
| 8. | Habibi | 53 Year | Malaut,Pertanian |
| 9. | Muh. Amin | 42 Year | Melaut,Tambak |
| 10. | Fajri | 29 Year | Melaut, Pertanian, Tambak |
| 11. | Rehan | 39 Year | Melaut,Pertanian, Tambak |

The head of the neighbourhood becomes a part of the informant in this study as stated in Table 3.2 based on the recommendation from the Village Head of Lanrisang, where when the information collection process is carried out by the Village Head recommends the Head of the Neighbourhood as an informant, with the consideration of having a direct closeness to the community and is considered to better understand the characteristics, social conditions, and economic life of the residents in his area.

Meanwhile, for other informants based on the information of the Head of the Sumpang Saddang Neighbourhood, there are around 30 heads of families who work as fishermen in this area. The Head of Neighbourhood suggested 10 informants who were considered to be able to represent the head of the fishing family in this region. The affirmation described by the Head of Environment related to the Selection of Informants is described as follows:

> "Those who are recommended are basically considered to be able to provide an overview of the characteristic living conditions of the fishing community because most of the heads of other fishing families have the same economic activity, and these 10 people are seen to be able to provide information and have an understanding of the experience of the fishing community in the face of seasonal uncertainty".

### 4.1.2. Data Quality and Preliminary Analysis

Given the qualitative case study design, the study did not employ statistical tests of normality, multicollinearity, reliability coefficients, or model fit. The preliminary analysis instead focused on organizing observational records, interview information, and documentation to identify recurring patterns related to seasonal uncertainty, livelihood diversification, and household income management. The collected information was examined through data reduction, data presentation, and conclusion verification, following the qualitative analytical procedures described by Pettalongi et al. (2025) and Moniaga et al. (2024). The analysis focused on the consistency of informants' accounts concerning changes in fishing activities, income sources, and the use of alternative economic resources.

### 4.1.3. Main Analytical Results

**a. Seasonal Uncertainty and Its Impact on Fishermen's Sea Activity Level in Sumpang Saddang Lanrisang Village**

Digging about the habitual patterns in the life of the fishing community, especially in Lanrisang Village, towards the problem of seasonal uncertainty, in general from the results of the interview that the condition has begun to be felt in recent years, where the description of this matter when asked to the Head of the Sumpang Saddang Neighbourhood, the following statement was obtained:

> "The problem of Uncertainty of this season, has actually begun to be felt in the last 4 (Four) years, where predictions from the fishing community are often not in accordance with the conditions intended by Nature, When the Rainy Season there is also a time when the prediction that the public cannot go to sea just shifts from the forecast, as well as during the Dry season, the conclusion is that the natural conditions are now increasingly difficult to predict, so that it will affect the fishing time of the fishermen"

A similar affirmation was also described by almost all the interviewed informants, where based

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on the knowledge of the seasonal pattern that has been used as a guideline in determining the time of the sea, the fishermen consider that between January-February is generally seen as a period that is expected to have less friendly sea conditions, especially due to the increase in waves and winds, so that sea activity tends to decrease.

Some of the interview results obtained related to the uncertainty issue this season can be observed in the following statements:

a. Statement of Interview with Kaseng (51 Years Old), where the following description was obtained:
   "Predicting the current seatime, especially in the last few years, can no longer use predictions from previous times, because fishermen sometimes see that the weather conditions are possible to go to sea, but it can change suddenly, so that when they are in the middle of the sea with that condition, they are forced to turn back to the mainland, or find the nearest land to avoid unfriendly sea conditions"
b. Fatahuddin (40 years old) gives another description related to the problem of seasonal uncertainty, where it is described that:
   "The current time of sailing must really be able to see the conditions and natural phenomena, because it has a great impact on the preparation and equipment used, because sometimes the results obtained are not commensurate with the cost of sailing, so people sometimes consider it, and events like this often happen, it is predicted that they can go to sea in the afternoon and return home in the morning, but when the weather suddenly changes they sometimes have to go to sea beyond the specified time"
c. Another view is related to the prediction of the time of the sea that has been guided, from the results of the interview with Muh. Amin (42 years old), obtained the following information:
   "The prediction of fishermen in the past for the seafaring period, generally estimated in February to November, but that time can now be said to be very unpredictable, even sometimes until March the fishermen's community still count to go to sea, and generally the previous time the fishermen's productive period was in April to August, where seafood is sometimes abundant, but this also sometimes makes fishermen a little disappointed, because they just see in other months the production is abundant but the risk of sea is very high"

The observation of the results of the interview, it can be emphasised that the uncertainty of the season in Lanrisang Village shows that the seasonal pattern that has been a guideline for fishermen is no longer fully in accordance with the actual natural conditions. The shift in time, sudden weather changes, and the uncertainty of sea conditions cause Fishermen's Households to be more selective in determining the time of sea and continue to adapt to the natural phenomena that occur. This condition certainly not only affects the activity and duration of the sea, but also increases safety risks, operational costs, and the uncertainty of the catch.

**b. The Impact of Seasonal Uncertainty on the Economic Condition of the Sumpang Saddang Fisherman Community in Lanrisang Village.**

Understanding the impact of seasonal uncertainty on the economic condition of fishing households, first it is necessary to look at the changes in seasonal patterns and sea activities that have been the basis for fishermen in determining fishing time. Based on the results of interviews with fishermen in Sumpang Saddang, an image was obtained that the seatime pattern that had been understood based on experience began to change. The description of the pattern is presented in the following Table.

**Table 4. Seasonal Patterns, Sea Activities, and Indications of Seasonal Uncertainty for Fishermen's Households in Sumpang Saddang Lanrisang Village**

| Month | Fish Season Prediction | Research findings in Pinrang/Makaskan Strait | Conditions Told by Sumpang Saddang Fisherman | Information |
|---|---|---|---|---|
| January | Low-Medium | Some types of fish are still available | Fishermen are starting to be more careful because | Can't be called general fish |

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| | | | | |
|---|---|---|---|---|
| | | | of the sea conditions | season yet |
| February | Medium | Some species are starting to enter a capture period | The sea condition is still a consideration | Transition |
| March | Start to be productive | Kerapu sunu has a peak season around March | Fishermen still take into account the natural conditions | Productive for certain types |
| Month | Season Prediction Fish | Research findings In Pinrang/Makassar Strait | Conditions Told by Sumpang Saddang Fisherman | Information |
| April | Productive | Pinrang marine fishery production starts to increase | According to the informant, it is starting to enter the productive period | Beginning of productive period |
| May | Productive | Relatively high production | Seaing activity is relatively increasing | Productive season |
| June | Productive | Relatively high production | The sea activity is increasing | Productive season |
| July | Productive | Anchovy season begins; Pinrang production is high | Fishermen consider the productive period | Strong fish season |
| August | Productive | High production of Pinrang; anchovy season takes place | According to the informant it is a productive period | Strong fish season |
| September | Productive | The season of anchovies is still going on | Still allows high seagoing activities | Productive season |
| October | Productive | The season of anchovies is still going on | The condition starts to depend on the weather | Productive season |
| November | Moderately productive | End of anchovy season; some types of fish are still potential | The uncertainty of sea conditions began to appear | End of productive period |
| December | Low-medium | Teri is not seasonal; other types can still be caught | The weather conditions are starting to become a barrier | Transition period |

#### 4.1.4. Hypothesis Testing / Key Findings

The findings address the study's principal research questions in three related areas. First, fishing households responded to seasonal uncertainty through active and flexible livelihood diversification, particularly by utilizing fishponds, agricultural land, gardens, and other local economic resources while maintaining fishing activities. Second, household financial management involved combining marine income with earnings from alternative activities to support household needs when fishing income was uncertain. Third, the integration of fisheries and agrarian resources formed a local resource-based economic buffer that helped households maintain livelihood continuity. These findings demonstrate the interconnected nature of adaptive strategies, income diversification, and household financial management in Sumpang Saddang, without implying that all households experienced identical conditions or outcomes.

#### 4.1.5. Visual Presentation of Results

The principal quantitative descriptive findings are presented in Tables 2 and 3, which show the occupational distribution of the village population and the characteristics of the 11 informants. Table 4 presents the monthly seasonal patterns and the reported changes in fishing conditions. Together, these tables provide the descriptive context for the qualitative findings on seasonal uncertainty, livelihood diversification, income integration, and household financial management. The tables are referenced in the corresponding subsections to connect the numerical descriptions with the

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interview and observational findings.

### 4.2. Research Discussion

#### 4.2.1. Interpretation of Key Findings

**a. The Form of Adaptive Strategy that the Fisherman Community of Sumpang Saddang Lanrisang Village Pinrang Regency in Dealing with Seasonal Uncertainty.**

Seasonal uncertainty in the Sumpang Saddang fishing community is not only understood as a change in weather conditions, but also as an environmental condition that affects the certainty of sea activities and household income. The research results show that there is a change in the frequency of sailing, travel time, operational costs, and catch which then has an impact on the income of fishermen. The condition of tini encourages households to make various adjustments to maintain the continuity of livelihood.

The findings obtained on the condition of the Sumpang Saddang community in Lanrisang Village are in line with the concept of socio-economic adaptation from Ramadhan (2025) which interprets that adaptation as a process of adjustment through changes in behaviour and livelihoods to reduce the impact of environmental change and maintain life. Meanwhile, Siswidiasti and Aida Kurniawati (2025) explained the adaptation of livelihood as the adjustment of household practises and strategies in dealing with environmental change, economic shocks, and the risk of climate change. In the context of Sumpang Saddang, adaptation is not only seen in efforts to survive when sea activity decreases, but also through the ability of households to utilise other available resources.

The context that happened in Sumpang Saddang Lanrisang Village also shows that the form of adaptation can be seen from the change in the pattern of utilising livelihoods. The results of the study show that some people do not completely abandon fishing activities when the sea conditions decline. They actually utilise other resources in the form of ponds, rice fields, and gardens as additional economic activities. Land that was previously more positioned as a side activity began to be managed more seriously when the uncertainty of the season was increasingly felt.

The research results show that the adaptive strategy carried out by the fisherman's household in Lanrisang Village has an active and flexible character. An active character can be seen from the efforts of households to not only rely on income from sea activities, but also to develop other sources of income through the utilisation of available resources in the surrounding environment. Meanwhile, flexible character is seen from the ability of households to adjust economic activities with changes in seasonal conditions and their income levels. This finding is in line with the view of Amelia (2024) which explains that adaptive strategies are not static, but flexible and responsive to environmental changes. Adaptive strategy allows households to make adjustments to changing conditions so that they can maintain the sustainability of their lives and economic activities.

The characteristics of a region also provide space for the formation of an adaptation pattern that combines various activities. As described in the Sumpang Saddang Area, Lanrisang Village has a relationship between coastal areas and agrarian areas, so that the community has the opportunity to utilise livelihoods from the fisheries and agriculture sectors. This condition is one of the important reasons why fishing households are able to combine seafaring activities with other economic activities.

The pattern of adaptation through diversification of livelihoods has a consistency with the research of Juniarsih et al. (2024) which found that the adaptation strategy of the fishing community can be carried out through diversification of livelihood sources, adjustment of fishing facilities, involvement of family members, and the development of other economic activities. Putra and Syafiola (2024) also showed that some fishermen face climate change through other jobs or seasonal jobs, while the diversification that is still in the capacity as fishermen is relatively more limited.

Arodhiskara's perspective regarding the empowerment of the fishing community also strengthens this argumentation. Their research shows the importance of developing the capacity of the fishing community through the utilisation of potential and economic activities that can support the lives of coastal communities. In the context of Sumpang Saddang, the utilisation of local potential does not stop at fishing activities, but develops through the ability of fishing households to combine coastal livelihoods with agrarian resources and also other forms of business.

Meanwhile, Putri Amalia Imran and Imran Rosadi (2025) also emphasised the importance of

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business diversification, which of course allows households not to depend on one economic source so that they still have the ability to support their needs when facing certain conditions. This view is related to the research results in Sumpang Saddang, because the community's adaptive strategy shows that there is an effort to expand the source of income through the utilisation of ponds, rice fields, and gardens.

Overall, the adaptive strategy of the Sumpang Saddang fishing community can be understood as a strategy based on diversification and optimisation of local resources. Maritime activities are maintained as the main livelihood, while other economic activities are developed when natural conditions cause sea activities to not be optimally carried out. This pattern shows that the fishing community is not only reactive to the uncertainty of the season, but has built a form of adjustment that allows households to have an alternative source of livelihood. This understanding is in line with the view of Retno et al. (2025) that adaptive strategies include the ability to adjust production patterns, seatime, business diversification, financial management, and risk management when environmental conditions become uncertain.

The important thing from the results of this research is not just business diversification, but the formation of an adaptation pattern through a combination of various sources of livelihood. The uncertainty of the season encourages fishing households to take advantage of the resources available in the surrounding environment without having to leave their main job as fishermen. The combination of income from marine activities, ponds, rice fields, and gardens then becomes part of the efforts of households to maintain the ability to meet needs when income from the fisheries sector declines. This condition is the basis for further viewing how various sources of income are managed in household finances, especially in maintaining the continuity of fulfilling needs in the period when sea activities do not take place optimally.

**b. Financial Management Pattern of Fisherman Households in Sumpang Saddang Lanrisang Village, Pinrang Regency in Managing Income from Sea Activities and Business Diversification Results to Maintain Household Financial Sustainability.**

The financial management pattern of fishing households in the Sumpang Saddang Neighbourhood of Lanrisang Village is not only determined by the income obtained from sea activities, but also by the ability of the household to combine sea income with income from business diversification. Sea income remains an important source of income for fishing households, while the uncertainty of the season causes the ability to earn income to change. This situation encourages households to reorganise the source of income through other economic activities that can be carried out according to their abilities, assets, and resources available in their environment.

Patterns carried out by Fishermen's Households in Sumpang Saddang Village

Lanrisang is in accordance with the research results of Putra and Syafiola (2024) which shows that traditional fishermen face changes in environmental conditions through livelihood adjustment, including finding other jobs and utilising seasonal jobs. Research of Juniarsih et al. (2024) also shows that Diversification Source Livelihood is one of the forms of coastal communities' response to changes in environmental conditions, where the form of adaptation found includes various models such as diversification of livelihood sources, adjustment of fishing facilities, and the development of activities that can support socio-economic life and community financial management patterns.

The similarity of several studies with the results obtained on the condition of Fishermen's Households in Sumpang Saddang, Lanrisang Village lies in the tendency of fishery households to expand their livelihoods when sea activities face seasonal uncertainty, while the difference can be seen from the form of diversification that is chosen. Where The tendency of some fishing communities in other regions prefer to find other jobs or seasonal jobs, while Fishermen's Households in Sumpang Saddang Lanrisang Village tend to utilise economic resources such as agricultural activities and farms but do not completely replace seafaring activities, but become part of the source of income that can be used simultaneously.

Such diversification shows that the financial management of the Fisherman's Household in Sumpang Saddang Lanrisang Village is built through a combination of revenue sources, not through the full transfer of livelihoods. The fisheries sector is

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maintained through sea activities, ponds, and the utilisation of fishery products, while the agrarian sector provides space for households to obtain receipts when sea opportunities change. The relationship between these two sectors forms a complementary livelihood system. The geographical condition of Lanrisang Village strengthens the condition in question because this area brings together coastal and agrarian ecosystems, which is one of the factors that enable the pattern to develop.

The management pattern such as the condition in the Lanrisang Village Area has a strong relationship with the concept of financial management of non-fixed income households. The fisherman's household is not enough to only regulate the use of income that has been received, but it needs to maintain the continuity of the source of income when the main income changes. Business diversification acquires an important function because it provides an alternative receipt that can be used to support household needs. That is, financial management runs through the strengthening of the revenue side as well as adjusting the use of income.

The perspective of the research results obtained is in line with Octaviani and Atmadja (2025) that the financial management of fishing families develops through informal financial practises that include budgeting, recording, decision making, and long-term financial planning. As for management, it can basically help fishing families prioritise their needs when facing fluctuating income. The difference with the condition of the Fisherman's Household in Sumpang Saddang Lanrisang Village lies in the management pattern through the combination of income sources as a buffer for household income. While the findings from the research obtained are more directed to practises in household financial management,

The financial management perspective according to the views of Arodhiskara provides reinforcement from the other hand, where the strengthening is meant by the importance of the ability of the Fisherman's Household to adjust the use of resources when facing shocks, or known as the budget adaptability model, namely the ability to adjust or reallocate expenditures when there is pressure and the management is carried out carefully, this is certainly in line with the results of business diversification from Fishermen's Households in Sumpang Saddang Lanrisang Village, where the emphasis is that financial adaptation still needs to be managed carefully so that the adjustment does not interfere with resource management discipline.

The diversified context of Fishermen's Households in Sumpang Saddang Lanrisang Village is also strengthened by the research results of Idrus et al. (2024) which shows that the business of fisherman family members can be developed as a family economic support. The strengthening can be done through increasing the capacity of entrepreneurship, business financial management, and marketing.

The same view is also seen in the research of Putri Amalia Imran and Imran Rosadi (2025) who placed the strengthening of financial management as part of the effort to build economic independence through the management of available potential. On a household scale, the principle can be seen through the ability of the Sumpang Saddang community to utilise local assets and potentials to build complementary sources of income. That is, financial sustainability not only depends on the amount of income, but also on the ability to manage various available economic resources.

Saroh et al. (2025) research on revenue evaluation and fishing business sustainability strategy also reinforces the importance of seeing business sustainability through the ability to manage business income and risk. The research uses revenue evaluation and SWOT analysis to see the sustainability strategy of the fishing business. The approach provides a perspective that the economic sustainability of fishermen is not only related to production activities, but also with the ability to read economic conditions and choose strategies that are appropriate for the risks faced.

The comparison series shows the position Society Sumpang Saddang which is quite special. Business diversification does not develop as an option to leave the fisheries sector, but as a way to expand and connect available livelihoods. Seafaring activities remain a part of the household's economic life, while farms, agriculture, and other economic activities provide space for households to maintain acceptance when sea activities experience uncertainty. This form shows a close relationship between adaptive strategies, income diversification, and household financial management.

Financial management in this context cannot be understood only as an activity of recording

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income and expenditure. Broader financial management includes the ability of households to determine the source of revenue, regulate its use, adjust the priority of needs, and utilise available resources to deal with changes in income. This kind of character is in line with the concept of household finance which places the family as a unit of economic decision-making in allocating limited resources for various needs.

The main strength of the pattern that develops in Sumpang Saddang lies in the relationship between business diversification and financial management. Diversification does not just generate additional revenue, but has a function as a buffer when the source of income declines. Income from alternative sources can enter the household financial system and be used to maintain the fulfilment of needs. This position makes diversification as a part of financial management, not just a livelihood strategy.

The pattern carried out by the Fisherman Household in Sumpang Saddang Lanrisang Village at the same time gives a difference with the adaptation strategy that is only oriented towards job transfer or consumption reduction. Fishermen's Households in Sumpang Saddang Lanrisang Village show the tendency to build an economic buffer system based on local resources through the connection between the fisheries and agrarian sectors.

The idea of this buffer system has been seen in the results of a study that shows that Fishermen's Households in Sumpang Saddang Lanrisang Village do not completely abandon the fisheries sector, but divert some of the fishing activities to farms and rice field management.

The position of this research becomes clearer through the comparison. Previous research has explained diversification as a form of adaptation to environmental pressures, while research on fishermen's financial management focusses more on budgeting, recording, decision-making, and business sustainability. Andini's research brings together the two perspectives through a household management pattern that integrates sea income with diversified income sources. The integration shows that adaptive strategies not only take place through job changes, but also through regulating the relationship between various sources of income to maintain the financial sustainability of the household.

The financial management pattern of the Sumpang Saddang fisherman household can finally be understood as an adaptive, integrated, and local resource-based pattern. Adaptive nature is seen through the ability to adjust the source of acceptance with seasonal changes. The integrated nature is seen through the relationship between seafaring activities, ponds, agriculture, and other economic activities. The nature of being based on local resources is seen through the utilisation of assets, skills, and economic opportunities available in the community environment. The pattern shows that household financial sustainability is built not only through the ability to survive when income decreases, but through the ability to organise, combine, and optimise various available economic resources.

**c. The integration pattern between income from sea activities and business diversification results that can be developed in supporting the sustainability of the income of fishermen's households in Lanrisang Village, Pinrang Regency.**

The income integration pattern of Fishermen's Households in the Sumpang Saddang Lanrisang Village Neighbourhood is formed through the relationship between income from sea activities and income obtained from various business diversification activities. The uncertainty of the season causes sea activities to not always take place normally, so fishing households take advantage of other economic resources available in their environment. This condition encourages the formation of an income pattern that is not only based on sea products, but also utilises other economic activities as a source of supporting income.

The results of this study also show that agricultural activities, ponds, gardens, and other economic activities have a function in supporting household income when sea activities experience uncertainty. This pattern is related to the research of Juniarsih et al. (2024) which shows that the diversification of livelihood sources is one form of socio-economic adaptation strategies for the fishing community in the face of climate change. The diversification is carried out through the development of livelihood resources and the involvement of family members in other economic activities. Ramadhan (2025) also shows that fishermen's adaptation strategies can be carried out through side jobs, increased economic activity, and double livelihood patterns involving family

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members.

Although they have similarities in terms of the expansion of livelihoods, the patterns that develop in Fishermen's Households in the Sumpang Saddang Neighbourhood, Lanrisang Village, show different characters. Diversification is not solely done by leaving the main job and moving on to another job, but developed through the utilisation of resources that are already available in the household environment. Agricultural activities, ponds, and other fishery activities remain connected to the livelihood of the community. Putra and Syafiola (2024) showed that some fishermen in the face of seasonal uncertainty are looking for other jobs or seasonal jobs, while the diversification that maintains capacity as fishermen through fish farming is relatively limited. These differences show that Fishermen's Households in the Sumpang Saddang Neighbourhood of Lanrisang Village tend to develop diversification without completely breaking ties with the fisheries sector.

The connection between the fisheries and agrarian sectors is an important part of shaping the pattern. Fishermen's Households in the Sumpang Saddang Neighbourhood of Lanrisang Village have access to coastal resources as well as agrarian resources, so that sea activities can run side by side with ponds, rice fields, gardens, and other businesses. Wahyuni and Sutrisno (2026) showed that the fisherman's adaptation strategy is not always done by leaving the maritime life, but can be done through the utilisation of environmental potential to create alternative economic sources.

The integration pattern makes diversification not only function as additional income, but also as a buffer for household income. When income from sea activities is disrupted, sources of income from other activities can be used to reduce pressure on the ability of households to meet needs. The function shows that the existence of alternative sources of income has a direct relationship with the ability of households to maintain the continuity of income. In this context, diversification becomes part of the economic adaptation mechanism, not just the addition of job types.

The perspective in question is in line with the research of Oktaviani and Atmadja (2025) which shows that the financial management of the fisherman's family is carried out through various practises, such as budgeting, recording, decision-making, and financial planning that is adjusted to fluctuating income conditions. The management contributes to business sustainability because households are able to prioritise needs when income changes. In the Fisherman's Household in the Sumpang Saddang Neighbourhood of Lanrisang Village, the flexibility is not only seen in the use of income, but also in the ability to provide other sources of income when the income of the sea is uncertain.

The context of the empowerment of the fishing community is also reinforced by the research of Idrus et al. (2024). Where the research shows that business activities developed by fishing families can be part of strengthening the household economy through increasing business capacity, financial management, and marketing. This perspective reinforces that the economic sustainability of fishing families can be built through the development of business activities that utilise the capabilities and resources of the community.

Other strengthening comes from the research of Putri Amalia Imran and Imran Rosadi (2025) which emphasises the importance of business diversification, utilisation of local potential, and financial governance in supporting economic stability and independence. In the context of Fisherman Households in the Sumpang Saddang Neighbourhood of Lanrisang Village, the utilisation of the local potential is reflected in the ability to connect sea activities with agriculture, ponds, gardens, and other economic activities. Local resources are not only seen as environmental assets, but also as part of a source of revenue that can sustain households when the main source of income faces uncertainty.

Integration models or patterns can also be developed through increasing the added value to the resources that the community already has. Seafood products can not only be sold in fresh form, but can be developed through the processing of fishery products. Similarly, agricultural products, plantations, and livestock can be directed to processing and trading activities that provide additional revenue opportunities. Business development such as trading in fishery products, seafood processing, culinary, services, household business, and other economic activities are part of the diversification options that can be adjusted to the potential of the region, skills, capital, and market

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opportunities.

### 4.2.2. Comparison with Previous Studies

The findings are consistent with the socioeconomic adaptation perspectives of Ramadhan (2025) and Siswidiasti and Aida Kurniawati (2025), which emphasize adjustments in household behavior and livelihood activities in response to environmental change, economic shocks, and climate-related risks. The flexible character of the strategies identified in Sumpang Saddang also supports Amelia (2024) argument that adaptive strategies must respond to changing environmental conditions. Similarly, Juniarsih et al. (2024) identified livelihood diversification, adjustments to fishing facilities, family involvement, and alternative economic activities as important adaptation mechanisms. Putra and Syafiola (2024) likewise found that fishermen may respond to seasonal uncertainty by seeking alternative or seasonal employment. However, the present findings reveal a distinct pattern in which households generally maintain fishing activities while combining them with agriculture, fishpond cultivation, and other locally available economic opportunities.

This pattern also extends the perspectives of Putri Amalia Imran and Imran Rosadi (2025), who emphasized community empowerment, local resource utilization, and business diversification as mechanisms for strengthening economic capacity. Retno et al. (2025) further conceptualized adaptive strategies as involving adjustments to production patterns, fishing schedules, business diversification, financial management, and risk management. The findings from Sumpang Saddang are consistent with these perspectives because households respond to seasonal uncertainty through interconnected livelihood and financial adjustments rather than relying exclusively on a single coping mechanism.

Regarding household financial management, the findings correspond with Octaviani and Atmadja (2025), who discussed budgeting, financial recording, decision-making, and long-term financial planning among fishing families. The budget adaptability perspective discussed by Arodhiskara also supports the importance of reallocating resources when households experience financial pressure. Furthermore, Idrus et al. (2024) emphasized entrepreneurship, business financial management, and marketing as means of strengthening fishing families' economic capacity. Putri Amalia Imran and Imran Rosadi (2025) similarly highlighted financial governance and the utilization of local potential, while Saroh et al. (2025) emphasized revenue evaluation and risk management in sustaining fishing businesses.

The integration of income sources identified in Sumpang Saddang also corresponds with the diversification strategies described by Juniarsih et al. (2024) and the adaptive responses discussed by Ramadhan (2025). Nevertheless, the findings differ from strategies centered primarily on occupational relocation because households continue to maintain their connection with the fisheries sector. This characteristic is consistent with Wahyuni and Sutrisno (2026), who demonstrated that fishermen can develop alternative economic opportunities through the utilization of local environmental potential without necessarily abandoning maritime livelihoods. Overall, the findings extend previous research by demonstrating how livelihood diversification, household financial management, and the integration of coastal and agrarian resources operate together within a single household adaptation pattern.

### 4.2.3. Theoretical Contributions

The principal theoretical contribution of this study is the development of an integrated understanding of adaptive livelihood strategies and household financial management under seasonal uncertainty. The findings suggest that adaptation among fishing households can be understood through three interconnected characteristics: adaptability, income integration, and reliance on local resources. Adaptability refers to the ability to adjust livelihood activities to changing seasonal conditions. Income integration describes the combination of earnings from fishing and diversified economic activities. Local resource utilization reflects the capacity to mobilize available assets, skills, and economic opportunities within the surrounding environment.

This perspective extends the understanding of livelihood diversification by positioning it not merely as an alternative employment strategy but as a mechanism embedded in household financial management. Alternative economic activities contribute to financial continuity because their income can be used to support household needs

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when fishing income declines. Accordingly, financial sustainability depends not only on the amount of income generated but also on the capacity to combine income sources, allocate available resources, and adjust economic activities in response to changing conditions.

The findings also extend the financial management perspectives discussed by Octaviani and Atmadja (2025). Whereas financial management can be examined through budgeting, recording, decision-making, and expenditure adjustment, the present study emphasizes the additional role of developing complementary income sources. This contribution provides a conceptual connection between livelihood adaptation and household financial management, showing that the management of income under uncertainty involves both regulating existing resources and maintaining alternative sources of revenue.

#### 4.2.4. Practical and Policy Implications

The findings have implications for fishing households, local government, and community empowerment initiatives. At the household level, fishing families can strengthen their economic resilience by developing complementary businesses that correspond to their capabilities, assets, available capital, and local market opportunities. Potential activities include fishpond cultivation, agriculture, fish trading, seafood processing, culinary businesses, and other suitable enterprises. These activities should be developed as complementary sources of income rather than necessarily replacing fishing as the primary livelihood.

At the policy level, local government can strengthen assistance for household financial management, particularly in prioritizing expenditure, managing business capital, and maintaining the continuity of income sources. Support programs should also encourage stronger connections between fisheries and agrarian activities so that the resources available within the community can contribute to a more integrated livelihood system. The findings further suggest opportunities to increase the added value of fishery and agricultural products through processing, trading, and other locally appropriate business activities. Such initiatives should be aligned with the skills, financial capacity, resources, and market opportunities of fishing households. These implications are consistent with the emphasis on entrepreneurship and marketing capacity discussed by Idrus et al. (2024), financial governance highlighted by Putri Amalia Imran and Imran Rosadi (2025), and revenue and risk evaluation emphasized by Saroh et al. (2025).

#### 4.2.5. Integration with the Research Gap

The study addresses the gap between research that examines livelihood diversification as an adaptation to environmental pressures and research that focuses on household financial management practices. Previous studies discussed alternative employment, seasonal work, budgeting, expenditure adjustment, and business sustainability as separate aspects of economic adaptation. The findings from Sumpang Saddang bring these perspectives together by demonstrating how fishing households integrate marine income with earnings from agriculture, fishponds, gardens, and other economic activities within their household financial arrangements.

The study's contribution lies in identifying diversification as both a livelihood adaptation mechanism and a component of household financial management. Rather than interpreting alternative economic activities solely as additional employment, the findings demonstrate their role in supporting household needs when fishing income becomes uncertain. The integration of coastal and agrarian resources therefore provides a context-specific explanation of how fishing households maintain economic continuity without completely abandoning their principal livelihood. This contribution addresses the need to understand the relationship between local resource utilization, income diversification, and financial management under seasonal uncertainty.

#### 4.2.6. Acknowledgement of Study Limitations

The findings should be interpreted in light of the study's contextual scope. The research focuses on fishing households in the Sumpang Saddang Neighbourhood of Lanrisang Village, Pinrang Regency, where coastal and agrarian resources provide particular opportunities for livelihood diversification. Consequently, the identified adaptation pattern may not fully represent fishing communities in locations with different environmental conditions, resource availability, market access, or livelihood structures. In addition, the qualitative findings explain household

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experiences and reported practices rather than measuring the magnitude of the financial benefits generated by each alternative activity. The study therefore does not establish the relative contribution of individual income sources to household financial stability or demonstrate that all households benefit equally from diversification. These limitations indicate that the findings are most appropriately understood as a context-specific explanation of livelihood integration and household financial management under seasonal uncertainty.

## 5. Conclusion

### 5.1. Summary of Key Findings

This study examined adaptive strategies and the integration of income sources in the financial management of fishing households in Lanrisang Village, Pinrang Regency, particularly in the Sumpang Saddang Neighbourhood. The findings indicate that seasonal uncertainty affects fishing schedules, operational costs, catch availability, and household income, encouraging families to adopt active and flexible livelihood strategies. These strategies involve maintaining fishing activities while utilizing alternative resources, including fishponds, agricultural land, gardens, and other economic activities.

The study also demonstrates that household financial management involves combining income from marine activities with earnings from diversified businesses to support household needs when fishing income becomes uncertain. The integration of fisheries and agrarian resources creates a complementary livelihood system in which alternative income can function as a buffer against fluctuations in fishing revenue. Thus, the research objectives are addressed by demonstrating the relationship between seasonal adaptation, livelihood diversification, and household financial management in maintaining economic continuity.

### 5.2. Theoretical Contributions

The study contributes to the understanding of household adaptation by integrating livelihood diversification with financial management. It shows that adaptive strategies involve not only changes in employment or adjustments to fishing activities but also the deliberate combination of different income sources. Diversification is therefore understood as both a response to environmental uncertainty and a component of household financial management.

The study further identifies an integrated, adaptive, and locally grounded pattern of household economic management. Its contribution lies in explaining how fishing and agrarian resources can function together within household livelihood arrangements. This perspective provides a basis for further research on the relationship between environmental uncertainty, income integration, and household financial sustainability in fishing communities.

### 5.3. Practical and Policy Implications

Fishing households in Sumpang Saddang and other relevant areas of Lanrisang Village are encouraged to strengthen existing diversification activities, particularly fishpond cultivation, agriculture, fish trading, seafood processing, and other businesses suited to local conditions. These activities should be developed not only as supplementary sources of income but also as potential buffers when seasonal uncertainty disrupts fishing activities.

Local government should strengthen assistance in household financial management, including expenditure prioritization, business capital management, and the maintenance of sustainable income sources. Government initiatives can also encourage integration between fisheries and agrarian activities through support for fishery product processing, agricultural product development, trading, and service businesses. Such support should consider household capabilities, available resources, and local market opportunities to improve the sustainability of diversified economic activities.

### 5.4. Limitations of the Study

The study is limited to the experiences of fishing households in the Sumpang Saddang Neighbourhood of Lanrisang Village, where the availability of coastal and agrarian resources shapes livelihood opportunities. The findings therefore cannot automatically be generalized to fishing communities with different environmental and socioeconomic characteristics. Furthermore, the qualitative evidence provides an understanding of household adaptation and income integration but does not quantify the financial contribution of each livelihood source or establish the long-term effects of diversification on household welfare. These

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limitations should be considered when applying the findings to other settings.

### 5.5. Directions for Future Research

Future research could examine fishing households in different coastal regions to determine how variations in environmental conditions, resource availability, and market access influence livelihood diversification and income integration. Comparative studies could also explore differences between households that combine fishing with agriculture or fishpond cultivation and those that rely on alternative employment outside the fisheries sector.

Further studies could incorporate household income, expenditure patterns, business capital, and the contribution of individual livelihood sources to assess how diversification relates to financial sustainability over time. Longitudinal research could investigate whether integrated livelihood arrangements remain effective across different seasonal cycles. Additional research could also examine the role of local government assistance, financial literacy, entrepreneurship, and market access in strengthening the integration of fisheries and agrarian resources. These directions would help extend the context-specific findings of the present study and provide a broader understanding of household economic resilience under seasonal uncertainty.

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