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Building Food Security Based On Local Institutions On Bungin Island

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Abstract

Food security in small island communities is not only determined by food availability, but also by economic access, income stability, distribution, and the capacity of local institutions to respond to socio-ecological vulnerability. This study aims to analyze food security in the Bungin Island community based on local institutions by examining the roles of the government, community, cooperatives, micro, small, and medium enterprises (MSMEs), fishers, women, and households. This study used a descriptive qualitative approach on Bungin Island, Alas Subdistrict, Sumbawa Regency. Data were collected through observation, in-depth interviews, documentation, and supporting quantitative data. Informants were selected purposively and included village government officials, fisher groups, MSME actors, food traders or distributors, and women from fisher households. The results show that food security in Bungin Island is strongly influenced by limited land, dependence on the fisheries sector, food supplies from outside the island, weather conditions, and fluctuations in fisher income. Food vulnerability increases when bad weather prevents fishers from going to sea, reducing income and weakening household purchasing power. Local institutions, such as cooperatives, fisher groups,

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women's groups, MSMEs, mutual cooperation, and kinship networks, play an important role in strengthening food access, marketing marine products, and supporting household adaptation strategies. This study recommends strengthening the legality of fisher groups, developing cooperatives, empowering women, providing production equipment, improving access to capital, offering training in marine product processing, and expanding markets in a sustainable way.

Keywords: food security; local institutions; Bungin Island; coastal community; households

INTRODUCTION

Food security is a strategic issue that is not only related to the availability of food commodities, but also includes access, utilization, stability, sustainability, and the ability of households to meet their daily food needs. In the food security framework, food is considered secure when people have physical and economic access to sufficient, safe, nutritious, and appropriate food for an active and healthy life. Therefore, food security cannot be understood only as a production issue, but also as an issue of distribution, purchasing power, supply stability, and the social capacity of communities to face pressures or shocks. The FAO and the Committee on World Food Security emphasize that food security is built on four main pillars: food availability, access, utilization, and stability (Khan et al., 2026; Awoke et al., 2026; Bulkis et al., 2026).

In the context of small islands and coastal areas, food security has different characteristics from agrarian regions. Limited land, dependence on marine resources, transportation access, weather changes, limited economies of scale, and dependence on food supplies from outside the area are important factors that influence community food conditions. Small island areas generally have structural vulnerabilities because of limited land resources, remoteness, environmental risks, and high dependence on external markets and the marine sector. These conditions make food security in small island communities strongly influenced by income stability, smooth distribution, weather conditions, and community capacity to manage local resources (Mutanda & Nhamo, 2026; Nomura et al., 2026; Fatai et al., 2026).

Bungin Island is one small island area with distinctive socio-ecological characteristics. Most of the community depends on the fisheries sector, including work as fishers, lobster farmers, pearl oyster farmers, capture fisheries actors, and marine product processors. The sea is the main source of livelihood for the community, both as a source

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of income and as a source of household food. However, limited land on Bungin Island prevents the community from developing broad agricultural-based food production. Thus, household food fulfillment cannot fully rely on local production. It depends on a combination of marine products, fisher income, household economic activities, and food supplies from outside the island.

These conditions show that food security in Bungin Island is not only determined by the availability of marine products, but also by the ability of households to access food through income, markets, transportation, and social networks. When bad weather, high waves, or strong winds prevent fishing activities, fisher income decreases and household ability to buy food also weakens. In coastal communities, livelihood, food, and the sustainability of marine ecosystems are closely connected. Coastal communities depend heavily on healthy marine resources, but they also often face vulnerability due to climate change, fluctuations in fish catch, and limited access to decision-making processes. Therefore, food vulnerability on Bungin Island is more closely related to income instability, limited access, dependence on food supplies from outside the island, and the weak institutional system needed to support sustainable food security (Chaity et al., 2026; Gbedemah et al., 2026; Hinlo & Lee, 2026).

Household food security is the result of interactions among economic access, income stability, climate risk, institutions, and coping strategies. Studies on food vulnerability show that low-income households tend to develop consumption adjustment strategies when income and market access are disrupted. These strategies include reducing expenditure, changing food types, or relying on social networks (Khan et al., 2026; Aryatika et al., 2026; Gebretinsae et al., 2026). In coastal communities, livelihood vulnerability is strongly related to weather changes, environmental risks, market access, and dependence on marine resources. Studies of coastal communities emphasize that adaptation strategies need to combine livelihood strengthening, local governance, and access to financing so that households become more resilient to climate and market shocks (Mutanda & Nhamo, 2026; Chaity et al., 2026; Gbedemah et al., 2026). In the context of fisheries and island regions, marine products function not only as a source of income but also as a source of food and nutrition. Literature on fisheries, seafood trade, and island food security shows the importance of market access, fisheries management, and seafood distribution in strengthening food and nutrition security in coastal communities (Nomura et al., 2026; Huang et al., 2026; Fatai et al., 2026).

Another issue that needs attention is the limited integration of the roles of government, local institutions, communities, and households in building a sustainable

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food security system. The government has implemented several assistance and empowerment programs, but community access to these programs is still constrained by weak group legality, limited information, and unequal assistance. On the other hand, local institutions have important potential as social capital to strengthen food access, distribution, marketing of marine products, food processing, and protection for vulnerable households. Community social capital, including networks, trust, shared norms, and collective work, is an important element in building community resilience, especially in facing environmental and social pressures (Bulkis et al., 2026; Okyere et al., 2026; Lukambagire et al., 2026). In addition, strengthening institutions, cooperatives, and women's empowerment is related to household food security. Local institutions can strengthen program coordination and access to assistance, while women play an important role in consumption decisions, food diversification, and household resource management (Bulkis et al., 2026; Sassi, 2026; Macha et al., 2026).

In addition to institutional aspects, the role of women in household food security also needs to be placed as an important part of local food security program design. In fisher households, women generally manage food expenditure, regulate family consumption, determine daily priorities, and make adjustments when household income decreases. Women also have the potential to strengthen the household economy through marine product processing, microenterprises, and community-based group activities. The FAO emphasizes that strengthening women's roles in fisheries and aquaculture is important to support food security, nutrition, livelihoods, and women's leadership in small-scale fishing communities. Therefore, food security in Bungin Island needs to be seen not only as an issue of food assistance, but also as a socio-economic empowerment process that involves households, women, local institutions, and the government (Sassi, 2026; Macha et al., 2026; Umezulike, 2026).

Based on this background and these problems, this study is directed at understanding food vulnerability in the Bungin Island community in facing limited land, dependence on food supplies from outside the island, weather changes, and uncertainty in fisher income. This study also examines the role of the government in supporting local food security governance, including program facilitation, assistance, mentoring, strengthening group legality, and community empowerment. In addition, this study analyzes the role of communities and local institutions in strengthening access, distribution, food stability, and marine-based economic development. Special attention is also given to the adaptation strategies of fisher households, especially the role of women in managing consumption, food expenditure, family income, and daily food needs. Thus,

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this study is expected to formulate strategies for strengthening local institution-based food security through synergy among the government, communities, cooperatives, business groups, fishers, and households on Bungin Island.

METHODOLOGY

Research Site

This research was conducted on Bungin Island, Alas Subdistrict, Sumbawa Regency, West Nusa Tenggara Province. The research site was selected purposively by considering the characteristics of Bungin Island as a small island area with high population density. In addition, Bungin Island has limited land for food production, so the community cannot rely on agriculture as the main source of food fulfillment. The Bungin Island community also has a strong dependence on fisheries activities and food supplies from outside the island. On the other hand, Bungin Island has strong social-community institutions, such as kinship relations, mutual cooperation, fisher groups, aquaculture groups, women's groups, cooperatives, and local food business actors. These characteristics make Bungin Island a relevant location for research on local institution-based food security.

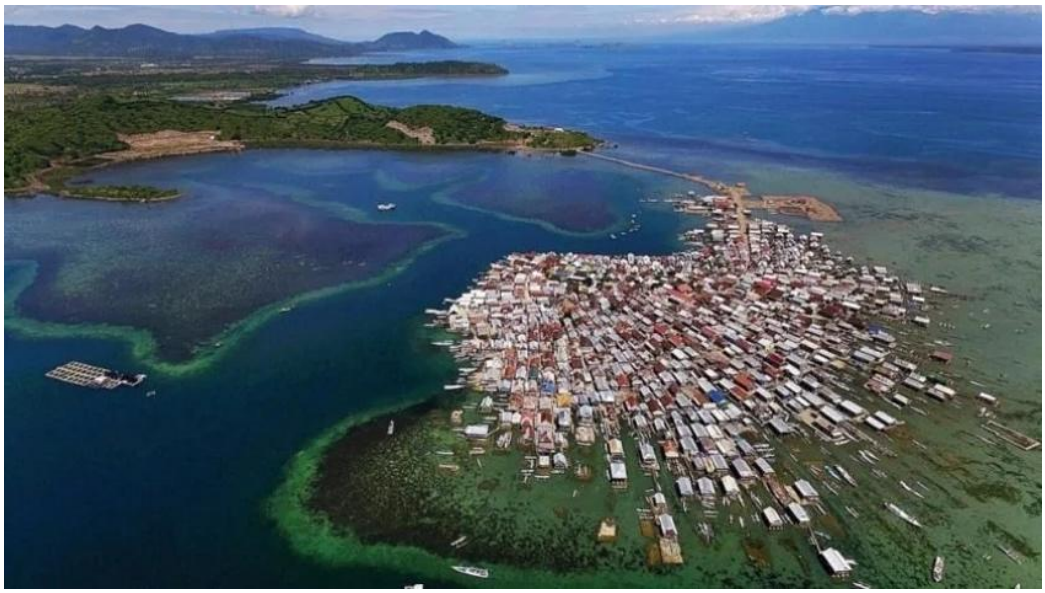


Figure 1. Research Site

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Research Design

This study used a descriptive qualitative approach. This approach was selected because the study focuses on an in-depth understanding of social practices, local institutions, and household strategies in building food security on Bungin Island. Through this approach, the study describes in detail how the community faces limited land, dependence on the fisheries sector, and socio-economic dynamics that influence household food fulfillment.

Data Collection

Data collection in this study was carried out through informant selection, observation, in-depth interviews, and documentation. Research informants were selected purposively based on their involvement, experience, and knowledge of food security, local institutions, and the socio-economic life of the Bungin Island community. The informants included village government officials, food business actors, traders or distributors of food commodities, women or wives in fisher households as managers of family food consumption, and community groups or local institutions that play a role in socio-economic activities.

Observation was conducted to obtain a direct picture of social, economic, and environmental conditions, fisheries activities, food access, and local institutional practices on Bungin Island. In-depth interviews were conducted with key informants to explore information about food security conditions, the role of government, community roles, local institutions, and household strategies in meeting food needs. Documentation was conducted for community activities, village data, government programs, local institutional activities, and food processing and distribution practices.

Data Analysis

The data in this study were analyzed qualitatively through three main stages: data reduction, data presentation, and conclusion drawing. Data reduction was carried out by selecting, simplifying, and grouping data according to research themes, such as food security conditions, food vulnerability, the role of government, community roles, local institutions, and household strategies. Data presentation was carried out in the form of descriptive narratives by grouping findings based on the roles of government, community, and households in building local food security.

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RESULTS

Socio-Ecological Conditions of Bungin Island and Food Vulnerability

The Bungin Island community has socio-ecological characteristics as a coastal community that is highly dependent on the fisheries sector. The main livelihood of the informants is fishing, with additional activities such as capture fisheries, lobster netting, and aquaculture. This condition shows that community livelihoods are closely connected to the sea, both as a source of income and as a source of family food. As a small island area, Bungin Island faces limited land for food production. Household food needs cannot be fully met from local production, so the community depends on supplies from surrounding areas, especially from Alas or neighboring islands. This dependence makes household food security strongly influenced by transportation access, weather, food prices, and fisher income. Food vulnerability is most visible when weather changes, wind, irregular rain, high waves, or sea conditions prevent fishers from going to sea (Interview with one Head of a Fisher Group). In line with Mutanda & Nhamo, 2026; Chaity et al., 2026; Pangesti & Hizbaron, 2026, reduced fish catch directly affects income and the fulfillment of family food needs. This impact is felt not only by fishers as the main income earners, but also by wives and children at home.

The Bungin Island community is a coastal community whose life is highly dependent on marine resources. Most residents work as fishers, lobster farmers, pearl oyster farmers, and capture fisheries business actors. This condition shows that the sea is the main source of livelihood for the community, both as a source of income and as a source of family food. Bungin Island is a small island with limited land. This limitation makes it difficult to develop agriculture on a broad scale. Therefore, community food security does not depend on local agricultural production, but on marine products and food supplies from outside the island, especially from Alas and the subdistrict market. The Village Head explained that community food vulnerability mainly occurs when weather conditions do not support fishing activities. Strong winds, irregular rain, and high waves prevent fishers from working optimally. In this situation, fish catch decreases, household income falls, and the ability to buy food weakens. Therefore, food vulnerability on Bungin Island is not only caused by the unavailability of food commodities, but is more related to the decline in community income due to weather disturbances and dependence on the fisheries sector (Interview with the Head of Bungin Village, Alas Subdistrict, Sumbawa Regency).

Household life on Bungin Island is closely related to the fisheries sector. Mr. S has a main livelihood as a fisher and inseminator, and he also works in the processing of fish

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floss, smoked fish, and flour milling. This condition shows that community livelihoods do not only come from fish catch, but also from food processing businesses based on marine products (Interview with one MSME actor in Bungin Village).

In Bungin Island, community life depends greatly on the sea. Many residents work as fishers, so fish as a side dish is usually easy to obtain. However, other needs such as rice, vegetables, cooking oil, sugar, eggs, tempeh, and other basic commodities are mostly bought from outside, especially from Alas. Land in Bungin is very limited, so there is almost no space for planting as in other villages. Therefore, the community cannot rely too much on agricultural products. For food needs other than fish, households have to buy from markets or from traders who bring goods from outside. Food vulnerability is usually felt when the weather is bad or when staple food prices increase. When strong winds or high waves occur, fishers find it difficult to go to sea. When fish becomes limited, side-dish choices also become limited. Thus, although the community lives close to the sea, vulnerability remains because not all food is available from within the island (Interview with one woman in a fisher household as a manager of family food consumption in Bungin Village).

Food Availability, Access, and Stability in Households

Food availability in fisher households on Bungin Island comes from two main channels: marine products and food supplies from outside the island. Marine products are both a food source and an income source, while staple foods such as rice and other food commodities are obtained through purchase. This shows that household food security is not only determined by the availability of fish catch, but also by the family's economic ability to buy food. From the aspect of food access, family income mainly comes from the sale of fish catch and aquaculture products. Market access is relatively open because the Merah Putih Fisher Cooperative helps connect fishers with large traders. In addition, some fishers sell their catch directly to the Alas Market. A relatively short distribution chain makes the marketing of fish catch and the distribution of food needs relatively smooth. However, household food stability remains vulnerable to seasonal changes and extreme weather. When fish catch decreases, the household strategy is to reduce meal portions or replace part of consumption with other carbohydrate sources such as cassava. Interestingly, informants stated that families do not go into debt or sell assets when facing food pressure. Instead, they adjust their consumption (Interview with one Fisher Group in Bungin Village, Alas Subdistrict, Sumbawa Regency).

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As long as fish catch is good, household food conditions are relatively secure. However, when the weather is bad and fishers cannot go to sea, family income decreases. This condition directly affects the ability of households to buy daily food needs. Community food access is also influenced by markets, transportation, and staple food prices. Food supplies from Alas and the subdistrict market remain the main support for community needs. If distribution is disrupted by bad weather, food prices may increase or supplies may be delayed. In facing food pressure, households usually adjust their consumption. Strategies include reducing expenditure, managing meal portions, choosing cheaper foods, or replacing part of the carbohydrate source with other foods. However, community social solidarity remains an important strength. If a family faces difficulty, assistance from close relatives or neighbors still operates through mutual cooperation mechanisms (Interview with the Head of Bungin Village, Alas Subdistrict, Sumbawa Regency).

Family food availability is supported by income from fishing, insemination work, and processed food businesses. The main household food needs include rice, fish, eggs, and tempeh. However, some food commodities still have to be bought in Alas. When food shortages occur, the strategy used is to reduce the amount of rice cooked as the main carbohydrate source (Interview with one MSME actor in Bungin Village).

For our family's daily food, rice is the most important. The side dish is often fish because fish is easier to obtain in Bungin. However, for other food ingredients, we have to buy them. If stocks in the village are unavailable or the prices are high, we usually have to go to Alas. During the past year, our family food condition has remained fairly stable. This means that we can still eat every day, although simply. When income is low, we adjust our spending. I usually cook only what is needed, choose cheaper side dishes, or use food ingredients available at home. For me, a food-secure family does not mean always eating complete and expensive food, but being able to meet daily food needs. If there is a shortage, we try to replace it with other additional food or manage portions so that it is enough for the family (Interview with one woman in a fisher household as a manager of family food consumption in Bungin Village, Alas Subdistrict, Sumbawa Regency).

Marine products function not only as a source of income, but also as a source of food and nutrition. Literature on fisheries, seafood trade, and island food security shows the importance of market access, fisheries management, and seafood distribution in strengthening food and nutrition security in coastal communities (Khan et al., 2026; Aryatika et al., 2026; Ngwenyama et al., 2026).

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The Role of Government in Local Food Security Governance

The role of the government in local food security governance can be seen in efforts to form and strengthen fisher group institutions. However, the research results show that fisher institutions are not yet fully formalized. Aquaculture groups are clearer in their existence, while fisher groups are still in the process of formation and legal registration through a village decree. This condition affects community access to government assistance programs. The absence of group legality means that not all fishers or group members can access assistance from the central or local government because assistance generally requires an official group and a formal proposal. In addition, limited information from extension workers or field officers also causes unequal access to government programs. Therefore, the role of government still needs to be strengthened, not only through food or economic assistance, but also through institutional facilitation, group legality, information dissemination, proposal assistance, and fisher capacity building. Local food security governance on Bungin Island requires policies that suit the character of a small island, namely an area with limited land but large potential in the fisheries sector and social institutions (Interview with one Fisher Group in Bungin Village, Alas Subdistrict, Sumbawa Regency).

The village government has an important role in facilitating food security programs, social assistance, and community empowerment. Available or potential programs include staple food assistance, social assistance, village food security programs, fisher assistance, lobster seed distribution, strengthening fisher cooperatives, and women's empowerment training in marine product processing. However, food security governance on Bungin Island cannot be treated the same as in agrarian villages. Because agricultural land is very limited, food security programs are more appropriately directed toward strengthening the fisheries sector, marine aquaculture, fish catch processing, and market access. For men, relevant programs include assistance with fishing facilities, fishing gear, fish cages, and lobster seed distribution. For women, suitable programs include training in fish processing, such as fish floss, smoked fish, fish balls, fish crackers, or other processed products. The village government also has a role in strengthening community group institutions. Aquaculture groups have started to operate, while fisher groups still need stronger legality through a village decree. This legality is important because many government assistance programs require official groups and formal proposal submission (Interview with the Head of Bungin Village, Alas Subdistrict, Sumbawa Regency).

Government support for MSMEs still needs to be strengthened. The Dende Kembar MSME already has business legality in the form of a home industry food

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production license (PIRT), halal certification, and a brand. However, production equipment assistance from the village government has not yet been provided. Equipment assistance was previously obtained from the district government. This shows that MSME actors already have business readiness, but still need production facilities and continuous mentoring (Interview with one MSME actor in Bungin Village, Alas Subdistrict, Sumbawa Regency).

The village government has helped the community through the distribution of staple foods. Such assistance is very useful, especially for families with unstable income. If there is assistance in the form of rice, cooking oil, or other basic needs, it can reduce household spending. In addition to staple food assistance, there have also been socialization activities from the local government involving women, especially on processing fish catch. In my opinion, such activities are important because women can learn to process fish into fish floss, smoked fish, or other products. Government programs should not only provide staple food assistance, but also training, production equipment, small capital, and marketing support. If women can make processed products, marine products in Bungin can be used better and can help household income (Interview with one woman in a fisher household as a manager of family food consumption in Bungin Village, Alas Subdistrict, Sumbawa Regency).

Local Institutions as Social Capital for Food Security

Local institutions are an important factor in maintaining food security in the Bungin Island community. Although formal fisher groups are not yet fully strong, the community still has customary rules, village rules, and social mechanisms that regulate shared life. These mechanisms support relatively fair access for men and women in resource use. The Merah Putih Fisher Cooperative is an important institution that has begun to help the community in economic aspects, especially by facilitating market access and marketing fisheries products. The cooperative acts as a connector between fishers and large traders, so that fish catch can be marketed more easily. The existence of this cooperative shows that local institutions can strengthen the economic position of fishers and indirectly support household food security. However, local institutions still face challenges, including weak group legality, unequal program information, and limited mentoring (Interview with one Fisher Group in Bungin Village, Alas Subdistrict, Sumbawa Regency). Therefore, strengthening local institutions is a major need so that the community can more easily access assistance, financing, markets, and empowerment programs (Castillo et al., 2026; Jokka & Mahanta, 2026; Li et al., 2026).

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Community life is still strongly supported by deliberation, mutual cooperation, social rules, and strong kinship relations. One economic institution that has started to play a role is the Merah Putih Fisher Cooperative. This cooperative helps connect fishers with buyers or large traders. With the cooperative, community fish catch can be marketed more easily and the economic position of fishers can be strengthened. However, local institutions still face challenges. Some community groups do not yet have strong legality, so they cannot fully access government assistance. In addition, the distribution of program information still needs to be improved so that assistance and empowerment can reach all community groups. Thus, local institutions on Bungin Island function as a bridge among the community, market, and government. Cooperatives, aquaculture groups, fisher groups, the Family Welfare Movement (PKK), and village deliberation forums can become the foundation for strengthening community-based food security (Interview with the Head of Bungin Village, Alas Subdistrict, Sumbawa Regency).

Business institutions are important capital for Informant 03. Legal documents such as PIRT, halal certification, and a brand strengthen the position of MSMEs in developing processed products. However, customary rules also influence economic activities. If there is a family ceremony in the village, men are not allowed to go to sea. This condition affects the availability of fish as raw material for fish floss, so production cannot always be continuous (Interview with one MSME actor in Bungin Village, Alas Subdistrict, Sumbawa Regency).

In Bungin, people still know and help one another. If a family faces difficulty, assistance from close relatives or neighbors usually still exists. Social relations like this are important, especially when a family is experiencing shortages. In addition, women's activities such as PKK or socialization on fish catch processing can also help. If women are gathered and given training, they can learn together. From there, small businesses may emerge, such as fish floss or other processed products. In my opinion, institutions such as women's groups, PKK, cooperatives, or business groups are important for supporting food security. If women work individually, it is difficult for them to develop. However, if they are organized in groups, it becomes easier to receive training, equipment assistance, capital, and market access (Interview with one woman in a fisher household as a manager of family food consumption in Bungin Village, Alas Subdistrict, Sumbawa Regency).

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Household Adaptation Strategies in Food Fulfillment

Fisher households on Bungin Island apply several adaptation strategies to meet food needs. The main strategy is to rely on a combination of fish catch, aquaculture, and food purchases from outside the island. Lobster farming is seen as one form of household economic reserve for facing uncertainty in fish catch. In household management, there is a division of roles between men and women. Men generally act as the main income earners, while women or wives manage finances, buy food, cook, and regulate family consumption needs. Women have an important position in determining food expenditure priorities and arranging strategies when families face economic pressure. The results also show that women have a strong role in household decision-making, especially regarding food purchases, income use, children's education, productive asset management, and crisis strategies. Women's voices tend to be heard in food matters because they are considered to understand the family's daily consumption needs best (Interview with one Fisher Group in Bungin Village, Alas Subdistrict, Sumbawa Regency). From a gender perspective, women also tend to be the first to make consumption sacrifices during a food crisis, for example by reducing their meal portions, postponing personal needs, or choosing lower-quality food for the sake of other family members. This shows that women have a strategic role, but at the same time bear a large domestic burden in maintaining family food security (Gebretinsae et al., 2026; Tien Ho et al., 2026).

When fish catch decreases, households adjust spending and consumption patterns. Housewives have an important role in managing finances, buying food, cooking, and ensuring that family food needs are still met. In food matters, women are often the ones who understand daily family needs best. The gender division of roles in Bungin households shows that men generally act as the main income earners through fishing, while women manage household consumption and finances. However, women do not only perform domestic roles. They are also involved in decision-making, especially regarding food expenditure, children's education, and family strategies when income decreases. Women's empowerment programs through training in marine product processing are important because they can expand family income sources. Processing fish into fish floss, smoked fish, fish balls, or fish crackers can increase the added value of fish catch and strengthen the household economy (Interview with the Head of Bungin Village, Alas Subdistrict, Sumbawa Regency).

Adaptation is also carried out through job diversification. In addition to fishing, the informant works as an inseminator and manages fish floss, smoked fish, and flour milling businesses. When fish raw materials are difficult to obtain, fish floss production is

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replaced with chicken or beef floss. This strategy shows the adaptive capacity of MSMEs in maintaining business continuity (Interview with one MSME actor in Bungin Village, Alas Subdistrict, Sumbawa Regency).

At home, my husband earns income as a motorcycle taxi driver. I manage the family's food needs. If there is money for household spending, I manage it so that it is enough to buy rice, side dishes, and other needs. When income is low, I have to be more economical. The strategy we usually use is cooking according to need, reducing nonessential spending, choosing cheaper side dishes, or replacing food with ingredients that are available. If there is an opportunity to help with fish floss production, I join because it gives me experience and helps the family economy a little. In my opinion, women have a major role in maintaining family food. Mothers know best what the kitchen needs, what should be bought, and how to manage food so that it is enough. Therefore, women need to be involved in food security programs, especially training in marine product processing and small household businesses (Interview with one woman in a fisher household as a manager of family food consumption in Bungin Village, Alas Subdistrict, Sumbawa Regency).

Actor Synergy in a Community-Based Food Security Model

The research findings show that food security in Bungin Island cannot be understood only as a matter of food availability, but as the result of interactions among government, community, local institutions, and households. A community-based food security model on Bungin Island can be built by strengthening three main elements. First, formal fisher institutions need to be strengthened through group legality and government mentoring. Second, local economic institutions such as fisher cooperatives need to be strengthened to expand access to markets, financing, and food distribution. Third, the role of households, especially women, needs to be recognized because they are key actors in managing family food. Food security on Bungin Island should be directed toward a model that is not only assistance-based, but also based on empowerment, local institutions, and household social adaptation. Synergy among government, community, and households is an important foundation for building more sustainable food security in small island areas (Interview with one Fisher Group in Bungin Village, Alas Subdistrict, Sumbawa Regency). The government plays a role in providing regulations, group legality, assistance programs, and institutional support. The community plays a role through customs, village rules, cooperatives, social networks, and solidarity. Meanwhile,

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households are the basic unit that carries out daily food adaptation strategies (Okyere et al., 2026; Castillo et al., 2026; Bulkis et al., 2026).

Food security on Bungin Island must be built through synergy among the village government, fishers, cooperatives, community groups, and households. The village government acts as a facilitator of programs and institutional strengthening. Fishers and aquaculture actors play a role in producing marine products. Cooperatives help strengthen market access. Women play a role in managing family food and developing processed fish catch businesses. A community-based food security model on Bungin Island can be directed toward four main strategies. First, strengthening fisher and aquaculture institutions through group legality. Second, developing marine aquaculture such as lobster and pearl oysters as household economic reserves. Third, empowering women through training in fish catch processing. Fourth, strengthening fisher cooperatives as local economic institutions that connect the community with markets. With this model, food security is not only understood as staple food assistance or temporary food availability, but as a community empowerment process based on local potential. Bungin Island has limited land, but it has strengths in marine resources, community solidarity, local institutions, and active household roles in maintaining food sustainability (Interview with the Head of Bungin Village, Alas Subdistrict, Sumbawa Regency).

MSME actors can become important actors in a community-based food security model. Processing fish catch into fish floss, smoked fish, and other processed products can increase the added value of marine products. To strengthen this role, government support is needed in the form of equipment assistance, access to capital, training, business legality, and market expansion (Interview with one MSME actor in Bungin Village, Alas Subdistrict, Sumbawa Regency) (Ngwenyama et al., 2026; Tien Ho et al., 2026; Rahmat & Neilson, 2026).

Food security on Bungin Island cannot be handled only by families. There must be cooperation among the village government, community, fishers, women, business groups, and cooperatives. Food needs in Bungin are different from those in other villages. Here, agricultural land is very limited, so the main strengths are the sea and community cooperation. The village government can help through staple food programs, training, equipment assistance, and business capital. Fishers provide marine products. Women can help process fish catch into products such as fish floss, smoked fish, fish crackers, or other processed foods. If cooperatives or business groups exist, they can help market these processed products. If all parties cooperate, family food security can become

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stronger. Women will not only depend on their husbands' income, but can also support the family economy through processed product businesses. Therefore, in my opinion, the food security model in Bungin must be community-based because the community still has a culture of helping one another, mutual cooperation, and deliberation (Interview with one woman in a fisher household as a manager of family food consumption in Bungin Village, Alas Subdistrict, Sumbawa Regency).

DISCUSSION

A Food Security Model Based on Local Institutions

Socio-ecological vulnerability and limited land influence the community's dependence on the fisheries sector and food supplies from outside the island. This dependence makes fisher income, market access, food distribution, and price stability determining factors for household food security. Under these conditions, the government and local institutions play a role in strengthening community capacity through group legality, assistance, training, cooperatives, MSMEs, and social networks. At the micro level, women and fisher households apply consumption and economic adaptation strategies to maintain family food fulfillment. The synergy among all these actors forms a local institution-based food security model that fits the character of Bungin Island as a coastal and small island area (Mutanda & Nhamo, 2026; Chaity et al., 2026; Nomura et al., 2026).

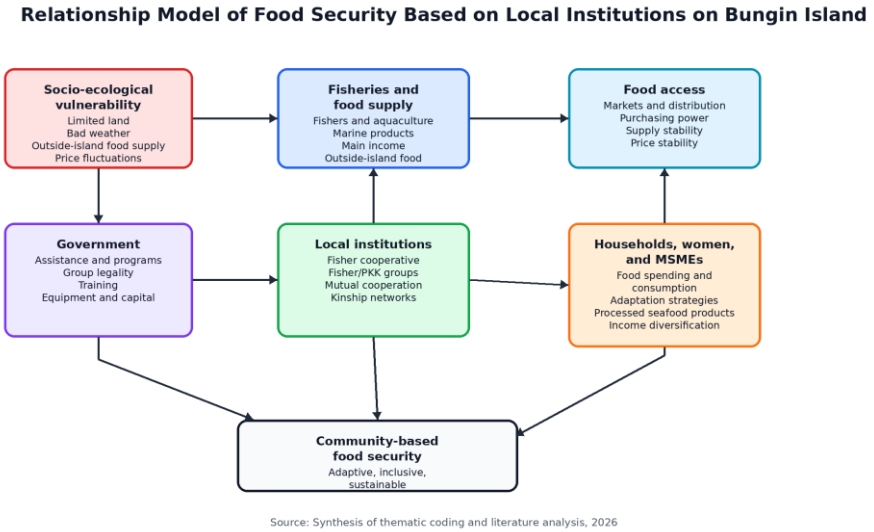


Figure 2. Relationship Model of Food Security Based on Local Institutions on Bungin Island

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This model shows that food security in the Bungin Island community is influenced by the relationship among socio-ecological vulnerability, the role of government, local institutions, the fisheries sector, MSMEs, women, and household adaptation strategies. The government facilitates group legality, assistance, training, production equipment, and access to capital. Cooperatives and local institutions strengthen market access, distribution, and social solidarity. Fishers provide marine products and the main source of income, while women manage consumption, food expenditure, and household adaptation strategies. Marine product processing MSMEs strengthen income diversification and the added value of fisheries products. These relationships form the foundation for a more adaptive and sustainable community-based food security system (Bulkis et al., 2026; Castillo et al., 2026; Sassi, 2026).

A coastal food security model needs to be based on the relationship among governance, local economic institutions, livelihood diversification, and household adaptive capacity. Community-based approaches in small-scale fisheries emphasize the importance of participation, market access, and recognition of local actors as a foundation for food sustainability (Castillo et al., 2026; Okyere et al., 2026; Lukambagire et al., 2026).

Cooperatives and local economic institutions act as bridges among households, markets, and the government. Studies on cooperatives and livelihood resilience show that local economic institutions can improve access to capital, strengthen bargaining position, and increase household resilience to economic shocks (Jokka & Mahanta, 2026; Li et al., 2026).

The development of processed marine product MSMEs is also relevant as a strategy for income diversification and food loss reduction in the supply chain. Fish processing can increase added value, extend shelf life, and reduce household dependence on the sale of fresh fish catch (Ngwenyama et al., 2026; Rahmat & Neilson, 2026; Tien Ho et al., 2026).

CONCLUSION

Community food security is influenced by limited land, dependence on the fisheries sector, food supplies from outside the island, and instability in fisher household income. Food vulnerability mainly occurs when bad weather prevents fishing activities, causing fish catch and income to decrease and affecting household ability to access food. The role of government in local food security can already be seen through social assistance, fisher programs, training in marine product processing, and institutional strengthening. However, this support still needs to be strengthened through the legalization of fisher

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groups, equal distribution of information, mentoring, access to capital, production equipment assistance, and market development. Food security programs on Bungin Island need to be adjusted to the character of a small island based on fisheries, not land-based agriculture. Therefore, strengthening food security on Bungin Island should be directed toward a local institution-based model that integrates the roles of government, community, cooperatives, MSMEs, fishers, women, and households. The main strategies needed include strengthening group legality, developing fisher cooperatives, empowering women, strengthening marine product processing businesses, improving access to capital, providing production equipment, and expanding markets in a sustainable way.

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