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LIVELIHOOD STRATEGIES FOR MANAGING FOOD SECURITY IN THE FISHING COMMUNITY IN THAILAND

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Abstract

The present study sought to investigate 1) changes and impacts of food security on the fishing community in Phetchaburi Province, Thailand, and 2) livelihood strategies for managing food security in this community. A qualitative research methodology, precisely a case study approach, was utilized, and its key informants involved three groups: those at a policy level, at a community level, and from the private local fisheries sector, totaling 36 informants selected through purposive sampling. In-depth interviews were conducted, and the data were analyzed through content analysis and presented using analytical descriptions. The results demonstrated that the changes and impacts of food security on the fishing community in Phetchaburi Province can be classified into two phases. The first phase - the beginning of change - involved the arrival of external investors, the encroachment on natural resources by capitalists, the use of commercial fishing vessels, and the migration of community members to work outside their community. The other involved the consequences of the changes, including environmental issues, coastal ecosystems and natural resources, and a decline in aquatic resources within the community. Additionally, it was revealed that the livelihood strategies for food security management in the fishing community in Phetchaburi Province involved establishing groups for the conservation of natural and coastal resources, planning the preservation of natural resources, monitoring illegal and non-compliant fishing activities by dredging vessels, fostering awareness and a sense of conservation for natural and coastal resources, ensuring the sustainable management of those resources, and managing community resources.

Keywords: Livelihood Strategies, Managing Food Security, Fishing Community in Thailand

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Introduction

How have communities responded to changes in food security? What livelihood strategies have they used to manage food security? This research article considers these questions and presents livelihood strategies for managing food security in fishing communities in Phetchaburi Province, Western Thailand.

Thailand strongly emphasizes food security policies in its 20-Year National Strategic Plan (The Prime Minister's Office, 2024). These policies underscore national growth, the well-being of its citizens, the sustainability of natural resources and the environment, and energy and food security, aligning with the 13th National Economic and Social Development Plan (2023-2027) (Office of the National Economic and Social Development Board, 2024). In particular, food security has been defined as a development milestone under Goal 2: improving infrastructure and management systems for food security and sustainability, Strategy 10: developing food security management systems, and Sub-strategy 10.1: enabling community access to food security in terms of quantity and nutrition, along with diverse, safe, and adequate food security reserves, and promoting the establishment of the food security reserve model for communities. This highlights the significance of policies on community food security development in Thailand.

Located in Bang Khun Sai Sub-district, Ban Laem District, Phetchaburi Province, Western Thailand, the Bang Khun Sai fishing community is adjacent to the Gulf of Thailand and surrounded by rich mangrove forests, which serve as a vital spawning ground for aquatic life in the province. Moreover, the area in this sub-district is enriched by sediment deposited by the Phetchaburi River, which provides an abundant food source for various aquatic species. The bay's curve acts as a natural barrier, shielding it from waves and mitigating their impact. At the same time, the water's salinity and temperature are conducive to breeding, spawning, and nurturing aquatic larvae. This community has an abundant mangrove ecosystem and serves as the last remaining habitat for natural blood cockles in Thailand, where they can mature naturally or be collected for farming, contributing to the development of the community's local economy.

However, the Bang Khun Sai community in Phetchaburi Province, Thailand, has been experiencing a continuing decline in aquatic resources. This stems from a shift from traditional, labor-intensive fishing practices to mechanical equipment, especially cockle dredgers, resulting in persistent water turbidity. These capture cockles from mudflats, which must be sieved, leaving only cockles and aquatic life. Hence, the water turbidity renders the environment uninhabitable for aquatic life. Additionally, the dredgers' capture and disposal of juvenile cockles contribute to the depletion of numerous aquatic species and the potential extinction (Department of Marine and Coastal Resources, 2024).

Meanwhile, environmental changes have emerged due to the degradation of coastal environmental quality along the Gulf of Thailand. In particular, the dredging of natural blood cockles has resulted in the loss of the nutrient-rich topsoil, exposing nutrient-deficient mudflat surfaces and thereby depriving aquatic life dependent on nutrients in the mudflats of food sources. This has directly impacted the environment, leading to a rapid decline in natural blood cockles and the mudflats' decay, further hampering the growth of natural blood cockles and other aquatic life (Phetchaburi Provincial Office, 2024). These changes have affected various aspects of the Bang Khun Sai fishing community in Phetchaburi Province, Western Thailand, including community livelihoods, income, and local resources (Ministry of Natural Resources and Environment, 2024).

Hence, the present study focused on changes in food security within the fishing community of Phetchaburi Province, Thailand, through the concepts of livelihood strategies and self-management, with the aim of proposing policy recommendations for addressing these issues sustainably.

Literature Reviews

Concept of Livelihood Strategies

The concept of livelihood strategies refers to approaches communities adopt to respond to changes in food security. Additionally, it encompasses activities or strategies for managing community capital to achieve livelihood goals, which may vary according to the community's context, geographical features, economy, society, and community capital (Pongsiri, 2024).

Concept of Self-Management

The concept of self-management involves communities learning to tackle issues while fostering social and community change. It emphasizes participatory processes within and beyond the community. Efforts should address all aspects of the community by formulating development plans to direct and implement change in both the physical environment and community members' awareness (Community Organizations Development Institute, 2024).

Concept of Food Security

Food security refers to food availability, access, utilization, and stability (Food and Agriculture Organization, 2008).

Conceptual Framework

The conceptual framework can be drawn from the literature review, as shown in Figure 1.

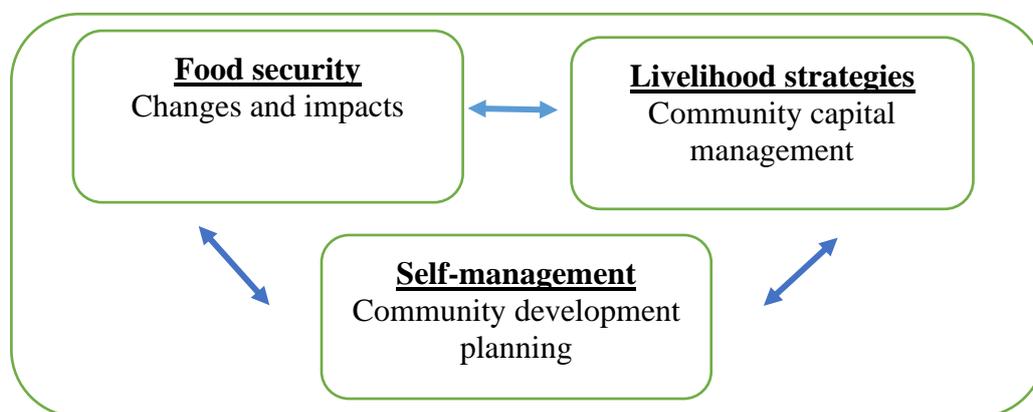


Figure 1 Conceptual Framework

Research Methodology

Research Design

The present study adopted a qualitative research method, precisely a case study approach.

Research Site

In Bang Khun Sai Sub-district, Ban Laem District, Phetchaburi Province, Western Thailand, the Bang Khun Sai fishing community is recognized for its community-driven approach to conserving natural resources. It also houses Thailand's most significant natural blood cockle habitat (Phetchaburi Provincial Office, 2024).

Key Informants

The present study involved 36 key informants selected through purposive sampling. They were classified into three groups. The first group comprised 11 policy-level informants, including the Governor of Phetchaburi Province, the Head of the Phetchaburi Provincial Strategy Division, the Chief of the Phetchaburi Community Development Provincial Office, the Director of the Phetchaburi Community Development Strategy Group, the Chief of the Ban Laem District Community Development Office, the Phetchaburi Community Development Specialist (Professional Level), the Bang Khun Sai Sub-district Community Development Specialist, the Phetchaburi Provincial Fishery Officer, the Chief of the Phetchaburi Provincial Strategy and Administration Group, the Head of the Fisheries Administration and Management Group of Phetchaburi, and the Ban Laem District Fishery Officer.

Another group involved 19 community-level informants, including six community leaders, 12 community committee members, and the Chief Executive of the Bang Khun Sai Sub-District Administrative Organization.

The other consisted of six private sector representatives, namely the President and two committee members of the Phetchaburi Local Fisheries Association of Thailand, the Chairman of the Fishery Cooperative, and two committee members of the Phetchaburi Local Fisheries Association of Thailand.

Data Collection

Data were obtained through in-depth interviews based on an interview guideline. The primary topics in the guideline focused on changes and their impacts on food security in the fishing community of Phetchaburi, Thailand, as well as livelihood strategies for managing food security in this community.

The collected data must be clear, comprehensive, and aligned with the study's objectives. After each interview, the data was reviewed to ensure accuracy and completeness. Additionally, they were systematically organized and recorded, and unclear data were cross-verified with different sources to ensure accuracy. Subsequently, they were categorized by type for analysis. Meanwhile, the researcher assessed whether the data adequately explained the phenomena in focus. If additional information was needed, the researcher revisited the community to collect the data, ensuring its completeness for interpretation and alignment with the study's objectives.

Data Analysis

The data obtained through in-depth interviews were categorized and compared to identify similarities, differences, and relationships. The analysis was based on the theoretical concepts to address the study's objectives and identify patterns. Specifically, the findings were drawn through a qualitative method, particularly content analysis, to derive an inductive conclusion. Finally, the findings were presented through analytical descriptions. This study obtained ethical approval from Phetchaburi Rajabhat University under the reference number ECPB_R 05/2567.

Research Results

Changes and Impacts on Food Security in the Fishing Community of Phetchaburi Province, Thailand

The findings revealed that changes in the fishing community's food security can be classified into two phases: Phase 1 is the beginning of change, and Phase 2 is the consequences.

Phase 1: The Beginning of Change

The Bang Khun Sai fishing community is in the central part of the district, Bang Khun Sai Sub-district, Ban Laem District, Phetchaburi Province. It is recognized for its richness in natural resources, including fertile mangroves and nutrient-rich mudflats, which serve as Thailand's largest spawning ground for natural blood cockles.

Additionally, the Bang Khun Sai community - originally called Bang Khun Sai Thong - is an ancient community dating back over 200 years. According to local older adults, in the past, people of Teochew Chinese descent settled here for trade and fishing. Later, they moved to Paknam Samut Prakan and eventually migrated southward, settling in the Bang Khun Sai Sub-district owing to its abundant resources and proximity to the sea, which was ideal for fishing. Consequently, more people from other regions migrated and settled in this area.

Located in Ban Laem District, Phetchaburi Province, in the western region of Thailand, the Bang Khun Sai fishing community is characterized by lowland plains and coastal plains, approximately 60% of which are saltwater and 40% of which comprise freshwater zones. The coastline features mudflats and approximately 450 rai of mangrove forests densely populated with mangroves and cannonball mangroves. Spanning 9 kilometers, it is characterized by mangrove forests, which serve as a spawning ground for various aquatic species, such as sea crabs, shrimps, blood cockles, and natural blood cockles.

Moreover, the Bang Khun Sai community possesses a diverse ecosystem, which can be classified into coastal and elevated inland areas, both utilized for fisheries and agriculture. Specifically, the coastal zone includes mangrove forests, which act as a crucial habitat for marine life and underpin the primary livelihoods among community members. In addition to coastal fishing, some households in this zone engage in salt farming. On the other hand, the inland zone, renowned for its fertile upland soil, is ideal for agricultural activities such as rice farming, vegetable and fruit cultivation, and livestock rearing.

The food security of the fishing community has changed over time. Formerly, the Bang Khun Sai community had an abundance of natural resources. Its proximity to the sea and areas ideal for rice cultivation attracted the migration of various ethnic groups to settle and establish livelihoods. Initially, Teochew Chinese people migrated here to engage in trade, and later, the Lao Vientiane or Lao Phuan people settled in this community and practiced traditional farming, particularly rice farming. The Malay people also immigrated to engage in the salt trade, while the local Thais, originally from Phetchaburi Province, established settlements in this community and engaged in coastal fishing and agriculture. The long-standing diversity of ethnic groups in the community has contributed to the accumulation of local wisdom while fostering kinship ties and a reciprocal social support system. This has cultivated a strong sense of community; this social capital has enabled people to live in harmony with nature over the years. The abundant marine resources and fertile land have drawn people to develop and settle in this area, where they continue to live. The majority live as an extended family, with their main livelihoods being coastal fishing, salt farming, and agriculture.

The Bang Khun Sai fishing community in Ban Laem District of Phetchaburi Province, Western Thailand, largely relies on harvesting natural blood cockles. Most community members dedicate their time to this livelihood instead of pursuing other occupations since it is a vital source of income and a contributor to the community's economy. In the past, the livelihoods of the Bang Khun Sai community were shaped by its abundant natural resources and an ecosystem conducive to various occupations, such as fishing and agriculture. The community's way of life is rooted in self-reliance, mutual support, kinship interdependence, and reliance on nature.

Additionally, this community is considered a strong and resilient community, mainly stemming from its availability of natural resources, a coastal ecological landscape, and rich freshwater sources. These factors render the area conducive to coastal fishing, salt farming, and agriculture. With abundant natural resources, community members can lead a simple life, relying on themselves, one another, and nature. Thus, the social relationships within this community are centered on mutual support, driven by the richness of natural resources and a favorable ecological landscape.

In 1986, external investors brought dredging vessels into the coastal area of the Bang Khun Sai community to dredge natural blood cockles. Their arrival adversely affected the coastal resources since they employed modern technology to harvest those cockles. Such a practice destroyed the marine ecosystem, thereby causing severe damage to seabed-dwelling aquatic life and their food sources. Simply put, these investors damaged the community's coastal resources.

By 1992, the advent of "blood cockle dredging vessels" represented investors' encroachment on natural resources. These vessels were more efficient and faster at harvesting natural blood cockles than traditional methods, such as kickboards and bare hands. Despite that, their utilization resulted in various issues, including capturing large quantities of aquatic larvae, seabed degradation, destroying the community's mangrove forests, and migrating community members searching for work.

The crisis in the Bang Khun Sai community's coastal resources profoundly impacted its members' way of life. Specifically, the arrival of investors seeking to exploit these resources

led some people to relocate and work elsewhere, undermining the community’s solidarity. This migration impeded the collective efforts of key leaders who struggled to mobilize support, thereby hampering their early advocacy.

Additionally, with population growth, the use of natural resources increased while these resources were excessively exploited by external investors, leading to detrimental effects. Specifically, improper fishing equipment, such as cockle dredgers, and encroachment on mangrove forests for black tiger prawn farming contributed to resource depletion and pollution. This, in turn, undermined the community’s economy, which primarily relied on its local resources.

After 1992, the community’s self-reliance weakened, prompting its members to migrate and seek work outside the area.

To summarize, the changes in 1986 with the arrival of external investors and in 1992 with the emergence of “natural blood cockle dredgers” - representing the encroachment on natural resources by investors - tremendously impacted the Bang Khun Sai fishing community. In the years following 1992, the community’s loss of self-reliance drove many families to relocate and work elsewhere.

Phase 2: The Consequences of Change

The results demonstrated that the environmental issues related to natural resources were attributed to the arrival of investors seeking to increase their harvest of natural blood cockles in the community through commercial fishing vessels or natural cockle dredging vessels. These issues caused tremendous damage to the ecosystem and coastal natural resources, as evidenced by a reduction in the community’s aquatic life. In addition, using natural cockle dredgers resulted in turbid water since the machine dredged the cockles and mudflats. As a result, this disrupted the environment, rendering the area uninhabitable for aquatic life and contributing to the degradation of environmental quality. The changes and their impacts on food security in the fishing community of Phetchaburi Province, Thailand, are summarized in Table 1.

Table 1 Summary of changes and their impacts on food security in the fishing community of Phetchaburi Province, Thailand

Changes	Causes and impacts on food security within the fishing community
Phase 1	■ External investors
The beginning of change	■ Encroachment on natural resources by those investors ■ Migration of community members to seek livelihoods elsewhere
Phase 2	■ Environmental issues
The consequences of change	■ Damage to the ecosystem and coastal natural resources ■ Decline in aquatic life within the community ■ Use of commercial fishing vessels

Livelihood Strategies for Managing Food Security in the Fishing Community of Phetchaburi Province, Thailand

The results showed that the livelihood strategies for managing food security in Phetchaburi Province, Thailand's fishing community, involved establishing the Bang Khun Sai Sub-district Natural and Coastal Resources Conservation Group to achieve food security within the community and manage community capital.

The Bang Khun Sai Sub-district Natural and Coastal Resources Conservation Group was established in 1993 to develop plans for conserving natural resources and to foster a sense of appreciation among community members for their homeland. Additionally, the group seeks to raise awareness of the importance of preserving natural and coastal resources and to instill pride in young people in their community, thereby ensuring the sustainable protection of ecosystems, natural learning sites, and natural and coastal resources.

The group’s activities involve monitoring natural and coastal areas, protecting the habitat for natural blood cockles, maintaining the ecosystem, conducting training programs for young people to develop a sense of pride in the community, and equipping them with the skills to resolve issues peacefully.

The Green Globe Award is received in recognition of the community’s efforts to conserve nature, ecosystems, and natural and coastal resources, granted by a governmental agency to achieve sustainability. A systematic approach has been adopted to pass on ideologies and knowledge, utilizing a community master plan as a guideline. This ensures that each activity is integrated to promote conservation by establishing a collaborative learning space within the community to foster collaboration between adults and children. For instance, training programs for young guides have been organized to educate them about mangrove forests and coastal ecosystems. Additionally, the community has received support from the Office of Marine and Coastal Resources (Phetchaburi) and Phetchaburi Rajabhat University to promote supplementary livelihoods, such as integrated salt farming and crop cultivation, as well as processing razor clams and salted cockles. These efforts have contributed to sustainable food security and the local economy, enabling the community to adapt to and address various changes while advancing the conservation of community resources and community capital management.

Table 2 summarizes the livelihood strategies for managing food security in the fishing community of Phetchaburi Province, Thailand.

Table 2 Livelihood strategies for managing food security in the fishing community of Phetchaburi Province, Thailand

Livelihood strategies	Management of food security in the finishing community in Phetchaburi Province, Thailand
Establishing the Bang Khun Sai Sub-district Natural and Coastal Resources Conservation Group, Phetchaburi Province, Thailand	<ul style="list-style-type: none"> ■ Formulating plans for the conservation of natural resources ■ Preserving natural resources and community ecosystems ■ Monitoring the arrival of dredging vessels to prevent illegal operations and violations of community rules ■ Cultivating a strong sense of devotion and stewardship for the sea, aiming to instill in community members a sense of appreciation for their homeland and a sense of responsibility for preserving natural and coastal resources ■ Managing community capital

Conclusion and Discussion

Changes and Impacts on Food Security in the Fishing Community of Phetchaburi Province, Thailand

The changes and their impacts on food security in the Phetchaburi Province, Thailand, fishing community demonstrate the community’s self-management in resolving emerging internal issues. These findings corroborate Puangram’s concept of self-management, describing it as a system of knowledge and thinking for addressing issues based on community resources. This involved managing resources and community social relationships - among individuals, between humans and nature, or between humans and supernatural beings - through complex thinking, knowledge systems, and local wisdom regulated by traditions, laws, or social norms (Puangram, 2012). In addition, self-management included the management of community resources, such as natural and coastal resources, human resources, and community capital. This aligns with the concept of livelihood strategies, which enable community members to adapt and respond to changes, thereby promoting the conservation of community resources (Pongsiri, 2024).

Livelihood Strategies for Managing Food Security in the Fishing Community of Phetchaburi Province, Thailand

As revealed by this study, the livelihood strategies for managing food security in the fishing community of Phetchaburi Province, Thailand, resonate with the concept of livelihood strategies. Specifically, the strategy utilized by the community to address food insecurity involved establishing the natural and coastal resources conservation group. Activities were also organized to foster awareness among youth. These instilled in community members an appreciation of natural and coastal resources based on the context of community resources. This portrays the utilization of livelihood strategies for managing food security in the fishing community of Phetchaburi Province, Thailand. It shows the community's adaptability to various changes and the promotion of the conservation of community resources (Pongsiri, 2024). This aligns with the group-based approach to community and social development, involving the collaboration of two or more people to achieve common goals. Such collaboration contributes to the collective power for community and social development. Effective management helps foster trust and credibility, gaining support from members, individuals, and other groups. This, in turn, strengthens the group's social power and capacity to resolve issues and drive social and community development while fostering leadership among group leaders.

From a sociological standpoint, it involves the interactions between individuals—two or more—in mutual relationships characterized by shared norms, bonds, and a sense of belonging. This is a pathway to building social networks integral to tangible community and social development (Singchai, 2024). This is consistent with the Phetchaburi Provincial Development Plan, which supports establishing social networks while promoting livelihood strategies for sustainably managing food security in the fishing community of Phetchaburi Province, Thailand (Phetchaburi Provincial Office, 2024).

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Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Conflicts of Interest: The authors declare that the research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

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