

# Social Behavior in the Working Relationship Between Ship Owners and Fishermen in Kupang City

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**Abstract**—The city of Kupang has maritime waters with abundant fish resources, yet, ironically, most of the city's fishermen are still below the poverty line. This condition is influenced by social behaviors formed in the working relationship between boat owners or capital owners and fishermen. Fishermen depend heavily on boat owners or capital owners, creating an unequal relationship. This study aims to: (1) identify social behaviors that require intervention in the working relationship between boat owners or capital owners and fishermen, and (2) establish intervention objectives within the framework of increasing equality in the working relationship between boat owners or capital owners and fishermen in the city of Kupang. The research uses a soft systems methodology, which is integrated with behavior change theory. This study produces three main intervention objectives. First, the local government, fishing ports, together with ship owners, create a competency enhancement program for fishermen, through organizing independent training or in collaboration with training institutions, to foster trust, self-motivation, and readiness among fishermen, as well as to achieve improved skills, work safety, and professionalism of fisheries human resources. Second, the local government, together with ship owners and fishermen's organizations, creates a mediation and work relationship management system through fair profit-sharing mechanisms and clear work rules, and enhances fishermen's perception of ability, job security, and motivation to maintain and develop their profession, to achieve a harmonious, transparent, and sustainable working relationship. Third, local governments, together with fishermen's organizations and related institutions, design a protection and self-sufficiency system for fishermen by strengthening market access, financial management, alternative livelihoods, and professional development to improve welfare and reduce fishermen's vulnerability.

**Keywords**—capture fisheries, participatory policy, partnership, social norms, soft system methodology.

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## I. INTRODUCTION

Indonesian fishing communities possess unique social characteristics arising from their profound interdependence with the sea as their primary source of livelihood. Despite the abundance of coastal and marine resources, fishers frequently remain entrenched in cycles of structural poverty [1]. The primary causative factors include limitations in the quality of human resources,

restricted access to technology, and inadequate capacity to control markets and capital [2]. This condition underscores that fishers' challenges originate not solely from economic dimensions but are also intimately linked to social interaction patterns, norms, and relational structures prevalent in coastal societies [3].

Fishermen in Kupang City show how social behavior influences working relationships. Observations from April to November 2024 highlight high dependence on boat owners or capital owners. This dependence is longstanding, deeply rooted, and difficult to unravel [4]. Several factors contribute to this condition, including limited job opportunities, limited knowledge and skill capacity among fishermen, and recruitment patterns for crew members. Limited job opportunities mean fishermen have no alternative employment and continue despite discomfort [5]. They fish with limited competence, knowledge, or skills, often with only an elementary or junior high school education. This affects the suboptimal fishing activities [6]. Crew recruitment relies on family ties, closeness, recommendations, and deference to ship owners. This creates bonds and an unequal relationship, prone to conflict.

In addition, there are problems with the financing scheme and the working relationship between shipowners and fishermen. All costs for the fishermen, from their departure from their origin area to the work location and back, are borne by the shipowner. The shipowner also provides housing, a motorcycle, and advance wages before the fishermen start work. This situation has influenced the fishermen's work behaviour, leading to a high dependence on the shipowner [7].

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However, in practice, some fishermen act irresponsibly by abandoning their work after the initial fishing phase.

The employment relationships that have been formed, as described above, do not provide a positive economic impact for fishermen; they are placed at the lowest level in terms of income and bargaining position in the fisheries business. Therefore, it is important to examine more deeply the social behaviours in the employment relationship between fishermen and boat owners, financiers, or buying traders. This study aims to identify social behaviours among fishermen that require intervention as a strategic step toward improving social norms through a soft systems methodology. This

intervention is expected to foster better working relationships and enhance sustainable welfare for fishermen.

## II. METHOD

### 2.1. Research Location and Time

The study was conducted in Kupang City, East Nusa Tenggara Province, Indonesia, from April to November 2024. Data collection took place at the Oeba Fish Landing Site (PPI Oeba) and the Tenau Fish Auction Place (PPP Tenau) (Figure 1).

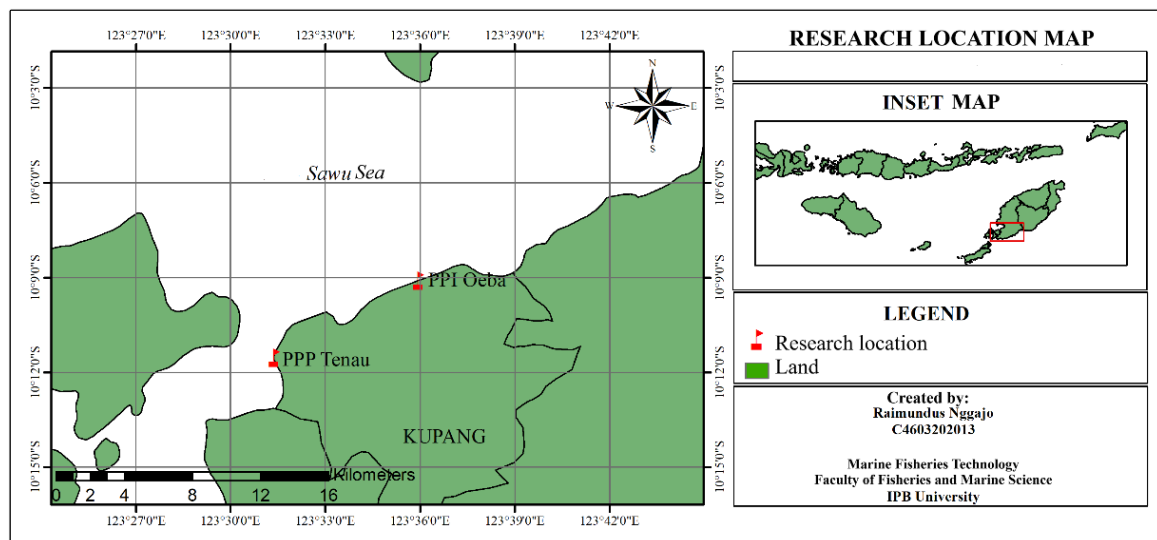


Figure. 1. Research location map.

### 2.2. Theoretical concept

Identification of social behavior using soft system methodology (SSM) stages 1, 2, and 3. These process stages include (1) understanding unstructured problem situations, (2) structuring problem situations, and (3) formulating root definitions. At this stage, problem disclosure is carried out through three analyses, namely intervention analysis, social system analysis, and political analysis. In stage 3, formulating root definitions is integrated with the Theory of Planned Behavior.

The Theory of Planned Behavior (Ajzen, 1991) is used to analyze the working relationship between ship owners and fishermen in Kupang City, in conjunction with SSM analysis. The main assumptions of the theory of reasoned action and the theory of planned behavior are that individuals are rational in considering their actions and their implications in decision-making.

The Theory of Planned Behavior (TPB) assumes that humans are rational beings who systematically use the information available to them. Behavior change is an action based on planning [8]. In TPB, the behavior displayed by an individual arises from the intention to behave, which is determined by the attitude toward the behavior, subjective norms, perceived behavioral control, the interest in adopting the behavior (intention), and the actual behavior that occurs after the intention and the

support of ability or opportunity to perform the behavior (actual behavior).

### 2.3. Data Collection

The collected data consisted of employment relationships between ABK fishermen and ship owners, including recruitment patterns, knowledge and skills capacity, and the social conditions of fishermen and their environments, including limited employment opportunities. Data collection was conducted through questionnaires and in-depth interviews with respondents. Respondents were selected using purposive sampling. The respondents were 20 ABK fishermen and 20 ship owners who landed fish at PPI Oeba and PPP Tenau. The criteria for selecting fishermen or ABK respondents were based on length of employment (<1 year and >1 year) and their position on the ship (as casual labour and main labour). In contrast, the criteria for ship owners were based on the number of ships they owned (>50 ships, 5-50 ships, and 1-5 ships). Each ship owner has several units of ships, so each owner was considered one respondent, and one fisherman from each owner was also considered a respondent. The fishermen who participated as respondents were longline, bottom gillnet, mini purse seine, and huhate fishermen, with boats as shown in Figure 2.



**Figure. 2.** Fishing boats: a. mini purse seine boat, b. handline fishing boat.

#### 2.4. Data Processing and Analysis

Data analysis utilized the first three stages of soft systems methodology (SSM), as follows [9]:

- Stage 1: Understanding the unstructured problem situation. This stage addressed the complex, ill-defined social behaviours that require intervention among fishers, shipowners, and stakeholders. Social behaviours in the interdependencies among capture fisheries actors in Kupang City were identified using a needs analysis table.
- Stage 2: Expressing the problem situation holistically. This involved articulating the problem situation in a structured yet holistic manner (problem situation expressed). Insights from Stages 1 and 2 regarding social behaviours and interdependencies among capture fisheries stakeholders in Kupang City were depicted in a rich picture, illustrating each actor and their respective needs.
- Stage 3: Formulating root definitions (RDs). Root definitions were developed to encapsulate the core issues of social behaviours in stakeholder interdependencies within Kupang's capture fisheries. RDs enriched the problematization of the situation and served as the foundation for conceptual models.

The RDs that have been formed are integrated with behavioral changes using TPB analysis. Each RD elaborates on behavioral changes by identifying attitudes toward the behavior, subjective norms, perceived behavioral control, intention to adopt the behavior, and the actual actions that follow the intention, along with the support for the ability or opportunity to perform the behavior.

### III. RESULTS AND DISCUSSION

#### 3.1. The Working Relationship Between Fishermen and Ship Owners in Kupang City

##### 3.1.1. The socio-economic condition of fishermen is related to the limited job opportunities

Fishermen on fishing vessels engaged in capture fisheries in Kupang City include local communities (from Kupang City and the NTT region) and those from outside NTT. Based on interviews with boat owners, the composition is 90% local fishermen and 10% fishermen from outside NTT. Statements from boat owners reinforce this, as transportation costs to the work location and back to their hometown are their responsibility. The large number of local fishermen is due to limited job opportunities and the responsibility of providing for their

families. Employment as fishermen is one option for sustaining their livelihood. The requirement to become a fisherman does not prioritise special skills or educational level.

Fishermen in Kupang City usually work long hours with the boat owner because there are no other job options, and they have an economic responsibility to support their families. Although their status is only as workers or labourers, economically they can sustain their families, so the fear of losing their job, which would lead to a loss of income, becomes the main factor for their continued work as fishermen. In addition to fearing job loss, fishermen are also burdened by costs already incurred, ranging from transportation costs from their place of origin, monthly wages handed over upfront before sailing, to the needs of their families, all of which are calculated as debts that must be repaid, as well as social attachment factors (due to family connections and coming from the same village, as well as a sense of responsibility toward the person who recommended the job). As a result, fishermen remain loyal and accept unfair treatment from the boat owner in the distribution of catches and in the lack of transparency regarding fish sale prices, which impacts their economic income.

The majority of fishermen are passive towards the prevailing wage system because the power relations place boat owners in control of the marketing chain. Fishermen view marketing activities as not part of their responsibilities. However, some of them hope to be directly involved to earn better income and have autonomy in selling their catch, for instance, directly to small traders (papalele).

##### 3.1.2. Knowledge and skill capacity

Fishermen in Kupang City generally begin fishing immediately after being hired, without first being provided with knowledge and skills. This practice is carried out by boat owners and captains, who are the main decision-makers in hiring crew members. The reason is that boat owners believe fishermen's competence in fishing is quite good, as it is developed through work experience gained through repeated practice.

Beginner fishermen are placed in the lowest positions (as general laborers) such as bait cutters/nail baiters, fish cleaners, and cooks. Meanwhile, experienced fishermen are usually assigned as engine room chiefs, helmspersons, and hauliers. However, ship owners' attention to formal training remains limited, with

the assumption that fishermen's skills are adequate and do not require additional capacity building, even though training programs such as the Ship Expertise Certificate (SKK) are available. On the other hand, many fishermen recognise the need for advanced training, particularly in business and financial management, which, so far, remains a major weakness. Limited managerial and financial abilities cause some fishermen to struggle to manage their income productively.

### 3.1.3. Recruitment pattern

The recruitment of fishermen as crew on boats is carried out through two mechanisms: through family relationships or from the same village, and also through the closeness between the person recommending the job and the boat owner and captain. The first mechanism is carried out by the boat owner recruiting family members or relatives from the same village who need work to become fishermen. The second mechanism is carried out through information or recommendations from a trusted person or friend of the boat owner or captain who is interested in becoming a fisherman.

The ship owner discusses the recruitment process with the captain, and the captain's decision determines whether the owner's proposal is accepted, based on the needs of the work on the ship. Generally, for jobs that require experience and skills, such as Chief Engineer, helmsman, and deckhand (holer), workers are obtained

from recommendations by the ship owner's or captain's close associates who already have experience as fishermen. Meanwhile, for tasks like baiting, odd jobs, handling nets, or cooking, the workers are usually from the village or have family connections and lack experience as fishermen.

### 3.2. Unstructured Situation Awareness to Identify Social Behaviour in the Working Relationship Between Ship Owners and Fishermen in Kupang City

The understanding of social behaviour that is formed and requires intervention in the employment relationship between boat owners and fishermen in Kupang City is carried out through three analyses: intervention analysis, social system analysis, and political system analysis [10]. The results of the intervention analysis describe the stakeholders involved in fish marketing in Kupang City: researchers as clients; researchers and the government as problem solvers/participants; and boat owners or investors, fishermen, collector traders, local government, and fishery ports as problem owners.

In the social system analysis, three important aspects of the problem owners are examined: roles, norms, and believed values [9]. The details of the roles, norms, and values of each problem owner in the working relationship between boat owners and fishermen in Kupang City are described in **Table 1**.

TABLE 1.  
COMPARISON OF TWO METHODS IN TRAINING OF OHL-CBPNN

| Stakeholders          | Roles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Norms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Values                                                                                                                                                                                                                                                      |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Shipowner or investor | <ol style="list-style-type: none"> <li>providing capital for fishing operations</li> <li>providing facilities for fishing operations</li> <li>communicating with fishermen (captains and crew) for fishing activities, up to marketing</li> <li>complying with regulations and policies set by the government</li> <li>handling permits with the local government and fishing ports</li> <li>paying salaries to all fishermen working on the vessel</li> <li>financing the arrival and departure of fishermen from and to their place of origin, and providing accommodation</li> </ol> | <ol style="list-style-type: none"> <li>ensuring the availability of capital and not burdening operational costs on fishermen</li> <li>providing complete and safe operational facilities for fishing</li> <li>consultation in decision-making</li> <li>transparency in information on catch results, prices, and marketing mechanisms</li> <li>complying with government regulations</li> <li>paying wages on time and according to agreement</li> <li>ensuring the presence of fishermen and their availability at the work site</li> </ol> | <ol style="list-style-type: none"> <li>Responsibility</li> <li>Fairness in business risk sharing</li> <li>Trust</li> <li>Concern for fishermen's safety</li> <li>Openness and mutual respect</li> <li>Appreciation for fishermen's contributions</li> </ol> |
| Fishermen             | <ol style="list-style-type: none"> <li>carrying out fishing business activities as a source of income</li> <li>maintaining the quality of the catch</li> <li>complying with the rules set by the ship owner</li> </ol>                                                                                                                                                                                                                                                                                                                                                                  | <ol style="list-style-type: none"> <li>carry out fishing activities diligently and responsibly</li> <li>handle the catch according to procedures</li> <li>adhere to work agreements</li> </ol>                                                                                                                                                                                                                                                                                                                                               | <ol style="list-style-type: none"> <li>responsibility and work discipline</li> <li>care and honesty</li> <li>compliance and loyalty</li> </ol>                                                                                                              |
| Collecting trader     | <ol style="list-style-type: none"> <li>Collector traders who also act as boat owners play a role in determining the profit-sharing system with fishermen and directly marketing the catch.</li> <li>Collector traders who do not act as boat owners play a role in buying fishermen's catch from the boat owners and setting the price of the fish.</li> </ol>                                                                                                                                                                                                                          | <ol style="list-style-type: none"> <li>The norm for collector-traders as ship owners is to establish a profit-sharing system that is clear and agreed upon with the fishermen, and to ensure transparent marketing without harming the fishermen.</li> <li>The norm for collector-traders is to set a fair price for fish and pay according to the agreement with the ship owners.</li> </ol>                                                                                                                                                | <ol style="list-style-type: none"> <li>Fairness in employment relationships and profit sharing</li> <li>Transparant</li> <li>Honesty</li> </ol>                                                                                                             |
| Local government      | <ol style="list-style-type: none"> <li>establish regulations related to the fisheries business</li> <li>provide facilities and infrastructure for fishermen and the industry</li> <li>act as a mediator between fishing ports, business actors, and fishermen</li> </ol>                                                                                                                                                                                                                                                                                                                | <ol style="list-style-type: none"> <li>Develop and implement regulations that are clear, fair, and enforceable, while ensuring the protection of the rights and obligations of fishermen and boat owners.</li> </ol>                                                                                                                                                                                                                                                                                                                         | <ol style="list-style-type: none"> <li>Legal certainty</li> <li>Public service</li> <li>Justice</li> </ol>                                                                                                                                                  |

CONTINUED TABLE 1.  
COMPARISON OF TWO METHODS IN TRAINING OF OHL-CBPNN

| Stakeholders     | Roles                                                                                                                                                                                                                                                                                 | Norms                                                                                                                                                                                                                                     | Values                                                       |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Fishing port     | 1) providing facilities for fish catching and landing<br>2) services and recording of catch results<br>3) facilitator for fishermen competency training                                                                                                                               | 2) Provide facilities evenly and according to the needs of business operators.                                                                                                                                                            | 1) Public service<br>2) Accountability<br>3) Professionalism |
|                  |                                                                                                                                                                                                                                                                                       | 3) Be neutral and impartial in conflict resolution.                                                                                                                                                                                       |                                                              |
|                  |                                                                                                                                                                                                                                                                                       | 1) providing adequate, safe, and standard-compliant facilities<br>2) delivering orderly, transparent, and accurate services<br>3) facilitating the capacity building of fishermen and boat owners through training and guidance           |                                                              |
| Scientific group | 1) Providing research-based data and information for the fisher–boat owner working relationship<br>2) Producing and disseminating innovations and technologies that support fairer and more efficient working relationships<br>3) Providing publication and public education services | 1) Producing data and analysis that are objective, valid, and based on scientific methods<br>2) Developing appropriate technology that can be applied by fishermen and boat owners<br>3) Conducting publication ethically and responsibly | 1) Scientific integrity<br>2) Usefulness<br>3) Transparency  |
|                  |                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                           |                                                              |
|                  |                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                           |                                                              |

The analysis of the political system is carried out through an understanding of the power of the problem holders [9] in the employment relationship between fishermen and boat owners. In this political system analysis, there are two conditions: the disposition of power, or the tendency to use power, and the nature of power, or the basic nature of power.

The boat owner uses his power to control production and labor relations by determining the profit-sharing system, operational financing, and marketing decisions (the disposition of power). The boat owner's power is economic and structural, stemming from control over capital, boat assets, and market access (the nature of power). Meanwhile, the fishermen's power is limited to maintaining access to work and income, as well as to sustaining stable labor relations with the boat owner (disposition of power). The fishermen's power is limited to labor and operational experience, but structurally weak because they depend on the boat owner and collector traders (nature of power). The collector traders, who are also boat owners, wield power to integrate production and marketing, thereby strengthening their control over fishermen and the fish value chain. Meanwhile, collector traders have the power to control prices and marketing flows, as well as create economic dependency through regular purchases and informal financing (disposition of power). Their power comes from market control (nature of power).

Disposition of power for local governments, authority is directed to maintaining order, justice, and stability in the fisheries sector, including the working relationships between fishermen and ship owners, although its implementation is often administrative in nature. The nature of local governments' power is formal and legal, as they have regulatory and public policy authority. The disposition of power in fisheries ports is used to organize operations, enhance compliance, and foster professionalism among business actors through services, data collection, and technical guidance. The nature of power in fisheries ports is to meet the needs of

port users by providing adequate facilities and data management. The scientific community can influence policies and practices through knowledge, aiming to improve governance and more equitable work relationships (disposition of power). This power derives from knowledge and scientific legitimacy, which are persuasive in nature through discussions and policy recommendations (the nature of power).

### 3.3. Problem Situation Expressed Holistically: Social Behavior in the Working Relationship between Ship Owners and Fishermen in Kupang City

In the soft systems methodology approach, stages 1 and 2 produce an overview of labor relationship issues between ship owners and fishermen in Kupang City in the form of a Rich Picture, as shown in **Figure 3** and **Table 2**.

The pattern of recruiting fishermen through personal connections has the potential to create a dependence on ship owners. Kinship relationships foster loyalty, limiting fishermen's negotiating power, while limitations in non-technical competencies, particularly in business and financial management, can hinder their independence.

Fisheries entrepreneurs or ship owners generally show concern for the empowerment of captains and crew members by providing workplace safety facilities, offering cash loans for personal needs, arranging housing, providing transportation once on land, covering transport costs from the place of origin and back, and also fulfilling obligations to pay wages on time. However, during operations, tensions sometimes arise among fishermen over profit-sharing, and some leave their jobs after receiving an advance on their wages. Some causes of this are a lack of transparency and mutual responsibility agreements communicated from the start of employment. In addition, it is triggered by minimal government support and concrete protection measures to reduce business risks and improve workplace safety. This is reflected in the limited cold

chain facilities, weak safety support, and the imbalance between the tax burden and the benefits received by business actors.

Ship owners often act as collectors and traders, distributing their catch to local markets (such as papalele at the Oeba Fish Landing Site) or to companies. All aspects, from catching and stock management to distribution, are controlled by the shipowners and not formally negotiated. However, in some cases, pricing

and distribution decisions are also agreed upon jointly by the ship owner, the captain, and regular buyers (companies or loyal customers). Although this relationship tends to be centralized and controlled by the ship owner, there is a strong pattern of interdependence between the owner/collector and local market traders. Ship owners need a market network to sell their catch, while market traders heavily rely on supplies from the ship owners.

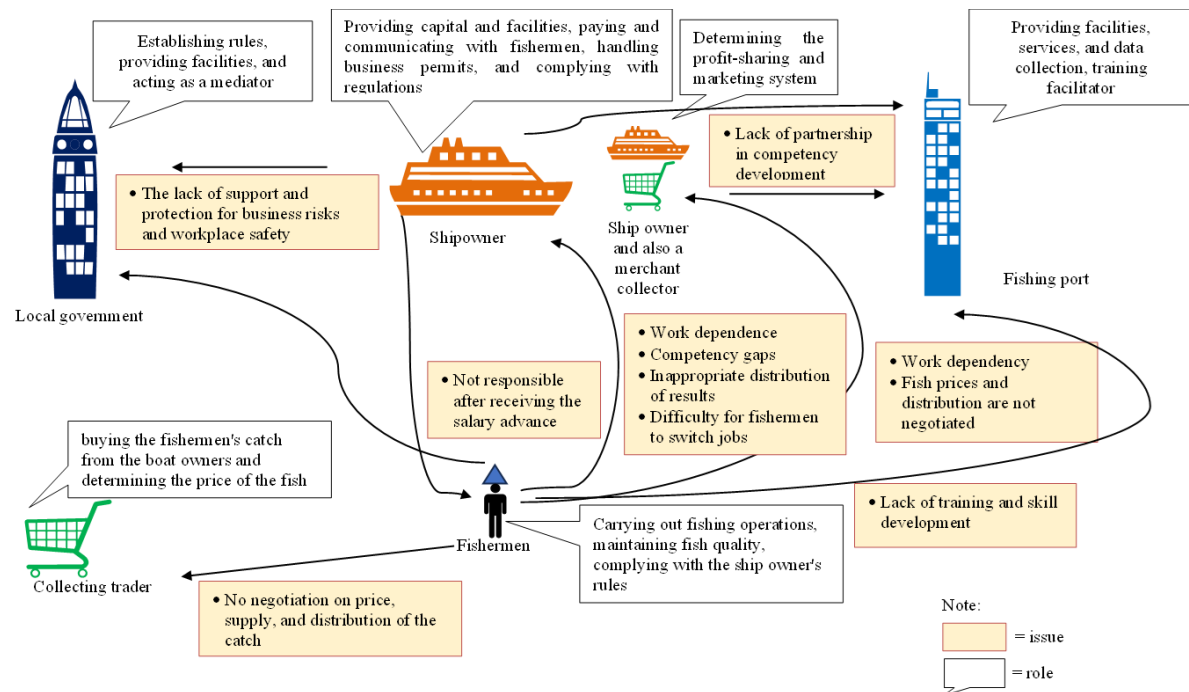


Figure. 3. Fishing boats: a. mini purse seine boat, b. handline fishing boat.

TABLE 2.  
Identification of social behavior issues in the working relationship between shipowners and fishermen in Kupang City

| No | Issues                                                                                                                                                                                                                                                                                                                                                                        |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | The formation of fishermen's work dependence on boat owners due to power imbalances and difficulty in negotiation.                                                                                                                                                                                                                                                            |
| 2  | The gap in fishermen's non-technical competencies, particularly in business and financial management, hinders business independence. This was emphasized by the ship owner, who stated that there is no program to provide crew members with training before engaging in fishing activities, and that they are expected to learn independently during the fishing activities. |
| 3  | At the operational level, tensions sometimes arise among fishermen due to differences of opinion or disagreements in the distribution of income.                                                                                                                                                                                                                              |
| 4  | Conflicts between ship owners and crew members, with some fishermen leaving their jobs after receiving an advance on their wages, or using their pay irresponsibly.                                                                                                                                                                                                           |
| 5  | In the fish marketing system in Kupang City, price agreements, supply, and distribution are usually not formally negotiated. Prices are generally set by the boat owners/collectors based on daily market conditions, fishing seasons, and the quality of the fish.                                                                                                           |
| 6  | Fishermen are powerless in receiving the wages given by the ship owners because fishing jobs are recommended by trusted or respected people, and all their travel expenses are handled by the ship owners.                                                                                                                                                                    |
| 7  | The lack of concrete support and protection from the government in reducing business risks and occupational safety in capture fisheries                                                                                                                                                                                                                                       |
| 8  | The inability of fishermen to switch to other jobs, even in uncomfortable situations, due to limited employment opportunities and limited knowledge and skills.                                                                                                                                                                                                               |

### 3.4. Formulation of Root Definitions (RDs) in the Working Relationship Between Ship Owners and Fishermen in Kupang City

Problems in social behavior in the working relationship between shipowners and fishermen in Kupang City include technical, social, economic, and governance aspects. Three root definitions have been established to address the existing problems:

Root definitions 1: Local governments, fishing ports,

and ship owners, together with training institutions, create a competency improvement program for fishermen by organizing independent training or collaborating with training institutions to foster trust, self-motivation, and readiness among fishermen, as well as to improve skills, work safety, and professionalism of fishery human resources.

In relation to the TPB, the aforementioned RDs indicate the following desired behavior changes:

- Attitude: fishermen begin to view professionalism and workplace safety as important
- Subjective norm: the government, ports, and ship owners support professional work behavior
- Perceived behavioral control: fishermen feel capable because they receive training and skills
- Intention: an intention arises to work more professionally and independently
- Actual behavior: fishermen actually implement professional, safe, and more independent work behavior in their work relationships.

Root definitions 2: Local governments, together with ship owners and fishermen's organizations, create a mediation system and management of work relations through fair profit-sharing mechanisms and clear work rules, and enhance perceptions of competence, job security, and motivation of fishermen in maintaining and developing their profession, in order to realize harmonious, transparent, and sustainable work relationships.

In relation to TPB, these two RDs indicate the following desired behavior changes:

- Attitude: local governments, fishermen, and ship owners believe that fair and clear work relationships are beneficial
- Subjective norm: the government and fishermen's organizations support professional work practices
- Perceived behavioral control: the mediation system and work rules make them feel capable of implementing change
- Intention: the intention arises to apply professional and transparent work relationships
- Actual behavior: work rules are implemented, conflicts are mediated, communication is open, and the distribution of results is clearer.

Root definition 3: Local governments, together with fishermen's organizations and relevant institutions, design a system to protect and enhance the independence of fishermen by strengthening market access, financial management, alternative livelihoods, and fostering a sense of comfort in the profession to improve welfare and reduce vulnerability.

In relation to the SDGs, these 3 RDs show the desired behavioral changes as follows:

- Attitude: fishermen begin to see financial management as important, alternative businesses as beneficial, and economic independence as advantageous.
- Subjective norm: the government and fishermen's organizations support the protection of fishermen, economic independence, and strengthening the fishing profession.
- Perceived behavioral control: fishermen feel more capable due to market access, training, institutional support, and alternative businesses.
- Intention: fishermen intend to become more independent and prosperous.
- Actual behavior: fishermen begin to manage finances, diversify businesses, and reduce economic dependence.

### 3.5. Discussion

Fishermen in Kupang City face employment-related problems. Therefore, many of them choose to work full-time as fishermen for boat owners. The boat owners stated that 90% of the fishermen working for them come from the Kupang area, while the remaining 10% are from outside Kupang. Fishermen need to have other skills to have alternative sources of livelihood, even though job opportunities are considered inadequate. Fishing activities are not always carried out regularly, and the results are uncertain because they depend on the season and weather [11]. To address this, they can take on other jobs to generate income and meet their family's living needs. For example, when they are not fishing, fishermen can trade, work as casual laborers, craftsmen or boat makers, construction workers, or motorcycle taxi drivers [12]. With alternative livelihoods, fishermen do not need to worry about losing income even if they are not fishing.

Another problem faced by fishermen in employment relations is the lack of competency development. Boat owners assume that fishermen are skilled at catching fish, so they do not provide training. In fact, there are many ways boat owners can enhance fishermen's competencies, as the better their skills, the better their performance and the results of fishing activities [13]. Fishermen can be trained in environmental management or in technology, such as GPS, to make it easier to locate or mark fishing areas [14]. Additionally, fishermen's human resources can be improved through financial education and increased access to capital [15], [16]. This is important for boat owners to do because, even when fishermen earn a lot of money from their work, they may not be able to manage their finances wisely.

Regarding the pattern of fisherman recruitment in Kupang City, boat owners recruit in two ways: by proximity and through recommendations from the captain. This recruitment pattern considers the captain's opinion, because, besides fishing skills, there must be compatibility between the captain and the crew members [17]. Compatibility facilitates fishing operations and smoothens communication while working on the boat. However, not all fishermen can catch fish. Some fishermen have no experience and are only employed as laborers to prepare bait, pack fish, cut, or perform miscellaneous tasks on the boat. In the study by Fauzi and Adiputra [18], an interesting aspect of the fisherman recruitment pattern in Binuangeun, Banten, is the presence of inexperienced fishermen, also referred to as young crew members. Young fishermen are first directed to undergo an internship. After young crew members apprentice and learn, they acquire the skills to catch fish and can eventually serve as fishermen and become permanent employees on fishing boats. This method can be adopted by boat owners in Kupang City, so that young fishermen have the same competencies as experienced fishermen, and fishing is more optimal due to the availability of skilled labor.

The working relationship between fishermen and boat owners in Kupang City must be based on a shared sense of desire to progress and for the capture fisheries to

continue to develop. This cannot be achieved solely by fishermen and boat owners; it also requires collaboration with fishing ports, collector traders, local governments, and academics. Good cooperation will create alternative job opportunities, enhance the capacity and work ethic of fishermen, and improve recruitment practices. Currently, the Minister of Marine Affairs and Fisheries Regulation Number 42 of 2016 concerning Sea Work Agreements has been issued. The existence of these work agreements is expected to ensure the rights and obligations of the parties. This working relationship needs to be nurtured and guided so that each party can rely on the other, understand their roles and rights, and fulfill their respective obligations, thereby creating a harmonious working relationship [19]. Thus, all stakeholders must work together to build good working relationships for fishermen and boat owners.

This research describes the social behavior that develops and requires intervention in the working relationships among fishermen and boat owners in Kupang City. The analysis conducted using SSM consists of stage 1 (unstructured problem situation), stage 2 (problem situation expressed holistically), and stage 3 (creating root definitions). The results of the study consist of three root definitions.

The first root definition is that local governments, fishing ports, and ship owners, together with training institutions, create a competence improvement program for fishermen through independent training or in collaboration with training institutions, to achieve enhanced skills, work safety, and professionalism in fisheries human resources. Ongoing, context-specific training not only improves technical skills but also professionalism and workplace safety, thereby enhancing the performance of fisheries businesses [20], [21]. Through training programs and competency development, it is expected that fishermen's behavior will change, making them more confident, motivated, and capable of making independent decisions [13]. This behavioral change becomes an important factor in promoting sustainable independence for fishermen.

The second root definition produced is that local governments, together with ship owners and fishing organizations, create a mediation and labor relationship management system through fair profit-sharing mechanisms and clear work rules to achieve a harmonious, transparent, and sustainable working relationship. Conflicts between ship owners and fishermen can be resolved through mediation accompanied by the local government or through partnerships. Partnerships between ship owners and fishermen can be carried out through fishermen's cooperatives, collective contracts, or value-added-based schemes that can improve fishermen's bargaining position, improve price information flow, and reduce dependence on brokers [22], [23]. This aligns with the view that improving the competitiveness of the capture fisheries sector requires a comprehensive value chain approach, including price transparency, institutional strengthening, and adequate marketing infrastructure [24], [25]. Formulating participatory policies involving fishermen, boat owners, and traders can enhance

regulatory legitimacy, strengthen compliance, and reduce the potential for conflict [26]. The mediation and management system for fishermen's work relations can shape perceptions of ability, job security, and, because it creates fairer, more protected working conditions, certainty about the division of labor and business outcomes. Outcomes and conditions encourage fishermen to have confidence in their own abilities, feel safer at work, and increase work motivation as part of behavioral changes toward greater independence and better welfare [27].

The third root definition is that local governments, together with fishermen's organizations and related institutions, design a system to protect and enhance the independence of fishermen by strengthening market access, financial management, and alternative livelihoods, thereby improving welfare and reducing vulnerability. This can address dependence on employment and power relationships, powerlessness within the wage and marketing system, the absence of job alternatives, and the weakness of government protection for fishermen. One partnership that can advance fishermen's independence is through fishermen's cooperatives, collective contracts, or value-based schemes. This initiative can enhance fishermen's bargaining power, improve the flow of price information, and reduce dependence on boat owners or [21], [24], [28]. Nevertheless, the success of this initiative depends on the availability of supporting infrastructure for the capture fisheries sector, cold chain technology, and strong institutional capacity of fishers [29]. Therefore, partnership strategies need to be implemented in the working relationship between fishers and boat owners to improve fishers' welfare. Behavioral changes in occupational comfort can be achieved through a system of protection and empowerment for fishermen, designed by local governments in collaboration with fishermen's organizations and related institutions. Efforts such as strengthening market access, improving financial management, and developing alternative livelihoods not only improve economic welfare but also foster a sense of security, job stability, and fishermen's confidence in their profession. These conditions encourage behavioral changes among fishermen, making them more comfortable, proud, and persistent in the fishing profession, thereby reducing the social and economic vulnerability they have faced [30].

#### IV. CONCLUSION

This study produced three root definitions for social behavior interventions in the working relationships between ship owners and fishermen in Kupang City. First, the local government, the fishing port, and ship owners create programs to improve the competencies of fishermen through independent training or in collaboration with training institutions, to achieve improved skills, work safety, and professionalism in fisheries human resources, using a conceptual model of fishermen's competency improvement. Second, the local government, together with ship owners and fishermen's organizations, establishes a system for mediating and managing work relationships through fair profit-sharing

mechanisms and clear work rules, thereby achieving harmonious, transparent, and sustainable working relationships. Third, local governments, together with fishermen's organizations and relevant institutions, design systems to protect and promote the self-reliance of fishermen by strengthening market access, financial management, and alternative livelihoods, thereby improving welfare and reducing fishermen's vulnerability.

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