Simulacra | ISSN: 2622-6952 (Print), 2656-8721 (Online)
https://journal.trunojoyo.ac.id/simulacra

CENTER FOR SOCIOLOGICAL STUDIES AND COMMUNITY DEVELOPMENT
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UNIVERSITAS TRUNOJOYO MADURA, INDONESIA

Simulacra
e-ISSN: 2656 8721

UNIVERSITAS TRUNOJOYO MADURA

Volume 8, Issue 2, November 2025 **Page 207–224**

Unraveling structural poverty: Insights from small-scale fishermen's households on the coast of Muara Gembong, Indonesia

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DOI: https://doi.org/10.21107/sml.v8i2.30463

Article Info

Keywords:
structural poverty
small fishermen
structuration theory
multidimensional poverty
Muara Gembong

Abstract

Structural poverty in Muara Gembong District, Bekasi Regency, Indonesia, remains a serious issue affecting small-scale fishermen. This study examines the poverty conditions of fishermen's households using quantitative and qualitative approaches. A census of 31 households and interviews with 5 key informants reveal that all households' experience income decline during the lean season, keeping them below the poverty line. The stark income fluctuations between fishing and non-fishing periods show their economic vulnerability. Poverty among these fishermen is multidimensional, covering inadequate access to food, health, housing, and education-meeting the definition of poverty in Law No. 13 of 2011 Republic of Indonesia on Handling the Poor. Using Anthony Giddens' structuration theory, poverty is interpreted as the result of interactions between social structures and individual agency. The study uniquely applies this theory to explore fishermen's poverty from a multidimensional perspective. Findings show that political-economic structures, environmental degradation, policy failures, limited capital and technology, patron-client systems, and unequal market access restrict social mobility. To overcome these challenges, comprehensive and cross-sectoral policy interventions are required to address the structural roots of poverty and improve the resilience and welfare of small-scale fishermen.

Citation suggestion:
Taufik, I., Kinseng, R. A., & Pandjaitan, N. K. (2025). Unraveling structural poverty: Insights from small-scale fishermen's households on the coast of Muara Gembong, Indonesia. *Simulacra, 8*(2), 207–224. https://doi.org/10.21107/sml.v8i2.30463

Received 13 June 2025; Received in revised form 6 October 2025; Accepted 12 October 2025; Published online 25 November 2025.

Introduction

Poverty is a significant challenge that confronts societies globally. It is characterized by underdevelopment, low income, and diminished productivity, particularly among populations in developing nations. As noted by (Chibuye, 2014), poverty arises from the absence of both material and non-material resources that are essential for participation in social life. Consequently, poverty poses a substantial obstacle to achieving sustainable development, especially in coastal regions that rely on marine resources for sustenance.

Small-scale fishermen are among the communities most vulnerable to poverty in Indonesia. As noted by (Berkes et al., 2001), these fishermen are characterized by the utilization of small fishing units, minimal division of labor, employment of small boat engines, and limited fishing gear. (Anwar and Wahyuni, 2019) indicate that 90% of Indonesia's 16.2 million fishermen live below the poverty line, rendering them economically and politically marginalized. Furthermore, 32% of the four million households across 8,090 coastal villages earn less than Rp.300,000 per month. Consequently, the National Long-Term Development Plan (RPJPN) Republic of Indonesia 2005-2025 prioritizes poverty reduction (Johan, 2020). This agenda aligns with Presidential Regulation No. 59 of 2017, which addresses the Sustainable Development Goals (SDGs) in Indonesia (Presidential decree, 2017).

The primary objective of the Sustainable Development Goals (SDGs) is the eradication of poverty, as articulated in the statement, "No poverty in any form throughout Indonesia" (Iskandar, 2020). Nevertheless, efforts to alleviate poverty have not commensurate with the exploitation of Indonesia's marine resources, particularly the livelihoods of fishermen. According to the (BPS, Republic of Indonesia, 2020), there are 3.2 million households engaged in the fishing industry in Indonesia, with a production output of 21.83 million tons. Despite this substantial resource potential, it has not succeeded in lifting fishermen from poverty (Satria, 2015).

Several factors contribute to the impoverishment of fishers, particularly those engaged in small-scale operations. Ecologically, the degradation of mangrove forests has resulted in heightened operational expenses and diminished fish catches (Renur et al., 2021). Additionally, the volatility of fishing seasons introduces further vulnerability, leading to instability in both income and productivity for fishers (Panjaitan et al., 2017) During peak fishing seasons, fishermen experience abundant catches; however, these yields decline significantly during seasonal transitions such as droughts. Consequently, small-scale fishermen are compelled to venture beyond their customary fishing areas (Ramdhan & Purbani, 2020).

Small-scale fishermen occupy a lower position in the economic hierarchy because of their limited access to production tools and inadequate technology, which hinders their ability to adapt to seasonal changes (Kinseng, 2017). The issue of ownership of production tools is further complicated by the unequal distribution among different fishing groups. Income disparities among these groups, based on the type of fishing gear employed in Latahulat Ambon, exacerbate structural poverty and restrict access to resources that should be equitably shared (Attamimi et al., 2018).

Policies that fail to address empowerment issues exacerbate the competition between small- and large-scale fishermen, thereby contributing to socioeconomic inequality (Anwar et al., 2019). Fishermen are compelled to sell their catch to Plele in exchange for loans, resulting in a lack of control over pricing and marketing and the risk of losing

their fishing gear if they are unable to repay their debts (Kinseng, 2017; Cahyono et al., 2015)) These ramifications include substandard housing, inadequate sanitation, low educational attainment, and restricted economic and political resources (Pinem et al., 2019).

This condition is identified as structural poverty, as it is precipitated by social injustice that restricts access to resources and economic opportunities (Soemarjan et al., 1984). Social structures are constituted through interactions between agents, structures, rules, and resources, which contribute to either reinforcing or altering social conditions (Giddens, 1984). These structures can be both enabling and constraining (Kinseng, 2017). In the context of fishermen, prevailing structures frequently reproduce and sustain poverty, rather than empower them.

This study examines impoverished small-scale fishing households in Pantai Bahagia Village and Pantai Mekar Village, located in the Muara Gembong Subdistrict of Bekasi Regency. In 2020, the number of individuals living in poverty in the Bekasi Regency rose to 134,010 (BPS, Republic of Indonesia, 2020). Small-scale fishermen hold a strategic position within the local economic framework, serving as primary suppliers of fish catches that sustain the food supply chain and coastal economy.

This study investigates two primary dimensions: first, the principal and supplementary income conditions of fishing households in relation to the national poverty line, with the objective of assessing well-being across seasonal variations, and second, the fulfillment of basic household needs as an indicator of multidimensional poverty, as stipulated by the mandate (Law Number 13 of 2011 Law Number 13 of 2011 Republic of Indonesia on the Poor), encompassing aspects such as food, clothing, housing, health, and education. Additionally, structural factors, including environmental degradation, ineffective zoning policies, seasonal fluctuations, limitations in fleet and capital, patron-client relationships, and disparities in access to landing facilities, exacerbate poverty. Consequently, a comprehensive understanding of the conditions and underlying causes of poverty among small-scale fishermen is essential for developing effective and equitable poverty alleviation strategies.

Method

This study uses a quantitative method approach supported by qualitative data (Creswell, 2016). The data used consists of primary and secondary data. Secondary data regarding the number of fishermen population was obtained from the Precision Village Data Monograph (DDP) book for Pantai Bahagia Village and Pantai Mekar Village, Muara Gembong District (Sjaf et al., 2022). Based on the DDP, there are 181 fishing households in Pantai Bahagia Village and 49 fishing households in Pantai Mekar Village. The DDP also classifies fishermen based on their status, namely small-scale fisherman owners and laborer fishermen. This research focuses on small-scale fisherman households, namely individuals or heads of families who own their own boats and fishing gear without being part of the crew (ABK), and whose expenditure falls below the Bekasi Regency poverty line in 2022. Based on the verification process of the Village Data Collection (DDP) data, 31 small-scale fisherman households met these criteria, consisting of 15 households in Pantai Bahagia Village and 16 households in Pantai Mekar Village, with expenditures below IDR 579,221 per capita per month (BPS, Republic of Indonesia, 2022). Primary quantitative data were collected through a

census of the entire selected sample, while primary qualitative data were obtained through in-depth interviews with six key informants, consisting of the village head, village secretary, community leaders, and experienced fishermen. Secondary data were supplemented through the Village Data Collection (DDP), literature studies, and documents from relevant agencies. Although the research was conducted in two different villages, data analysis was not directed at comparing conditions between villages. The selection of more than one village aimed to broaden the scope and obtain a variety of socio-economic contexts that remained relevant to the research focus (Erumban and de Vries, 2024).

The data analysis in this study was conducted descriptively, combining quantitative and qualitative approaches. Quantitative data from 31 small-scale fisher households were analyzed and presented in frequency tables to identify primary and supplementary income levels, then compared with the Bekasi Regency poverty line of IDR 579,221 per capita per month (BPS, Republic of Indonesia, 2022). This analysis also refers to multidimensional poverty indicators based on the fulfillment of basic needs as stipulated in Law of the Republic of Indonesia Number 13 of 2011 concerning the Handling of the Poor. Meanwhile, qualitative data obtained through in-depth interviews with six key informants were analyzed thematically through narrative descriptions (Radeny et al., 2012). This process aims to interpret the factors causing poverty and the structural dynamics that influence the lives of small-scale fisher households, with reference to the theoretical framework and socioeconomic context at the research site. This combined approach provides a more comprehensive understanding of the nature of poverty among small-scale fishers in coastal areas (Canale et al., 2019).

Results and Discussion

Poverty conditions of small fishermen households

The Central Statistics Agency determines the poverty line by assessing the fulfillment of minimum basic needs encompassing both food and non-food components. According to a publication (BPS, Republic of Indonesia, 2024) on poverty profiles, these minimum basic needs are quantified in monetary terms to represent income. This monetary proxy is used to establish the poverty line. Individuals with an income below this threshold were classified as poor. The aggregate poverty line was recorded at Rp.579,221 per capita per month, comprising food expenditure of Rp.433,837 and non-food expenditure of Rp.145,384 (BPS, Republic of Indonesia, 2022).

The average household size was 4.74 individuals. Consequently, the average minimum basic needs of a household were estimated to be Rp.2,745,507 per month. Table 1 presents the income-based poverty status of fishermen, according to this standard.

Table 1 illustrates that during the fishing season, trap fishermen households attained the highest average income, amounting to Rp.3,230,357 per month. This was followed by crab/*rajungan* net fishermen with an income of Rp.3,230,375 per month, gill net fishermen at Rp.2,982,857 per month, and sero net fishermen at Rp.2,761,929 per month. All respondents reported incomes exceeding the poverty threshold, classifying them as non-poor during the fishing season. However, during the lean season, the income of fishing households declined substantially. Specifically, trap fishermen earned Rp.1,330,000 per month, gill net fishermen Rp.1,200,000 per month, sero net fishermen Rp.1,185,000 per month, and crab/lobster net fishermen Rp.1,170,000 per month. This reduction in income resulted in all small-

Table 1. Number of small-scale fishing households based on type of fishing gear, income, and welfare status per fishing season (2023)

Types of Fishing Gear	Number of KK	Household Income/Month and Welfare Status			
		Fishing Season (Rp)	Welfare Status	Lean Season (Rp)	Welfare Status
Fish Trap	2	3.230.357	Non-Poor	1.330.000	Poor
Crab Net	13	3.230.357	Non-Poor	1.170.000	Poor
Gillnet	10	2.982.857	Non-Poor	1.200.000	Poor
Net Sero	6	2.761.929	Non-Poor	1.185.000	Poor

Note: KK (Head of family); Rp (Rupiah)

fishing households falling below the poverty line.

In contrast to the findings of (Fitriani & Adhuri, 2023), who asserted that not all categories of fishermen in Tanjung Kait Banten experience poverty during the lean season; specifically, only *rajungan* fishermen are affected, while selulup and pancing fishermen remain above the poverty threshold seasonal poverty in Muara Gembong is more pronounced and pervasive. This suggests that the economic conditions of small-scale fishermen's households are particularly fragile between seasons.

The income variability between the fishing and lean seasons exemplifies the economic instability experienced by fishing households. Nevertheless, poverty is inherently complex and multidimensional, extending beyond financial considerations (Sumargo and Simanjuntak, 2019). This condition categorizes small-scale fishermen as impoverished, as defined by (Law of the Republic of Indonesia Number 13 of 2011 concerning the handling of the poor), which stipulates: "The poor are those who have no means of livelihood whatsoever and/or have a means of livelihood but lack the ability to meet the basic needs necessary for their own and/or their families' livelihood." Article 3 of the law asserts: "The poor have the right to adequate food, clothing, housing, health

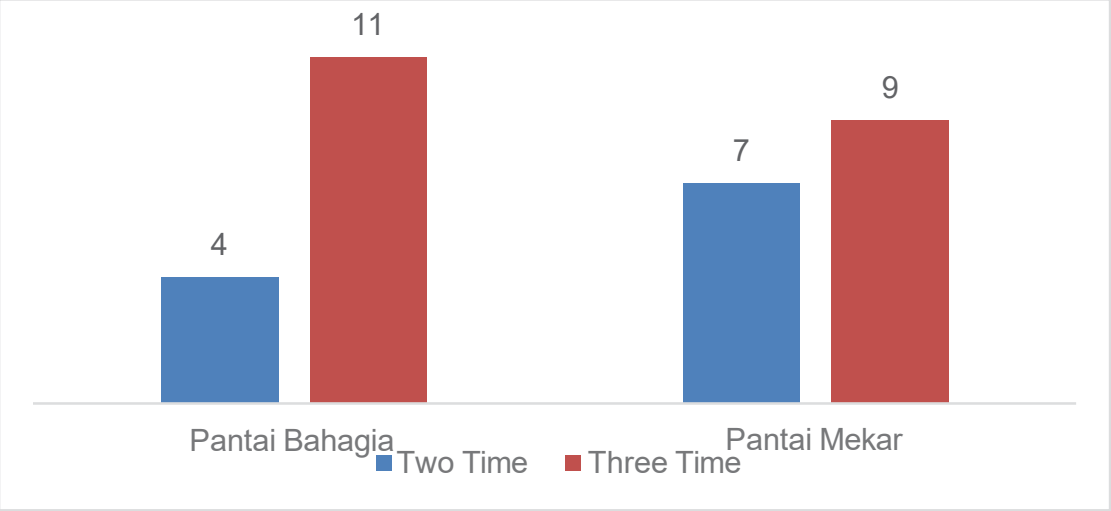


Figure 1. Number of small-scale fishing households based on daily meal frequency (2023).

services, and education." Consequently, the fulfillment of the basic rights of small-scale fishermen in Muara Gembong is delineated as follows:

1: Daily meal frequency of small fishermen households (2023)

The dietary habits of fishermen are illustrated by the number of meals consumed per day in Figure 1.

Figure 1 illustrates that 64.52% of respondents consume meals three times daily, whereas 35.48% eat meals only twice a day. Notably, within the latter group, 35.48% expressed a preference for eating three times a day, which is the norm. However, they opted for two meals per day as a cost saving measure.

2: Frequency of buying clothes (clothing) per year for small-scale fishermen (2023)

The frequency of clothing purchases per year of members of small-scale fishing households is presented in Table 2.

Table 2 reveals that 70.79% of the respondents purchase clothing more than

Table 2. Frequency of purchasing clothing (clothing) per year for small-scale fishing households (2023)

Number of Meals	Village Pantai Bahagia (Number KK)	Village Pantai Mekar (Number KK)	%
One time	2	0	6,45
Two time	0	2	6,45
Three time	1	4	16,13
>Three time	12	10	70,79
Total	31		100

Note: KK (Head of family)

Table 3. Number and percentage of small-scale fishing households based on living conditions (2023)

Type	Category	Village Pantai Bahagia (Number KK)	Village Pantai Mekar (Number KK)	%
Floor	Soil	2	2	12,90
	Bamboo	1	0	3,23
	Low quality wood/board	2	0	6,45
	Cement	2	1	9,68
	Tiles/ceramics	8	13	67,75
Total		31		100
Wall	Bamboo	2	1	9,68
Floor	Soil	2	2	12,90
	Bamboo	1	0	3,23
	Low quality wood/board	2	0	6,45
	Cement	2	1	9,68
	Tiles/ceramics	8	13	67,75
Total		31		100
Wall	Bamboo	2	1	9,68
	Low quality wood/board	3	0	9,68
	Wall without plaster	2	6	25,81
	Plastered wall	8	9	54,84
Total		31		100
Roof	Asbes	15	16	100
Total		31		100

Note: KK (Head of family)

three times per year, followed by 16.13% who make purchases three times annually. Furthermore, 6.45% of the respondents buy clothing twice a year, while the remaining 6.45% purchase it only once annually. Purchases exceeding three times a year are predominantly made using credit, whereas purchases made three times a year are typically conducted in cash. Purchases occurring once or twice a year are generally made in anticipation of Islamic holidays.

3: Conditions of small fishermen's household housing (2023)

Table 3 delineates the construction materials utilized for the floors, walls, and roofs of fishermen's residences, thereby illustrating their physical conditions.

Table 3 shows that 67.75% of the fishermen's residences were equipped with tile or ceramic flooring, 12.90% retained dirt floors, 9.68% utilized cement, 6.45% employed low-quality wood, and 3.23% used bamboo. Concerning wall construction, 54.84% of houses featured plastered walls, 25.81% had unplastered walls, and 9.68% were constructed with low-quality wood or bamboo. Notably, all the houses were roofed with asbestos. Some houses with tile or ceramic floors and plastered walls were the result of donations from family members and neighbors. Conversely, those still utilizing basic materials often defer repairs because of financial constraints and other pressing priorities.

4: BPJS membership and ownership of sanitation facilities (WC) for small fishermen's households (2023)

Table 4 presents the BPJS membership status and ownership of household sanitation facilities among the small-scale fishermen.

Table 4. Number and percentage of small-scale fishing households based on BPJS membership and sanitation facilities (WC), (2023)

Aspect	Category	Village Pantai Bahagia (Number KK)	Village Pantai Mekar (Number KK)	%
BPJS Membership	Yes	11	9	64,52
	No	4	7	35,48
Total		31		100
WC Ownership	Yes	8	11	61,29
	No	7	5	38,71
Total		31		100

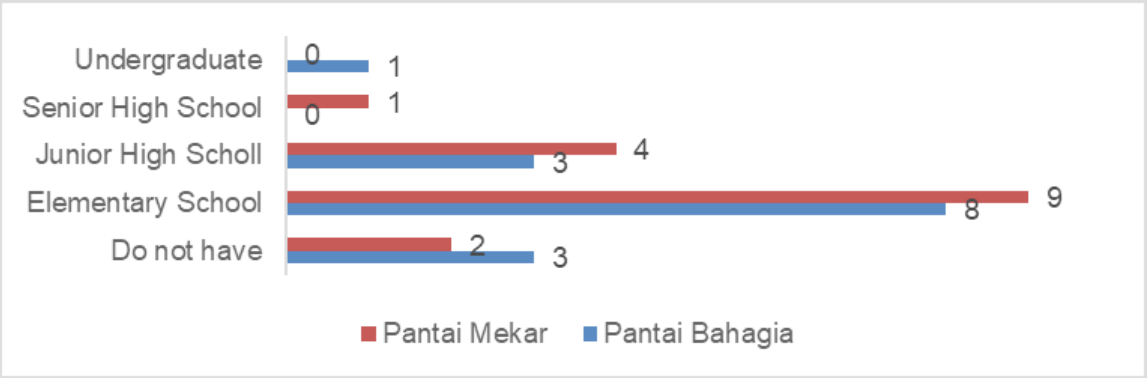


Figure 2. Number of small-scale fishing households based on head of household diploma ownership (2023).

Table 4 indicates that 64.52% of the fishing households were enrolled in the BPJS program, whereas 35.48% were not. Furthermore, 61.29% of these households possessed sanitation facilities (toilets), whereas 38.71% lacked such amenities. The findings suggest that fishermen not registered as BPJS participants exhibited a limited understanding of the registration procedures compounded by the demands of their livelihood at sea. Conversely, those without sanitation facilities face economic constraints.

5: Ownership of head of household certificate for small fishermen (2023)

The education level of heads of fishing households is shown in Figure 2, which contains the distribution of education of heads of fishing households.

Figure 2 illustrates that 54.84% of the fishing household heads possessed only an elementary school education, 16.13% had never attended school, and 16.13% had discontinued their education at the junior high school level. A mere 6.45% had completed either a high school or college education. In this study, it was observed that 93.55% of the fishermen pursued education only up to the junior high school level, primarily because of financial constraints, which led them to assist their parents in maritime activities. Conversely, the remaining 6.45% successfully attained an education equivalent to high school through the Paket C program and pursued undergraduate degrees with financial support provided by their families.

Causes of poverty in small fishermen households

Giddens (1984) conceptualized social structure as comprising rules and resources, which are further categorized into allocative and authoritative resources. Allocative resource structures encompass factors such as environmental degradation, seasonal variations, fleet and fishing gear capacity, and limited access to capital, all of which constrain fishermen's ability to enhance their catches. The authoritative resource structure includes ineffective zoning policies, entrenched patron-client relationships, and the lack of fish auction sites (TPI), which restrict fishermen's opportunities for negotiation and participation in decision-making processes. Informal rules, such as fishermen's debt practices with Plele or microfinance institutions such as Bank Emok, are integral to the social structure, simultaneously shaping and being shaped by recurring social practices. This structure constrains fishermen's access to and capacity for social mobility. These practices not only guide fishermen's actions, but also emerge from social interactions that perpetuate structural poverty. Soemarjan et al., (1984) asserted that limited access to and control over resources results in fishermen's powerlessness within their social system.

Environmental damage and dysfunction of zoning policy

During the 1980s and the 1990s, the Muara Gembong Subdistrict was colloquially referred to as the “dollar village” because of its rich marine resources. However, it has undergone a significant decline because of severe environmental degradation. Evidence suggests that environmental damage, including coastal erosion and the conversion of mangrove forests into fishponds, directly diminishes the quality of the marine ecosystem and reduces the availability of fish resources. Furthermore, the influx of industrial and domestic waste from the Citarum River, Cikarang Bekasi Laut (CBL), Jambe, and Clincing rivers has

Table 5. Differences between local and migrant fishermen

Aspect	Local Fishermen	Immigrant Fishermen
Fishing gear	Sewage nets, crab/crab nets, gill nets and traps	Trawl and trawl net
Ecological impact	Caring for the ecosystem	not environmentally friendly
Catch Results	Low catch	High catch
Aspects of Conflict	Feeling disadvantaged, finding it difficult to compete	Mastering the catch area

increasingly polluted the environment and waters of Muara Gembong. This pollution has constrained fishermen's capacity to utilize marine resources effectively.

Ecological pressures have intensified with the influx of migrant fishermen employing cantrogs and arad fishing gear, exacerbating ecosystem degradation, diminishing fish catches, and inciting social conflict (Rohayati et al., 2018). Disparities in characteristics between local and migrant fishermen serve as a source of tension. Local fishermen typically utilize traditional fishing gear that is more selective and oriented towards ecosystem conservation, whereas migrant fishermen employ cantrams and arads, which are inherently exploitative. These differences between local and migrant fishermen manifest in various aspects that affect their livelihoods. See (Table 5).

Table 5 elucidates the increasingly marginalized status of local fishermen. The reduction in fish catch is further aggravated by economic pressure stemming from an inequitable capital system. Local fishermen rely on pleles (collectors) for both capital provision and purchase of their catch. Furthermore, numerous fishing families are encumbered by regular loan repayments to bank emoks. When catches diminish due to the exploitation of fishing gear by migrant fishermen, local fishermen encounter difficulties fulfilling their financial obligations to Plele and Bank Emok.

Conflicts between local and migrant fishermen have garnered the attention of various stakeholders. According to the field findings, mediation efforts to resolve these conflicts have been undertaken by relevant parties, including the Bekasi Regency Fisheries and Marine Affairs Office, law enforcement, village officials, and both local and migrant fishermen. However, these mediation efforts have not been successful, as both groups present compelling arguments. An informant noted, "The issue between local fishermen and migrants is that both are seeking to make a living at sea, and the only difference between them is the fishing gear they use, so neither side can concede to the other" (Interview 2023).

In the context of policy, a fishing zoning system should function as a mechanism for sustainable and equitable management of fishery resources. The fishing zoning system in Muara Gembong is regulated by (Peraturan Daerah Nomor 12 2011) and (Permen KKP Nomor 36 2023), which are further elaborated upon in (Perdes Nomor 3 2021) by the Pantai Bahagia Village Government. This regulation prohibits environmentally detrimental fishing gear, such as *garoks, cantrangs, arads, and porads*, which are only permitted within a 3-mile radius (5.6 km) from the shoreline. However, in practice, this regulation proves ineffective, resulting in local fishermen losing control over their fishing areas.

Insufficient enforcement of regulations perpetuated conflicts within the sector. Observed informant, "Fishermen often carry machetes to repair their nets, but in conflict situations, these tools can be misused for other purposes" (Interview 2023).

Table 6. Seasonal calendar and dynamics of fishing in Muara Gembong in (2023)

Aspect	East season	West season
Frequency of going to sea per day	1	1
Cruising range	6-12 Hour	6-9 Hour
Time (month)	4,5,6,7,8,9,10	11,12,1,2,3
Number of holidays per month	1	3
Sea conditions	Conducive	Heavy rain accompanied by strong winds, strong currents and high waves
Target catch conditions	Abundant catch target	Target catch reduced

Consistent with Kinseng (2022), fishing and rural communities in Indonesia frequently encounter social conflicts that escalate into violence and destructive actions, resulting in material losses and casualties. The disparity in the utilization of fishing gear has increasingly marginalized local fishermen, thereby restricting their access to marine resources. According to Soemarjan et al., (1984), structural poverty arising from social injustice diminishes marine productivity and adversely affects the socioeconomic conditions of local fishermen.

Change of seasons

The deteriorating ecological conditions have further intensified the economic vulnerability of small-scale fishermen, particularly in the context of seasonal variation. Generally, fishermen in Muara Gembong engage in fishing activities almost daily without scheduling any days off within a month. Exceptions only occur when they encounter health issues or have urgent obligations unrelated to fishing. Consequently, the production output of small-scale fishermen in Muara Gembong is contingent on natural conditions and seasonal cycles. The seasons were categorized into two based on local knowledge developed in the study area: the eastern season (fishing) and the western season (lean season). See (Table 6).

Table 6 illustrates that during the east monsoon season; fishermen embark on daily sea excursions lasting 6-12 h. This season extends from April to October (the 4th to 10th months), as the increased abundance of fish enhances the likelihood of successful catch. These favorable conditions facilitate consistent fishing activities. In contrast, during the western season, which spans from November to March (months 11 to 3), fishermen continue their sea expeditions, albeit with a reduced duration of approximately 6 to 9 h per trip. These limitations arise from more challenging maritime conditions characterized by heavy rainfall, strong winds, powerful currents, and frequent high waves. Consequently, the number of catch targets diminishes compared with that in the eastern season. Seasonal variations directly restrict fishermen's access to marine resources and necessitate temporary cessation of fishing activities to ensure safety.

This situation not only diminishes the productivity of fishermen but also impairs their capacity to fulfill their daily economic requirements. During periods of scarcity, fishermen's catches decreased, rendering them insufficient for sale to Plele. Consequently, fishermen are compelled to seek loans from Plele and microfinance institutions such as Bank Emok as an alternative means to address their economic needs, albeit at high interest rates. An

informant noted, "When fishermen cannot go out to sea, they will go to Plele and say, 'Boss, give us a cash advance; we haven't been able to go out to sea for a few days.' If the boss's financial condition is stable, the request is usually granted immediately, with a cash advance of approximately Rp.1,000,000-5,000,000 per season for daily living expenses" (interview 2023).

However, when Plele's financial situation was unstable, fishermen resorted to informal lenders. This is corroborated by findings (Nadjib and Thoha, 2023) indicating that, in dire circumstances, small-scale fishermen prioritize informal institutions because of their expedited procedures and lack of collateral requirements. Loans from informal banks are extended through a membership scheme wherein each member guarantees and monitors one another. Nevertheless, interest rates are substantial, reaching 20-30% per loan with weekly installments. If a member defaults, the financial burden is distributed among groups. In this context, plele and informal banks function as short-term economic solutions while perpetuating the economic dependency structure of small-scale fishermen in the face of seasonal fluctuations.

Means of production and access to capital

The capacity of the production equipment significantly influences the operational performance and scope of small-scale fishermen in Muara Gembong. Table 7 lists the various types of fishing gear and fleet capacities employed by the fishermen.

Table 7 indicates that the fishing gear employed was predominantly associated with small-scale and traditional enterprises, including crab nets 41.94%, gillnets 32.26%, trammel nets 19.35%, and traps 6.45%, with a fleet structure comprising motorboats measuring 2-3 GT. According to the typology outlined by Kinseng, (2022), the social classification of fishermen is influenced by factors such as boat size, net type, labor, and engine, which collectively constrain catch capacity and consequently affect fishermen's income and productivity (Selvika et al.,

Table 7. Number and percentage of small-scale fishing households based on fleet and fishing gear ownership (2023)

Types of fishing gear	boat (GT)	Village Pantai Bahagia (Number KK)	Village Pantai Mekar (Number KK)	%
Crab net	2-3	5	8	41,94
Gill net	2-3	4	6	32,26
Gill sero	2-3	4	2	19,35
Net trap	2-3	2	0	6,45
Total		31		100

Note: GT (Gross Tonnage)

Table 8. Number and percentage of small-scale fishing households based on access to capture fisheries production capital (2023)

Access to production capital	Village Pantai Bahagia (Number KK)	Village Pantai Mekar (Number KK)	%
Owner's equity	3	4	22,58
Plele	6	6	38,71
Bank emok	5	3	25,81
Plele and Bank emok	1	3	12,90
Total	31		100

Table 9. Social stratification of fishermen

Stratification	Number of crew members
Fishermen Workers	0 ABK
Small fishermen	0-3 ABK
Middle class fishermen	4-10 ABK
Big fisherman	>10 ABK

Note: ABK (Crew member / Crewman)

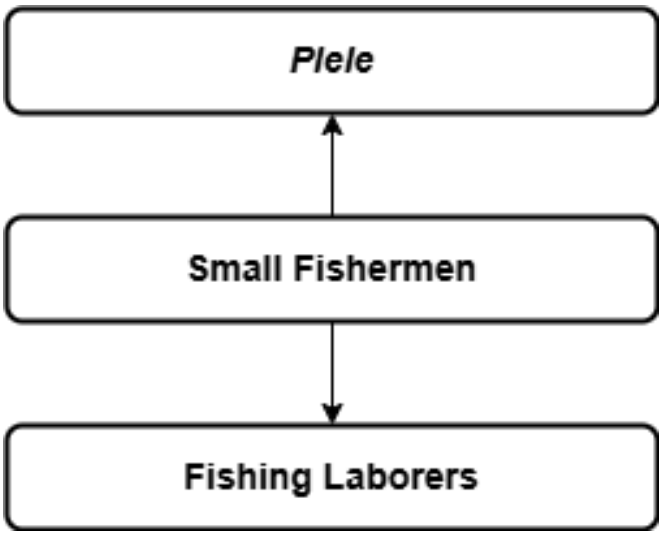


Figure 4. Youwikijaya social stratification model (2023)

2019). These limitations in production tools are compounded by restricted access to the capital necessary for the acquisition or maintenance of fleets, fishing gear, and operational expenses at sea. The sources of capital for small-scale fishers are listed in Table 8.

Table 8 indicates that 38.71% of capital originates from Plele, 25.81% from Bank Emok, 22.58% from independent sources, and 12.90% from both Plele and Bank Emok. These variations in capital access underscore the presence of social stratification despite the relative homogeneity of fishing gear employed. Social stratification and distinct social classes can be elucidated through non-material authoritative resources such as social status and position (Kinseng, 2017), which also influence social structure, stratification, and differentiation within society (Wirutomo, 2022). Typically, social stratification among fishermen can be discerned based on fishing groups, which are categorized into four classes: fishing laborers, small-scale fishermen, medium-

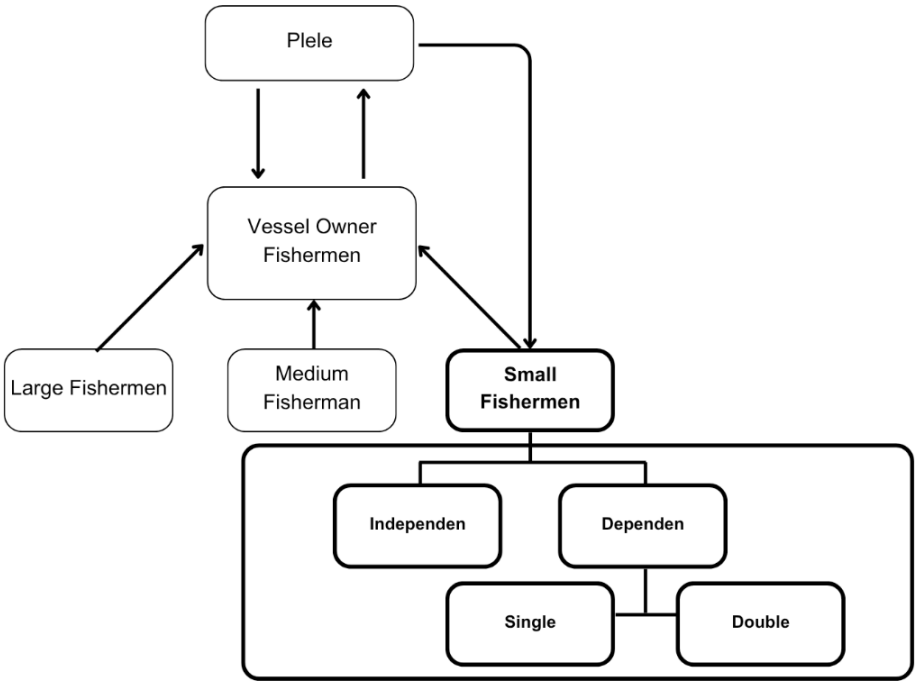


Figure 5. Social stratification of fishermen based on type of capital provision

scale fishermen, and big-scale fishermen (Kinseng, 2022). Refer to Table 9.

Table 9 delineates the social structure of fishermen, categorized by fleet size, ownership of production equipment, and number of crew members (ABK) employed. In Indonesia, ABK refers to fishermen who work under shipowners. Fishermen are classified into four primary categories based on the number of ABK: Fishermen Workers 0 ABK, small-scale fishermen employ between 0 and 3 ABK; medium-scale fishermen employ 4-10 ABK; and large-scale fishermen and capitalists employ more than ten ABK. In this context, Youwikijaya (2023) findings underscore the patron-client scheme among Plele, small-scale fishermen owners, and fisherman laborers. The relationship between small-scale fishermen and Plele does not entirely conform to the classical definition of social stratification; however, both represent a functional and relational form of socioeconomic stratification based on control over production, access to capital, and the distribution of catch (see Figure 4).

In contrast to the socio-economic stratification approach proposed by Youwikijaya, this study focuses its analysis on the typology of capital access within small-scale fishing households. Conceptually, capital provision mechanisms are identified into two main categories: independent and dependent groups (see Figure 5).

Independent fishermen provide capital due to personal values, such as a preference to avoid incurring debt. Dependent groups are categorized into two types: single and double. Single dependent fishermen acquire capital from Plele through a patron-client relationship, or from Bank Emok, an informal microfinance institution that operates via a group system without formal legality. Double-dependent fishers utilize both sources concurrently as a diversification strategy driven by limited loan ceilings or increased capital requirements. This pattern indicates that restricted access to allocative resources such as financial capital and means of production compels small-scale fishermen to depend on informal schemes that perpetuate structural poverty. Consequently, this situation exemplifies the constraints on controlling allocative resources, such as financial capital and means of production, which structurally hinder the development potential of fishermen (Giddens, 1984).

Patron-client relationship

Dependence on external capital highlights the stratification in the control of material and social resources, which has significant implications for the formation of patron-client relationships between fishermen and Plele in Muara Gembong. Pleles provide loans in the form of cash or other operational necessities. Consequently, fishermen are compelled to sell their catch exclusively to Plele at a price determined by Plele as compensation. See (Table 10).

Table 10 indicates that the pricing of small-scale fishermen's catches is entirely determined unilaterally by Plele, without the influence of market mechanisms or negotiations. Indebted fishermen are compelled to sell their catches at prices set by Plele, highlighting the inadequacy of business capital within the local system

Table 10. Number and percentage of small-scale fishermen based on catch pricing paflerns (2023)

Pricing Strategy	Village Pantai Bahagia (Number KK)	Desa Pantai Mekar (number KK)	%
Market mechanisms	0	0	0,00
Determined by Plele	15	16	100
Total	31		100

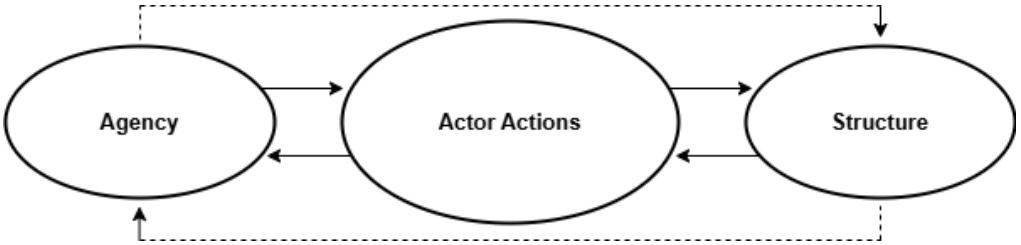


Figure 6. Interaction model between agency, action, and structure (Kinseng, 2017)

(Sachs, 2005). The absence of sufficient business capital, including technology, production facilities, and access to formal capital, necessitates reliance on informal institutions in unfavorable terms. The exploitation of fishermen commences when they are compelled to borrow capital from Plele (Mengge, 2019). An informant noted, "Although the market price of fish reaches Rp.30,000, it is only Rp.22,000 in Plele. When fishermen protest the price, they are threatened with unpaid debts" (interview, 2023). According to (Giddens, 1984), this scenario exemplifies the duality of structure, wherein social structures such as patron-client relations and Plele's dominance are perpetuated through repeated social actions in the interactions between agents and structures. Fishermen, as agents, possess reflexive awareness, yet their capacity for action remains constrained by existing structural conditions.

Figure 6 illustrates the interaction model within the framework of Giddens' (1984) structuration theory, which emphasizes the reciprocal relationship between social structure and agentic actions, a duality. In the context of the relationship between small-scale fishers and Plele, agency represents the fishers' capacity to act reflectively in decision-making, shaped by the trust-based social relationship between the two parties. The fishers' decision to sell their catch to Plele is not solely driven by debt obligations, but also by pragmatic considerations such as ease of transaction, social proximity, and the assurance of a relatively stable purchase. However, this choice occurs within an unequal social structure, characterized by a patron-client system, in which Plele control prices, market access, and catch distribution (Lin, 2019). This structure is constraining because it is continuously reproduced through repetitive social practices, thus reinforcing the economic dependence of small-scale fishers on Plele and hindering their transformation toward independence (Bétrisey et al., 2016).

An informant expressed his concerns: "As long as a debt bond persists between fishermen and the plele, this relationship will endure as a binding agreement. Fishermen indebted to the plele are obligated to sell their catch exclusively to the plele. Should they choose to sell to another plele, they may face sanctions such as the confiscation of fishing equipment or a loss of trust from the plele who provides the capital. The loss of this trust would result in significant challenges for fishermen in securing the necessary capital or cash advances required for maritime activities and daily necessities" (Interview, 2023). Consequently, the poverty experienced by small-scale fishermen's households in Muara Gembong is not solely attributable to low productivity but is also a consequence of the economic-political structure that constrains their rational decision-making.

Market inequality of landing catch results

Small-scale fishermen encounter significant market inequities in the sale of their catch because of the absence of a fish auction facility (TPI) in Muara Gembong. This situation enables Plele to unilaterally monopolize the pricing of their catch. Although some fishermen attempt to secure capital independently, their bargaining power remains limited in the absence of an adequate market infrastructure. The reliance of certain fishermen on external capital from Plele and Bank Emok further exacerbates the exploitative market practices. The lack of a TPI is not only evident in field observations but is also corroborated by an informant's statement: "Here there is no fish auction place, usually sold directly to the boss (Plele). The TPI in Cilincing is far away. We never go directly to sell there, we definitely go through the boss first" (Interview, 2023). This statement elucidates the structural dependency that undermines fishermen's control over their catches.

Ironically, (Local regulation Number 12 2011 regarding regional spatial planning) mandates the construction of TPI in Muara Gembong to enhance market access and the bargaining power of fishermen. However, this initiative has yet to be implemented, and its benefits remain unrealized by the local fishing community. This oversight is not merely a matter of negligence but also represents a structural failure that exacerbates inequality and perpetuates Plele's dominance in fish marketing production in Muara Gembong. The lack of facilities and policy support underscores the fragility of public institutional capital, thereby intensifying the unequal market structure, which deepens the poverty trap for small-scale fishermen and restricts their opportunities to escape poverty (Sachs 2005).

Conclusion

The poverty of small-scale fishermen on the coast of Muara Gembong District, Bekasi Regency, demonstrates the characteristics of structural poverty as defined in Law of the Republic of Indonesia Number 13 of 2011 concerning the Handling of the Poor, where most fishermen have a source of livelihood but are unable to adequately meet basic needs. The emerging poverty pattern is not only economic, but also multidimensional, encompassing interrelated social, environmental, and institutional aspects. The causes of poverty among small-scale fishermen are divided into internal and external factors. Internal factors include limited fleets and production equipment that reduce productivity and limited access to financial capital that forces fishermen to rely on Plele and informal financial institutions (bank emok). This dependency strengthens the patron-client relationship that limits fishermen's economic independence. Meanwhile, external factors include changes in fishing seasons, the absence of inclusive Fish Auction Places (TPI), coastal environmental degradation due to abrasion, pollution, and illegal fishing practices such as trawl nets.

Within Giddens structuration framework this situation suggests that although fishermen possess the agency to adapt, unequal socioeconomic structures, including patron-client relationships, monopolistic markets, and limited capital, limit their ability to escape poverty, thus perpetuating these structures over time. These findings emphasize that addressing fishermen's poverty cannot be achieved through a purely economic approach but requires sustained, cross-sectoral interventions. Increasing fishermen's capacity, improving coastal resource governance, and strengthening local institutions are strategic steps to

reduce dependency and expand economic opportunities. This study is limited by its regional coverage and relatively small number of respondents, so its results cannot be generalized. Further studies with a broader regional coverage and a participatory approach are recommended to provide a more comprehensive picture of the structural poverty of fishermen in Indonesia.

Declaration of Ownership

This article is our original work.

Conflict of Interest

There is no conflict of interest to declare in this article.

Ethical Clearance

This study was approved by the institution.

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