

Barriers to Promoting the Welfare of Fishing Communities in Indonesia: Policy Recommendations and Strengthening Regulations

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ARTICLE INFO	ABSTRACT
<p>Keyword:</p> <p>Fishermen's welfare; Fishing community; Fisheries policy; Government subsidies; Strengthening regulations</p>	<p>The purpose of this study is to analyze the obstacles in the implementation of fisher welfare policies in Indonesia and provide policy recommendations and strengthening regulations that can support the improvement of fisher welfare in a sustainable manner. This research method uses a literature review with thematic analysis to identify policies, obstacles, and best practices in improving fisher welfare in Indonesia. The main findings of this study indicate that although Indonesian government policies such as subsidies, fisher insurance programs, and port infrastructure development have been designed to improve fisher welfare, their implementation is still constrained by problems of uneven distribution, budget constraints, low awareness of fishermen, and limited access to facilities in remote areas. In addition, strengthening regulations that support the sustainability of marine resources and empowering technology to increase market access are needed to overcome these obstacles and ensure the effectiveness of the policy. This finding implies that existing policies must be strengthened through improvements to the distribution system, increasing accessibility, and developing more relevant training for fishermen. In addition, strengthening regulations that support fisheries sustainability and empowering technology will be the key to promoting fisher welfare more effectively and sustainably.</p>

INTRODUCTION

Fishing communities are social groups that live and depend on fishing activities, whether they catch fish in the sea, rivers, or lakes. They generally live in coastal areas and have a strong attachment to marine resources as their primary source of livelihood (Andriesse et al., 2025; Kapapa et al., 2024; Teh et al., 2024). These communities have local wisdom in fishing techniques passed down from generation to generation and a distinctive culture reflected in their traditions, language, and social systems (Lewis-Smith & Norman, 2024; Vave et al., 2024). Despite their important role in providing food and the fisheries economy, fishing communities often face significant challenges such as poverty, limited access to technology and markets, and high risks due to climate change and weather instability (Catane et al., 2024; Iskandar et al., 2024; Karinda & Baharuddin, 2024; Ullah et al., 2022).

In the socio-economic context, fishing communities in Indonesia are generally in the low economic category, with limited access to health facilities, education, and other public services. Their income is highly dependent on daily catches, which are often unstable due to weather and

seasonal factors, making them vulnerable to poverty (Ayu et al., 2024; Roberts et al., 2023; Rozirwan et al., 2022). Limited access to capital and modern technology is also a significant obstacle that limits fishermen's productivity and efficiency. Many fishermen still use less effective and less environmentally friendly traditional fishing gear (Lampe et al., 2020; Stanford et al., 2021). In terms of policy, the Indonesian government has implemented various programs to improve the welfare of fishing communities, such as providing fuel subsidy assistance, insurance programs for fishermen, and building port infrastructure (Cahaya, 2015; Dirman et al., 2024).

Promoting the welfare of fishing communities in Indonesia is urgent, given their role in providing national food sources and maintaining the resilience of the fisheries economy. As a vulnerable group, fishermen are often trapped in poverty due to dependence on the weather, limited access to modern technology, and fluctuations in the price of their catch. In addition, the increasingly pronounced impacts of climate change, such as increasing storm intensity and changes in fish migration patterns, increase their economic and safety vulnerabilities. Better welfare for fishermen will improve their living standards, strengthen the coastal economy, and ensure a sustainable fish supply (Dirman et al., 2024).

In addition to the policies implemented, strengthening regulations is also very important to support the welfare of fishing communities. Regulations that govern the management of marine resources, such as restrictions on exploitation and protection of conservation areas, can ensure the sustainability of marine ecosystems and reduce the risk of declining catches (Hoffmann, 2022). In addition, regulations that support fishermen's access to modern technology, training, and broader markets will increase their efficiency and productivity, reducing dependence on traditional methods that are not environmentally friendly (Cooke et al., 2021; Kroetz et al., 2022). Strengthening these regulations is expected to create a fairer environment, improve the welfare of fishermen, and ensure the sustainability of marine resources for future generations.

The research gap in this study arises from the lack of comprehensive studies on the effectiveness of policies and implementation of regulations that support the welfare of fishing communities in Indonesia, especially in strengthening sustainable regulations. Although the government has implemented various subsidy policies, insurance programs, and infrastructure development, research on how effective these policies are in overcoming significant obstacles is still limited. In addition, few studies have examined the role of strengthening regulations in creating a more independent and structured fisheries ecosystem. The novelty of this study lies in its focus on identifying and evaluating policies and obstacles faced in implementing proactive and adaptive regulations. With this approach, the study aims to produce policy recommendations to strengthen the economic resilience of fishing communities in Indonesia.

This study aims to analyze the obstacles in implementing fishermen's welfare policies in Indonesia and to provide policy recommendations and strengthening regulations that can support the improvement of fishermen's welfare in a sustainable manner. The implications of this study indicate that existing policies need to be strengthened by improving the distribution system, increasing accessibility, and developing more relevant training for fishermen. In addition, strengthening regulations that support the sustainability of marine resources and empowering technology is also very important to ensure the effectiveness of policies and support fishermen's welfare more effectively and sustainably. By strengthening existing policies and regulations, it is hoped that fishermen's welfare can increase significantly, strengthening food security and the economy of coastal areas, including improving the welfare of fishing communities.

RESEARCH METHODS

The method used in this study is a literature review, which focuses on collecting and critically analyzing various literature sources related to policies and obstacles in improving the welfare of fishing communities in Indonesia. The initial step in this literature review is to identify previous research, scientific journals, policy reports, and relevant regulations. This process is carried out by accessing various academic databases to ensure that the scope of the research covers a comprehensive perspective. The collected literature will be selected based on relevance,

quality, and contribution to understanding policies, technologies, and challenges fishermen face. Each literature will be analyzed in depth to understand practical policy approaches and the various obstacles to implementing these policies.

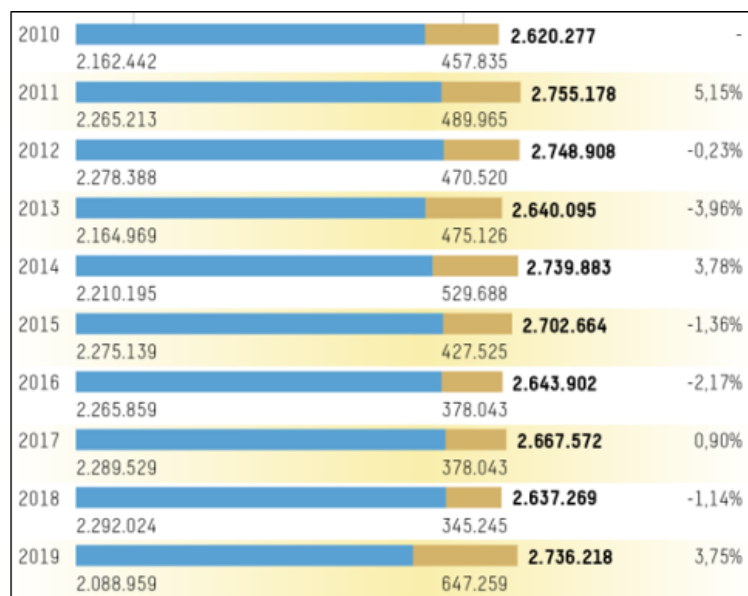
Furthermore, the analysis in this literature review was conducted using a thematic method, namely grouping literature based on central themes related to fishermen’s welfare, such as access to technology, environmental policies, and the role of government in fisheries modernization. With this thematic approach, researchers can highlight the gaps between theory and policy practice and identify areas where policies must be strengthened or adjusted to be more effective. In addition, the study also compares policies and implementation results in other countries to find the best practices adopted or adjusted to the Indonesian context. This literature review approach aims to outline a solid theoretical and empirical foundation, which is ultimately expected to provide policy recommendations and regulatory strengthening to encourage the welfare of fishing communities in Indonesia.

RESULTS AND DISCUSSION

Declining Trend in the Number of Fishermen in Indonesia

The declining trend in the number of marine fishermen in Indonesia reflects the major challenges facing the fisheries sector, which is influenced by various economic, environmental and social factors that affect the sustainability of their livelihoods.

Figure 1. Trend of Declining Number of Sea Fishermen in Indonesia



Source: Ministry of Marine Affairs and Fisheries, 2022

Data submitted by the Ministry of Maritime Affairs and Fisheries shows stagnation and a decline in the number of marine fishermen in the last ten years. 2019, there were around 2.1 million marine fishermen, down from 2.3 million people in 2018 (Nugraheni, 2022). This decline reflects the challenges faced by the marine fisheries sector, such as declining catches, limited access to modern technology, and the impact of climate change on water conditions and fish migration patterns. This shows that the marine fisheries sector needs to be empowered through more innovative and sustainability-based policies to support the welfare of marine fishermen in the long term.

On the other hand, the aquaculture sector, whether marine, brackish water, or freshwater fish, has also experienced a significant decline. In 2020, the number of fish farmers was recorded at 2.2 million people, which is a drastic decline compared to 4.5 million people in 2012. This

decline could be caused by various factors, including limited access to financing, lack of relevant training, and challenges in managing a friendly aquaculture environment. However, the inland public waters (PUD) fisherman sector showed more positive figures, with the number of PUD fishermen reaching around 647,000 people in 2019, which was almost double compared to 2016. Despite the increase, the number of PUD fishermen remains much lower compared to marine fishermen, reflecting the differences in potential and challenges in the two subsectors.

The decline in the number of marine fishermen and fish farmers indicates an imbalance between the potential of existing fishery resources and the ability of fishing communities to access and utilize them sustainably. Climate change factors affecting fish migration patterns and limited access to modern technology exacerbate fishermen’s dependence on unstable catches. On the other hand, existing policies have not provided long-term solutions to address structural problems such as limited market access, financing, and education for fishermen. Without regulations that support the sustainability of marine resources and the development of fishermen’s capacity, the Indonesian fisheries sector will continue to face stagnation that can worsen the socio-economic conditions of fishermen, as well as threaten national food security that depends on fishery products.

The decline in the number of marine fishermen and fish farmers in Indonesia directly impacts the welfare of fishing communities. The decline in the number of marine fishermen reflects the decline in income they receive, given their dependence on increasingly unstable catches. Fluctuations in catches due to climate change and limited access to technology and markets further worsen their economic conditions. Without policies supporting the sustainability of marine resources, marine fishermen are increasingly trapped in poverty, affecting their quality of life, education, health, and other socio-economic opportunities. Therefore, there needs to be a systematic and collaborative effort between the government, private sector, and communities to create policies that support the sustainability of the fisheries sector and the welfare of fishermen as a whole.

Policies and obstacles faced in supporting fishermen's welfare

This sub-topic describes various policies that have been implemented by the Indonesian government to improve the welfare of fishing communities. The focus is on types of policies such as fuel subsidies, fishermen's insurance programs, port infrastructure development, and capacity building training. This analysis aims to assess the extent to which these policies are effective in meeting the needs of fishermen, increasing their incomes, and providing wider access to markets and technology. In addition, this discussion also explores the obstacles that often occur in policy implementation, such as budget constraints, complicated bureaucracy, and minimal coordination between the central and regional governments.

Table 1. Government Policies Supporting Fishermen's Welfare in Indonesia and the Challenges of Their Implementation

Policy Type	Policy Objectives	Obstacles Faced	Policy Effectiveness
Fuel Subsidy	Helping fishermen reduce high operational costs due to unstable fuel prices	- Limited subsidy budget - The distribution of subsidies is uneven and difficult to reach for fishermen in remote areas	Subsidies provide direct assistance, but inefficient distribution reduces their positive impact on fishermen's welfare.
	Provides financial protection for	- Lack of understanding	Increasing the sense of security for fishermen, but still limited to

Fishermen Insurance Program	fishermen from the risk of accidents, natural disasters, or loss of catch	among fishermen about the importance of insurance	low awareness and access to information among traditional fishermen
		- Premium costs are considered expensive by fishermen	
Port Infrastructure Development	Facilitating fishermen's access to markets and increasing the efficiency of distribution of catches	- Limited government budget for development in remote areas	Developing port infrastructure improves market access, but there are still many coastal areas that are not yet reached with adequate facilities
		- Slow and uneven infrastructure development	
Capacity Building Training	Improving fishermen's skills in the use of modern technology, financial management and marketing	- Lack of training relevant to the needs of local fishermen	Training increases knowledge, but the limited sustainability and scale of training reduces its impact on improving fishermen's welfare in the long term
		- Limited access to training in remote coastal areas	

Source: Processed by researchers from literature review, 2024

The table above presents policies that the Indonesian government has implemented to support the welfare of fishing communities, with a focus on fuel subsidies, fishermen’s insurance programs, port infrastructure development, and capacity-building training (Cahaya, 2015; Dirman et al., 2024; Putra & Aini, 2023; Stacey et al., 2021). Although these policies are designed to address the problems faced by fishermen, critical analysis shows that several significant challenges in their implementation need to be considered. Fuel subsidies, for example, are a fairly significant policy to help fishermen reduce the burden of operational costs. However, the main obstacle faced is the uneven distribution of subsidies. In many remote areas, fishermen still struggle to get fuel subsidies due to inefficient distribution mechanisms and limited accessibility. In addition, the limited subsidy budget often does not cover all the needs of fishermen in various regions, so its impact is limited. Therefore, although this policy can provide direct benefits, its effectiveness is greatly influenced by the problem of proper budget distribution and allocation.

On the other hand, the fishermen’s insurance program aims to provide financial protection for fishermen at high risk of accidents and natural disasters. Although this program can potentially increase fishermen’s sense of security, several significant obstacles exist. First, many fishermen do not understand the importance of insurance, and second, the high premium costs are considered a barrier for fishermen to register. Although insurance can be an effective protection tool, awareness and accessibility are still low among fishing communities, which generally have unstable and limited incomes (Nugroho & Pawestri, 2020; Septiana et al., 2019). The development of port infrastructure aims to increase fishermen’s access to markets and facilitate the distribution of catches. In addition, good infrastructure is essential to increase the efficiency and competitiveness of fishermen in domestic and international markets. However, the main obstacle faced is the limited budget for development in remote areas (Nugraha, 2021; Wuwung et al., 2024). The government often finds it difficult to allocate sufficient funds to build

adequate ports, especially in coastal areas far from major economic centers. This means that many fishermen still have to use limited and less supportive port facilities, which ultimately reduces the effectiveness of this policy.

Capacity-building training for fishermen is a policy that aims to improve fishermen's skills and knowledge in facing the times' challenges. This training includes modern technology, financial management, and marketing of catches. However, the main obstacles faced are the lack of training relevant to local fishermen's needs and limited access to training in remote coastal areas (Windasai et al., 2021). Although training can improve fishermen's abilities in the long term, the sustainability and limited scale of training reduce its impact on their welfare. Therefore, it is important to develop training programs that are more affordable and accessible to fishermen throughout Indonesia, especially in isolated areas. Although existing policies have great potential to improve fishermen's welfare, the implementation challenges are significant. To increase the effectiveness of these policies, improvements are needed in terms of aid distribution, increasing program accessibility, and empowering fishermen through more relevant education and training. Without addressing these obstacles, the welfare of fishing communities in Indonesia will remain hampered despite various supporting policies.

Policy recommendations and regulatory strengthening

To overcome obstacles in implementing policies that support the welfare of fishermen, the government needs to focus on improving the distribution system and more efficient budget allocation. One step that can be taken is to strengthen logistics infrastructure, especially in remote coastal areas, so that fuel subsidies and other assistance can reach the correct targets. The government also needs to involve the private sector and non-governmental organizations to expand the reach of subsidy programs and ensure that beneficiaries have fair access. In addition, policies that facilitate the use of technology in distribution and market access also need to be introduced to support better equality of access for fishermen throughout Indonesia.

Furthermore, to improve the understanding and accessibility of insurance programs and capacity-building training, the government needs to take a more holistic approach. Counseling fishermen about insurance benefits and how to access them must be carried out more intensively through various easily accessible communication channels. Training programs must also be tailored to local conditions by involving educational and training institutions close to fishing communities. By providing more relevant and affordable training and better access to insurance programs and financial assistance, the government can help improve the welfare of fishermen in the long term. The government also needs to ensure strong cooperation between the central and regional governments and the private sector to create more inclusive and impactful policies.

Another example is Norway, which has succeeded in improving the welfare of fishing communities through sustainable fisheries management policies and the provision of technology subsidies (Jentoft & Mikalsen, 1987). The Norwegian government has implemented a strict fishing quota system, which protects fish stocks and provides income stability for fishermen. In addition, the government provides financial support for the modernization of fishing gear and fishing vessels and training related to new technologies in environmentally friendly fishing. This policy ensures the sustainability of marine resources while increasing fishermen's incomes and creating new jobs in the fisheries sector.

On the other hand, Vietnam has also succeeded in creating policies that support the welfare of fishermen through a comprehensive fisheries sector reform program (Betcherman & Marschke, 2016). One of them is providing incentives for fishermen to access more efficient and environmentally friendly fishing vessels. Vietnam has also developed an affordable training system for fishermen to improve their skills outside of fishing, such as seafood processing and entrepreneurship. By introducing this program, Vietnam has not only improved the welfare of fishermen but also strengthened the fisheries sector as a whole, which has a positive impact on the country's economy.

Strengthening fishery sector regulations is also very important to support the welfare of fishing communities, given the challenges they face in accessing markets, technology, and limited

natural resources. Strong regulations can provide a clear legal basis for government policies and create a more stable and equitable environment for fishermen (Hakala et al., 2023; Sorensen et al., 2022; Tawakkal & Kistanto, 2017). This includes strict regulations on exploiting marine resources, managing marine conservation areas, and granting transparent business permits based on the principle of sustainability. In addition, strengthening regulations is also needed to protect fishermen from exploitative practices by third parties, such as middlemen or large fishing companies, that can harm small fishermen with unfair prices.

In Argentina, strengthening regulations in the fisheries sector has also succeeded in improving the welfare of fishermen, primarily through fisheries management based on individual fishing rights (Individual Transferable Quotas/ITQs). This ITQ system allows fishermen rights to a particular portion of the fish stock, which can be traded on the market (Bertolotti et al., 2016). With this system, fishermen are incentivized to maintain the sustainability of fish stocks and avoid overfishing. Argentina also applies strict regulations regarding marine protected zones and limits the use of fishing gear that damages the environment. This policy focuses on conserving marine resources and provides more stable economic security for fishermen, reducing the uncertainty often caused by fluctuations in catches.

CONCLUSION

The decline in the number of marine fishers and fish farmers in Indonesia reflects the serious challenges facing the fisheries sector, which are influenced by declining catches, climate change, limited access to technology and markets, and a lack of relevant training and financing. This impacts the welfare of fishers, who have unstable incomes and limited access to other socio-economic resources. Existing policies have not been effective enough in addressing structural issues. Without regulations that support the sustainability and capacity development of fishers, the Indonesian fisheries sector will continue to face stagnation that threatens food security and the welfare of fishing communities.

Although various Indonesian government policies, such as fuel subsidies, fisher insurance programs, port infrastructure development, and capacity-building training, are designed to support fishers' welfare, significant implementation challenges remain. Key ob include uneven distribution, budget constraints, low awareness of existing programs among fishers, and limited access to facilities and training, especially in remote areas. Therefore, while these policies can potentially improve fishers' welfare, their effectiveness depends largely on improving distribution, increasing accessibility, and developing more relevant and sustainable programs.

To overcome obstacles in implementing policies that support the welfare of fishermen, the government needs to strengthen the distribution system and budget allocation to be more efficient, especially in remote coastal areas, and involve the private sector and non-governmental institutions to expand the reach of subsidy programs. In addition, policies that facilitate the use of technology in distribution and market access are also important for equal access. Intensive counseling on the benefits of insurance and training programs relevant to local needs must be optimized so fishermen can access them more easily. Strengthening regulations in the fisheries sector is also needed to create stability and sustainability of marine resources, with strict regulations on the exploitation and management of conservation areas. This will create a fairer environment and support the welfare of fishermen while increasing the protection of their rights from exploitation by third parties.

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