



Integration of FAO blue transformation concept into a “measured fishing” policy and the implications for small-scale fisheries in fisheries management area 714, Southeast Sulawesi case study, Indonesia

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Abstract. Small-scale fisheries (SSF) policy is a major concern in Indonesia due to the significant potential to improve the national economy. The government has launched a Penangkapan Ikan terukur (PIT) “measured fishing” policy focused on regulating the distribution of fishing quotas and zones, as well as enhancing non-tax state revenues. Therefore, this study aimed to map several management concepts adopted in PIT policy and assess the perceptions of stakeholders towards the policy, particularly regarding regional implementation. Data and information were collected during 3 months at Fisheries Management Area (WPP) 714, specifically in Southeast Sulawesi Province. Primary data were obtained directly from respondents and informants through surveys, observations, and in-depth interviews. A combination of qualitative study methods was applied to assess the current definition and develop the concept of PIT about the existence of small-scale fisheries. These methods included (a) legal content analysis, (b) literature review, and (c) triangulation through expert focus group discussion (FGD). The data were then mapped using the visual software Promethee-GAIA II. The results showed a significant divergence of opinion regarding the concept of PIT policy with the blue economy policy. Additionally, a considerable gap was identified between central and regional governments’ implementation of PIT policy, influenced by various complex factors.

Key Words: blue economy, blue transformation, measured fishing.

Introduction. The sustainability of marine resources and the welfare of coastal communities worldwide is maintained through small-scale fisheries (SSF) management (García-Lorenzo et al 2024). The management practice has been recognized as an effective strategy for maintaining the balance between marine resource utilization and environmental protection, thereby addressing the impact of increased global fishing activities on marine ecosystems.

Small-scale fisheries are typically conducted by local fishermen who use simple gear and traditional methods to catch fish, shellfish, shrimp, and other species. The term “small-scale fisheries” often evokes images of small, traditional fishing vessels designed with low-tech equipment. Fishermen are the primary operators, working individually or in small groups to catch fish (Smith & Basurto 2019). Despite the relatively small scale of operations, the impacts on marine ecosystems and local communities are often significant. In 2020, small-scale fisheries accounted for 40% of the global fish catch of 178 million tonnes. Approximately two-thirds of the catch was intended for direct human consumption. In terms of employment, in Indonesia, an estimated 58.5 million people work in the fisheries and aquaculture sector, with small-scale fisheries representing 90%

of this number, including 21 million women. Globally, 492 million people are fully or partially dependent on small-scale fisheries activities, with the majority in developing countries (FAO 2022a; García-Lorenzo et al 2024).

In Indonesia, the small-scale fisheries policy is a major concern of the government, due to the significant potential to improve the national economy. Bappenas (2019), in the document *Indonesia Maju 2045*, stated that the long-term national management policy was directed to become the main driver of the national economy, with a focus on the development of small-scale fisheries. Furthermore, the implementation of an effective Fisheries Management Area (WPP), strengthening the sustainable production base, integrating upstream and downstream fisheries industries, and modernizing fishermen's fleets are crucial for future growth. Despite the optimism for the development of the sector, various challenges can hinder the planning, including the threat of declining stocks. The level of fish resource utilization in the Indonesian WPP often ranges from overfished to fully exploited. The dominant statuses were fully exploited and overfished at 44 and 38%, respectively. Shrimp and other crustaceans experienced the highest level of overfishing (Suman et al 2018). Proper fisheries management necessitates an ecological-based method to be implemented by the Indonesian Government. However, this approach faces challenges such as a lack of coordination between government lines, limited resource assessments, and governance issues.

According to Muawanah et al (2018), the Indonesian Government showed commitment to good fisheries management by agreeing to the policies of the Food and Agriculture Organization (FAO) Code of Ethics for Responsible Fisheries and implementing the Ecological Method to Fisheries Management (EAFM) or Ecologically Based Fisheries Management (PPBE). However, the fisheries policy that has been implemented has not systematically increased the contribution of the fisheries sector to the country's economy. If we look at the development of fisheries policy over the past 30 years, the government has continued to seek solutions to overcome these problems. The challenges faced when establishing effective policies, prompted the Indonesian government to introduce an innovative strategy in 2021 by combining the ecosystem method of fisheries management (PPBE/EAFM) with Quota-Based Fisheries Management (QBFM). This combined policy, known as 'Measured Fishing' (Penangkapan Ikan Terukur or PIT) (Aprian et al 2023), aims at addressing these longstanding challenges. PIT policy began with the issuance of Government Regulation Number 85 of 2021 concerning the types and tariffs of non-tax state revenue applicable to the Ministry of Maritime Affairs and Fisheries, which essentially regulates the collection of Non-Tax State Revenue (PNBP) through pre-production, post-production, and contract systems collection schemes (Government of Indonesia 2021). This was further strengthened by the issuance of Government Regulation (PP) Number 11 of 2023 concerning PIT and the Regulation of the Minister of Maritime Affairs and Fisheries 28 of 2023 concerning Implementing Regulations of Government Regulation Number 11 of 2023 on Quota-Based PIT, signifying a new chapter in Indonesian fisheries management (Government of Indonesia 2023a; KKP RI 2023). The regulation was a derivative of the Job Creation Law Number 6 of 2023 (Government of Indonesia 2023b).

The issuance of the PIT policy, which is considered as part of the blue economy programs, has faced various forms of resistance from the community and the fisheries observers. The blue economy system is often perceived as a metamorphosis of the global capitalism (Schutter et al 2021). Ayilu et al (2022) stated that the blue economy policy is based on abstract concepts of fisheries and other marine sectors, being more suitable for industrial-scale capture fisheries and aquaculture. The preference is due to the inherent uncertainties in small-scale fisheries. In terms of social aspects, small-scale fisheries are suitable for achieving certain blue economy goals. Despite the progress of the blue economy, it should be guided by clearly articulated government objectives that support small-scale fisheries. The broad scope of the blue economy necessitates a well-defined conceptual approach, such as the blue transformation policy initiated by FAO. This policy aims to provide a structured framework to manage and advance sustainable development goals, despite acknowledging the challenges that its implementation might encounter.

Das (2023) further explored the global literature on blue economy, blue growth, social equity, and small-scale fisheries. The collected evidence suggests that there is a missing relationship between international policy considerations and national implementation plans in the context of the blue economy. Other studies show the need for a critical rethinking of policies to ensure the sustainability of the blue economy pathway. Unequal and unfair resource distribution is attributed to the uncontrolled economic growth in the marine sector, as in other sectors. In-depth knowledge is required to prevent potential conflicts and address the impacts of the blue economy on coastal communities (Das 2023).

Various complex factors contribute to the gap in the implementation of PIT policy between the central and regional governments. These include limited human resources, budget constraints at the regional level, and a lack of effective communication and coordination among the governmental levels. Special local conditions are not fully considered when policies are formulated at the central level, making adaptation difficult in the field. This situation is elevated by differences in priorities between the central and regional governments. To overcome these problems, strategic steps such as improving communication and coordination, providing training and capacity building to regional officials, and adjusting policies to local needs are necessary. Additionally, adequate budget support and regulatory simplification are essential to facilitate more effective implementation. Adopting a more integrated and responsive method is expected to enhance the effectiveness and efficiency of PIT policy implementation across regions. This study aimed to analyze the effect of the integration between blue transformation and PIT policy on small-scale fisheries in Southeast Sulawesi.

Material and Method

Description of the study sites. Data and information were collected for 3 months at Fisheries Management Authority 714, in Southeast Sulawesi Province (Figure 1).

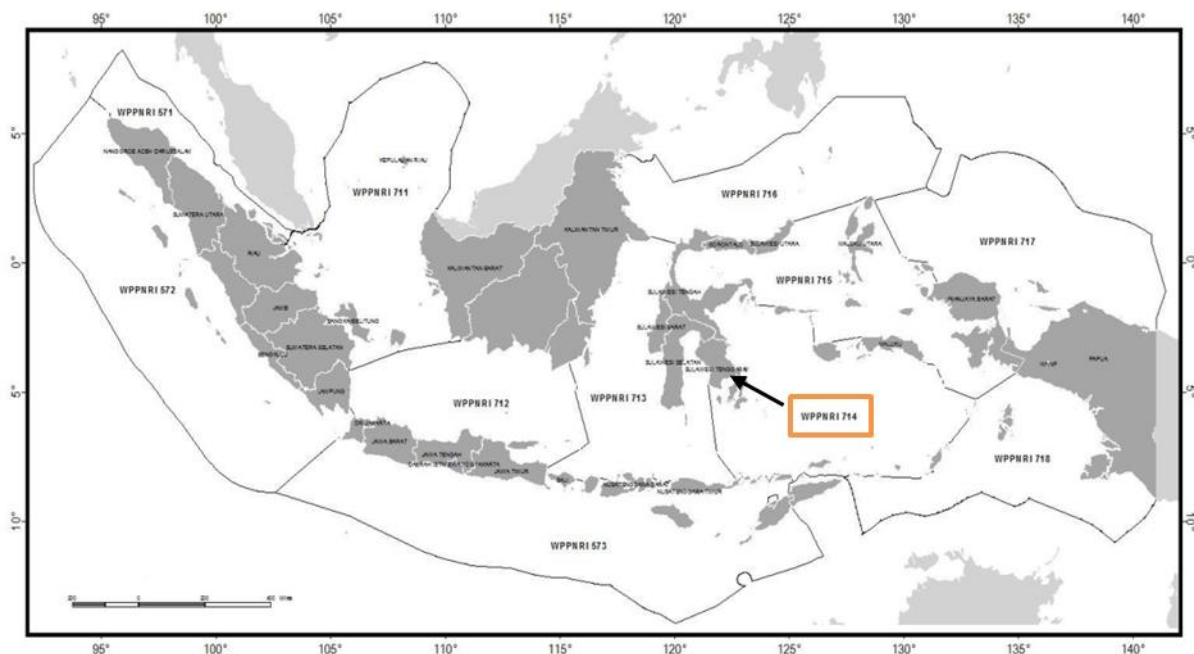


Figure 1. Site location for data collection and research in southeast Sulawesi, Indonesia.

Primary data were obtained directly from respondents and informants through surveys, observations, and in-depth interviews. A combination of various qualitative study methods was applied to examine the current definition and develop the concept of PIT in relation to the existence of small-scale fisheries. These methods include (a) legal content analysis, (b) literature review, and (c) triangulation through expert focus group

discussion (FGD). The study method aims to facilitate the adaptation of PIT policy at the local level through a broader framework. Therefore, the analytical methods were specifically designed to produce outputs in line with the planning and management stages of the adaptation process following this pattern (Halim et al 2020). Data collection was conducted to support the analysis of detection and compilation of fisheries management issues among key decision makers (stakeholders) of coastal management, at both the national level and in Southeast Sulawesi. This included stakeholder surveys and data collection, followed by descriptive analysis to obtain complete information related to the implementation of the PIT policy.

To better understand the structural and functional aspects of the knowledge system on PIT policy, the opinions of stakeholder groups in Southeast Sulawesi were collected. The interviewed respondents are listed in Table 1.

Table 1

Composition of fisheries stakeholder respondent

<i>No</i>	<i>Stakeholder groups</i>	<i>Total</i>	<i>Description</i>
1	Academics and fisheries experts	10	Lecturers and researchers in Southeast Sulawesi and some statements from lecturers and researchers outside the region
2	Fishermen groups	10	All Indonesian Fishermen Association (HSNI) groups including ship owners
3	Central government	2	Head of Kendari Ocean Fishing Port, Ministry of Marine Affairs and Fisheries of Indonesia
4	Local government	5	Kendari City Fisheries Service, South Konawe, Konawe and Provincial DKP (marine and fisheries service)

Stakeholders are core constituents whose support is critical to the successful implementation of the PIT policy adaptation initiative at the local level. Understanding how stakeholders perceive fisheries management in small-scale systems and identifying specific issues requiring adaptive responses is crucial for analyzing barriers to policy adaptation, specifically at the local or regional scale. The variables related to PIT policy analyzed by each stakeholder, were fishing quota, trade quota, fuel quota (BMM), local fishermen quota, supervision, fish landing ports, vessel licensing, and Non-Tax Revenue Levies. The resulting data was mapped using the visual software Promethee-GAIA II.

Results and Discussion. The transformation of fishing policy in Indonesia from the 1980s to 2024 shows significant changes along with economic development, technology, and environmental awareness. In the 1980s, Indonesian fisheries policy primarily focused on increasing production and exploiting marine resources to support economic development. These strategies were significantly exploitative, with minimal attention to sustainability and conservation of marine resources. In the 1990s, global pressure for more sustainable natural resource management prompted a change in policies. Indonesia began to adopt several conservation principles but continued to face challenges such as overfishing and environmentally damaging practices (Heazle & Butcher 2007). In the early 2000s, fisheries policy evolved to a more integrated and sustainable method, which included delegating authority from the central to local governments (devolution/decentralization). Decentralization is widely considered an alternative to enhance fisheries management by improving the efficiency and equity of development activities and service delivery, as well as increasing participation and democracy in the regions. In Indonesia, the development of decentralization policies for fisheries management shows gradual evolution. Post-Reformation, a form of decentralization

occurred with the enactment of Law number 22 of 1999 concerning Regional Autonomy Law, in which local governments obtained several new prerogatives in marine and fisheries management (Government of Indonesia 1999). As a result, a community-based management system rooted in traditional fishing communities was recognized. The effectiveness of the community-based management system in the sustainability of marine resources is attributed to bottom-up planning and a participatory approach. The practice of decentralization which is still a better approach than centralization has overcome some issues (Satria & Matsuda 2004). Furthermore, 2004 was an important milestone with the enactment of Law Number 31 of 2004 concerning Fisheries which focused on sustainable management and ecosystem protection (Patlis 2007; Government of Indonesia 2004). The supervision and law enforcement against illegal, unreported, and unregulated (IUU) fishing practices was a top priority (Khairi 2017). In the 2010s, an acceleration of policy transformation was witnessed alongside the implementation of various programs to strengthen ecosystem-based fisheries management and empower fishermen. These policies include the development of marine conservation areas, the implementation of sustainable fishing systems, and increasing the capacity of fishermen through training and technology.

During the period of 2020 to 2024, policy focus has been increasingly directed at sustainability and adaptation to climate change as well as elevating the economic contribution of the fisheries sector to the national economy. PIT policy is one of the main agendas, with a focus on scientific monitoring of fish stocks, regulation of fishing quotas, and development of infrastructure that supports sustainability. Before the implementation of this policy, several policies were applied by the government as explained in Table 2.

Blue economy framework in measured fisheries policy

Blue economy controversy. Martínez-Vázquez et al (2021) stated that the blue economy presented significant challenges at the economic, social, and environmental levels. Consequently, the blue economy implementation strategy becomes a concept as well as a management tool to ensure environmental sustainability and efficient management of marine and ocean resources. In this context, when combined with the concept of sustainable development, it implies that economic development should be inclusive and environmentally friendly, requiring a balance between the economic, social, and environmental space. Applying the blue economy concept to the poverty alleviation in coastal areas cannot be successful without ensuring the health of marine ecosystems, which are essential for food security, livelihoods, and economic development. It is important to set goals with targets and indicators to maintain productive, healthy, and resilient oceans.

PIT Policy is regarded as part of the blue economy program. However, in practice, the blue economy system is perceived to be a metamorphosis of global capitalism (Schutter et al 2021). This perception may conflict with the prevailing values in Indonesia. According to some policy experts, the blue economy remains controversial and ambiguous (Cisneros-Montemayor et al 2022), with terms that lack clear distinction between practice and principles, and it was adopted by different actors based on different goals and agendas (Voyer et al 2018). This perspective aligns with Pauli's (2010) argument that the blue economy should not be considered the same as the green or red economy (Wibowo et al 2023). PIT comprised controlled fishing based on designated zones and quotas to maintain the sustainability of fish resources, provide business opportunities, and improve the justice and welfare of fishermen. Nasution (2022) outlined challenges to the blue economy in the fisheries sector in Indonesia, including a high level of overfishing in the national capture fisheries, which threatens the future economic potential. Furthermore, the aquaculture industry has not met sustainability standards, failing to reduce carbon emissions and implement efficient, clean practices.

Table 2

Comparison of capture fisheries management trends towards PIT policy

Indicator	1970-1998	1999-2004	2004-2009	2009-2014	2014-2019	2019-2024
Government	New Order (Soeharto 32 Years)	President Abdurrahman Wahid's government (1999-2001) Megawati Soekarnoputri's government (2001-2004)	President Susilo Bambang Yudhoyono	President Susilo Bambang Yudhoyono	President Joko Widodo	President Joko Widodo
Policy	Blue Revolution (Modernization of Fisheries). At the level of Director General of Fisheries, in the Ministry of Agriculture The issuance of Law 31 of 2004 concerning fisheries Government of Indonesia 2004)	Fish production improvement program in 2003 (Minister of Marine Exploration and Fisheries, Sarwono Kusumaatmadja) Mina Bahari Gate (Minister of Marine Affairs and Fisheries Rokhmin Dahuri)	Revitalization of Marine Affairs & Fisheries (Minister of Marine Affairs and Fisheries, Freddy Numberi) Law 45 of 2009 concerning Fisheries (Amendment to Law 31 of 2004) (Government of Indonesia 2009) Law 27 of 2007 concerning Coastal Area and Small Islands Management (Government of Indonesia 2007)	The New Blue Revolution "Minapolitan" (Fish-City) Program Minister of Marine Affairs and Fisheries Regulation No. 12/2010 (Minister of Marine Affairs and Fisheries, Fadel Muhammad) (KKP RI, 2010) 1000 "Inka Mina" ship assistance program through Presidential Instruction No. 1 of 2010 concerning the acceleration of the Implementation of National Development Priorities (Government of Indonesia 2010)	Indonesia as the World Maritime Axis (Minister Susi Pudjiastuti) Eradication of IUU Fishing through Task Force 115. Task Force 115 was established through Presidential Regulation Number 115 of 2017 (Government of Indonesia 2017)	Indonesia Maritime Axis of the World II (Ministers Eddy Prabowo and Wahyu Sakti Trenggono) Increasing the contribution of the fisheries sector to the economy issuance of Law Number 2 of 2020 concerning job creation before being amended to become a government regulation in lieu of Law Number 2 of 2022 concerning job creation (Government of Indonesia 2020;

<i>Indicator</i>	<i>1970-1998</i>	<i>1999-2004</i>	<i>2004-2009</i>	<i>2009-2014</i>	<i>2014-2019</i>	<i>2019-2024</i>
				Ecosystem Approach to Fisheries Management (EAFM)		Government of Indonesia 2022) Increasing non tax revenue through government regulation No. 85 of 2021 (Government of Indonesia 2021) Measurable Fisheries Policy through Government Regulation No. 11 of 2023 (Government of Indonesia 2023)
Achievements	<p>In the period 1969-1974, marine fisheries production grew by an average of 8.6% year⁻¹</p> <p>In 1990 national fisheries production reached 3.16 million tons and became 4.24 million tons in 1996.</p> <p>The increase originating from marine fisheries reached 75% with an average growth of 6.68% year⁻¹(BPS 1996)</p>	<p>National fish production in 2003 was only around 5.8 million tons, with an export value below 1.7 billion USD.</p> <p>National fish production in 2006 was only around 6.2 million tons. The export value of fishery products was only 2 billion USD (FAO 2009)</p>	Indonesia's fisheries production is 4.1 million tons year ⁻¹	Fishery production increased to 6.1 million tons (2013)	The potential for capture fisheries increased from 6.5 million tons year ⁻¹ to 12.5 million tons year ⁻¹	<p>Fisheries potential reaches 10.5 million tons year⁻¹</p> <p>Fishery Production 5.78 million tons year⁻¹ (2023)</p> <p>The highest Non-Tax State Revenue for Fisheries in history reaches 86,7 million USD in 2023</p>

Blue transformation policy. PIT Policy focuses on protecting ecosystems and fishery resources while promoting the sustainable use of economic resources. It was in line with a larger framework developed by FAO, known as the Blue Transformation, which aims to support sustainable development goals (SDGs) through effective management. The FAO Blue Transformation is a global strategy designed to develop the marine and fisheries sector sustainably. This framework aims to enhance the production, management, trade, and consumption of aquatic food, thereby contributing to the achievement of SDGs (FAO 2022b). In Indonesia, PIT policy is an important focus in efforts to achieve blue transformation goals. The relationship between the two has a significant impact on the sustainability of marine resources, the economy of the country, and the welfare of coastal communities. Improving the management of fishery resources is among the primary aspects of blue transformation fishery resources. It is important to acknowledge that Indonesia, as a maritime country rich in marine resources, faces serious challenges related to overexploitation and illegal fishing practices. Through the PIT policy, the government aims to improve fisheries management by implementing sustainable fishing, strict supervision, and strict law enforcement.

Blue transformation focuses on sustainable economic development in the marine and fisheries sector. Indonesia recognizes the great potential of this sector as an economic driver capable of creating jobs, increasing income, and reducing poverty in coastal areas. By implementing policies that support investment in marine infrastructure, provide training for fishermen, and promote local fishery products, the country aims to enhance the contribution of the marine and fisheries sector to sustainable economic growth. Additionally, the integration of blue transformation and PIT Policy includes efforts to preserve the marine environment. In this context, Indonesia is committed to protecting vulnerable marine ecosystems and maintaining biodiversity. Through joint efforts to improve fisheries resource management, encourage sustainable economic growth, and preserve the marine environment, the country becomes a standard for other countries in achieving the global blue transformation goals. In quota-based PIT policy, fishing quotas are divided into 3 categories, namely 35% for fishermen through cooperatives, 64.90% for industry, and 0.10% for hobbies. The expansion of marine conservation areas by 30% will be determined in the PIT zone, which is divided into 6. The target is to increase the fish population in each PIT zone (Trennggono 2022).

Cohen et al (2019) explained that the largest group of small-scale fishing communities, who depend on the ocean for environmental services, fishing, and trade, considered that they have been marginalized from the policymaking dialogue shaping the future strategy of the ocean. The blue economy or blue growth initiative views the ocean as the vanguard of the new economy and suggests a convergence with the goals and social concerns of small-scale fishermen. However, a deep analysis shows that there is a fundamental difference in ideology, priorities, and approaches. Small-scale fishermen are subtly and overtly suppressed due to geographic, political, and economic interests by larger-scale economic and environmental conservation interests, jeopardizing the significant benefits provided by fishery resources in terms food security, including the livelihoods of millions of females and males worldwide. Das (2023) stated that there was a gap between international policy considerations and implementation plans at the national level. This policy stratification is simplified in Figure 2. PIT policy is an important component of FAO fisheries blue transformation which aims to achieve blue economic growth and support the achievement of SDGs. It was developed to ensure a balance between marine ecosystems, sustainable fishing practices, and protection of biodiversity. Fish resources can be managed sustainably through the implementation of this policy, thereby improving the welfare of fishermen and coastal communities. It is important to acknowledge that SDG 14 which focuses on the conservation and sustainable use of marine resources. A good coordination between the central and regional governments and a support from local communities are required to ensure policy implementation. Additionally, effective monitoring and management of fish stocks effectively necessitate a science and technology-based approach. The PIT Policy should be pivotal in fostering an inclusive and sustainable blue economy that promotes economic growth and improves the well-being of individuals in ASEAN countries. The evolution of global fisheries and

aquaculture systems to support food security, create jobs, and protect marine biodiversity is facilitated by blue transformation. This initiative aims to create more sustainable, inclusive, and climate change-resilient fisheries and aquaculture systems. Geng et al (2024) explained that enhancing inclusive growth in Asia requires concerted efforts to improve fisheries management.

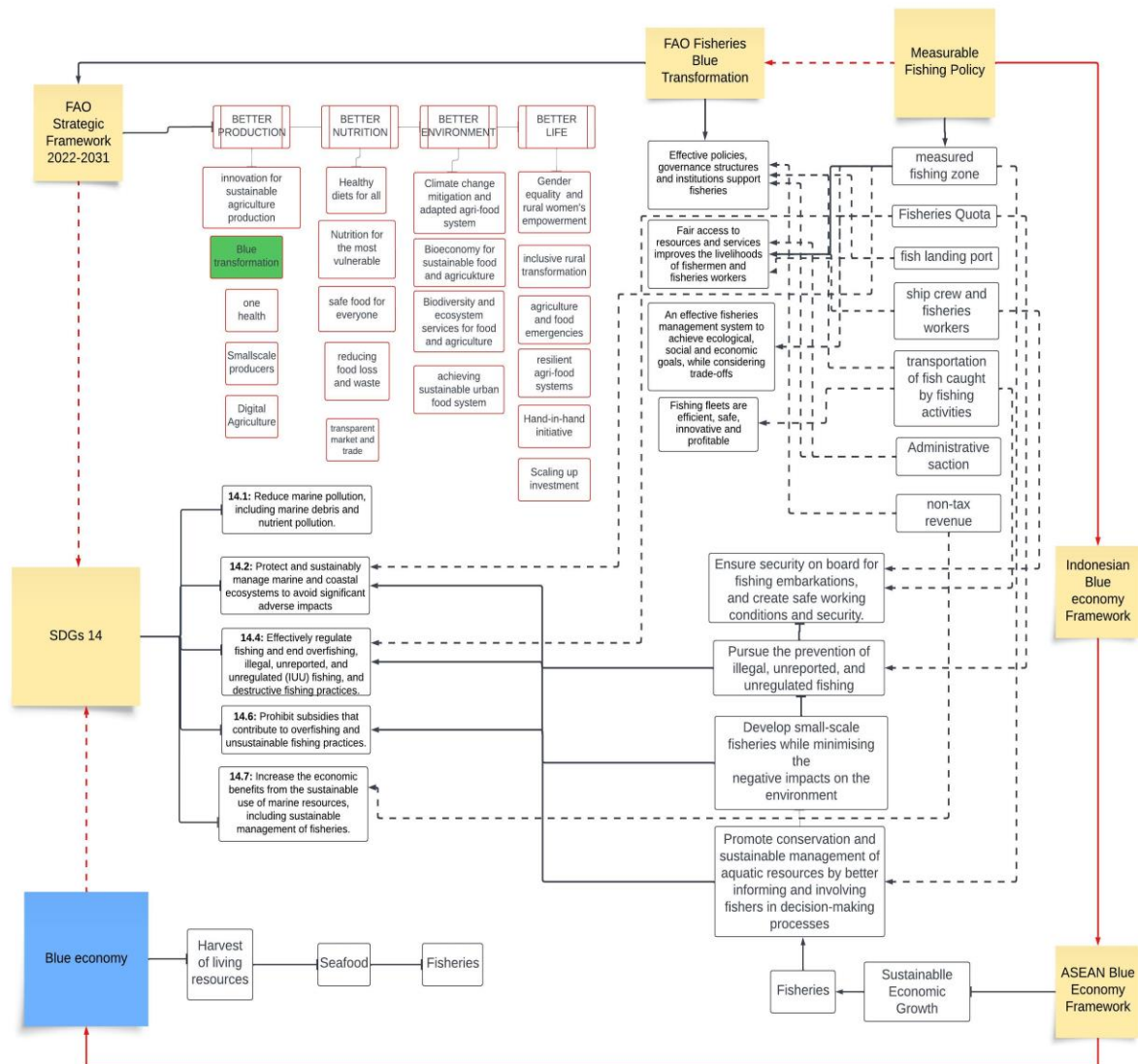


Figure 2. Conceptual framework of blue economy framework, ASEAN blue economy framework, FAO blue transformation, and Indonesian national fisheries policy.

Implementation of a measured fishing policy. To ensure the sustainability and recovery of declining fish stocks, the PIT policy’s management of fishery resources based on data and science was implemented (Meliala 2024). The tools used were quotas, no-take zones, and seasonal regulations to control fishing pressure and protect fish populations. The management process also includes strict monitoring and evaluation to ensure that the policies implemented are effective and according to the existing conditions of fishery resources. This requires close collaboration between governments, scientists, fishermen, and other stakeholders to collect and analyze data accurately and sustainably. By combining the principles of blue economy, FAO blue transformation, and PIT Policy, ASEAN countries can create strong synergies in efforts to conserve marine resources, while maximizing economic benefits for coastal communities. The implementation of the blue economy in ASEAN addresses challenges such as overfishing, habitat degradation, marine pollution, and climate change, that threaten the sustainability of marine ecosystems and the welfare of coastal communities (Randhawa 2024).

The gap in understanding of central and regional policies. Indonesia has taken strategic leadership steps in the fisheries sector by strengthening national legal regulations and implementing international law and advocacy in various regional and international organizations. However, collaborative and cooperative steps are still needed to further strengthen the role of the country in various forums. In the national legal framework, various existing regulations related to quota restrictions, have shown significant potential for realizing sustainability commitments, specifically those in line with SDGs 14 (Meliala 2024). The central government's PIT targets were not systematically applied by policymakers in the regions, as observed from the results of FGD and interviews. A gap remains in the understanding of several fishery stakeholders concerning the implementation of this policy.

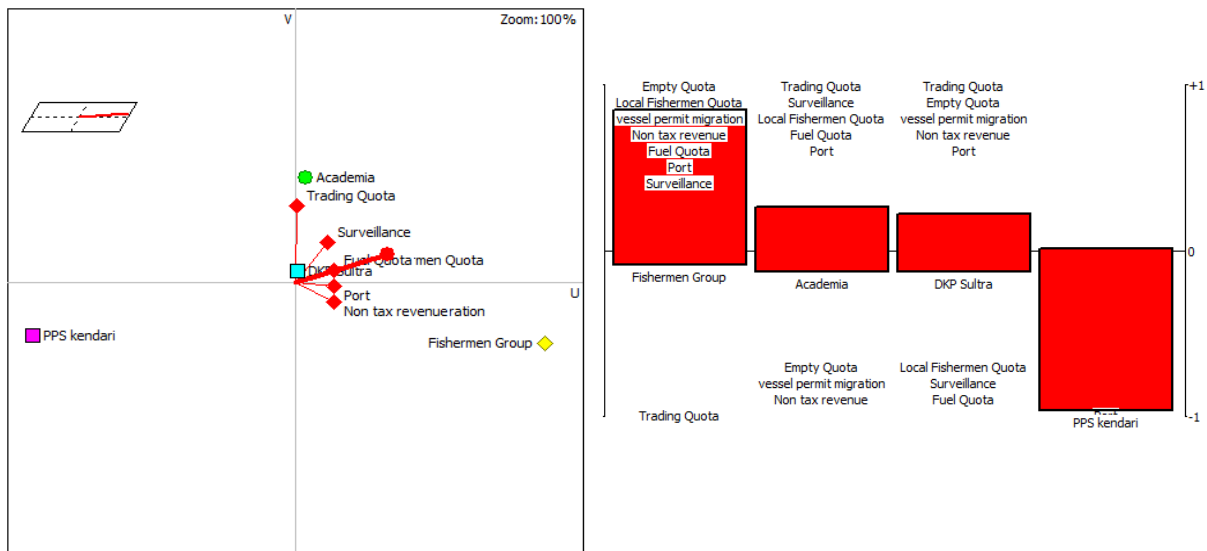


Figure 3. Segmentation of stakeholders' understanding of the implementation of PIT policy in Kendari.

The results of the stakeholder analysis showed several challenges faced in implementing the PIT policy in Southeast Sulawesi. This includes differences in views and conceptions regarding the policy. Stakeholders' understanding is divided into 3 main groups, namely:

1. The central government (Kendari Ocean Fishing Port): The government's comprehension of this policy is based on established regulations and policies. They possess a deep understanding of the objectives which include maintaining the sustainability of fish resources, reducing illegal fishing, and ensuring environmentally friendly operations. Additionally, the government tends to focus on implementing and supervising policies.

2. Academics and provincial fisheries offices: This group has a more technical and scientific understanding. Academics are engaged in the study of the impacts of these policies and provide recommendations based on scientific data. Provincial fisheries offices have a role in implementing policies at the local level, as well as supervising and providing technical support to fishermen. These two stakeholder groups focus on the effectiveness of supervision, local fishing quotas, fuel quotas, fish landing ports, and the potential for trading fishing quotas.

3. Fishermen groups: Fishermen's understanding of the policy is often more practical and based on field experience. The level of comprehension can vary based on education and access to information. Some fishermen recognize the importance of policies for maintaining the sustainability of fish resources. However, others may view policies as restrictive and burdensome. Fishermen groups are particularly concerned about fishing quotas, fishing vessel licensing, fuel quotas, supervision, and collection of PNPB.

The gap in understanding between these three groups can be a challenge in implementing the PIT policy. To overcome this problem, effective communication and education efforts, as well as collaboration between the government, academics, and

fishermen are needed to ensure optimal implementation and acceptance by all parties. Sari & Mahara (2019) stated that the implementation of public policies often presented a gap between expected outcomes and actual results. The extent of the gap depends greatly on implementation capacity. This refers to the ability of the government and certain actors to implement policies and achieve the stated objectives. Furthermore, Shamsuzzaman et al (2022) identified several key challenges contributing to the gap between policies and the implementation of regulations. These include ignorance of regulations, top-down decision-making, lack of appropriate policy objectives, inadequate law enforcement, ineffective action strategies, lack of enforcement regulations, poor coordination, and insufficient technical knowledge of the personnel concerned. The challenges can lead to resistance from some fishermen, who may be concerned that the new policies will limit access to fish resources, reduce income, and increase operational burden. To foster collective awareness of the importance of maintaining marine resource sustainability, education and socialization regarding the importance of PIT need to be improved among fishermen and the general public. Limited funding for programs supporting these policies also adds to the complexity of the existing challenges. Therefore, integrated and collaborative efforts are required from all stakeholders to ensure the successful implementation of the PIT policy in Southeast Sulawesi, maintaining the balance between the sustainability of the marine ecosystem and the welfare of fishing communities.

Conclusions. Integrating FAO fishery's blue transformation policy into the mechanism of PIT policy faced significant challenges, specifically in converging understanding between various fisheries stakeholders. Differences in perspective between academics and fisheries management experts, regional fisheries and marine services, fishermen's organizations, as well as the Ministry of Marine Affairs and Fisheries as the initiator, created tensions that hindered an effective implementation. Academics and fisheries management experts focused on aspects of ecosystem sustainability and accurate scientific data collection, while regional fisheries and marine services prioritized local economic interests and fishermen's welfare. Organizations of fishermen often prioritized livelihood sustainability and access to fishery resources, which sometimes conflicted with strict conservation approaches. Meanwhile, the Ministry of Marine Affairs and Fisheries, the main driver of PIT policy, balanced all these interests while ensuring compliance with international standards as mandated by FAO. To achieve successful integration, continuous dialogue and collaboration between all parties, as well as the formulation of comprehensive and inclusive policies were needed. Therefore, the objectives of blue transformation which included the ecosystem sustainability, while improving fishermen's welfare, and food security, were achieved holistically and sustainably.

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