



ANALISIS KUALITATIF KEBIJAKAN PENANGKAPAN IKAN TERUKUR DI INDONESIA

QUALITATIVE ANALYSIS OF MEASURED FISH CAPTURE POLICY IN INDONESIA'S FISHERIES MANAGEMENT

Septa Riadi^{1,7*}, Ario Damar^{2,3}, Yeti Lis Purnamadewi⁴, Setyo Pertiwi⁵ and Yudi Wahyudin⁶

¹Natural Resources and Environmental Management Science, IPB University, Jl. Raya Darmaga, Graduate School Building IPB, IPB Darmaga Campus, Bogor 16680, West Java, Indonesia.

²Department of Aquatic Resources Management, Faculty of Fisheries and Marine Sciences, IPB University, Jl. Raya Darmaga, IPB Darmaga Campus, Bogor 16680, West Java, Indonesia.

³Center for Coastal and Marine Resources Studies, IPB University, IPB Campus, Jl. Pajajaran Raya No.1, RT.02/RW.05, Baranangsiang, Bogor Tengah District, Bogor City, West Java 16127, Indonesia.

⁴Department of Economic Sciences, Faculty of Economics and Management, IPB University, Jl. Raya Darmaga, IPB Darmaga Campus, Bogor 16680, West Java, Indonesia.

⁵Department of Mechanical and Biosystems Engineering, IPB University

⁶Faculty of Agriculture, Universitas Djuanda, Jl. Tol Jagorawi No.1, Ciawi, Ciawi District, Bogor Regency, West Java 16720, Indonesia.

⁷Faculty of Economics and Business, Universitas Sang Bumi Ruwa Jurai, Jl. Imam Bonjol No.486, Langkapura, Langkapura District, Bandar Lampung City, Lampung 35118, Indonesia.

ABSTRAK

Penelitian ini bertujuan untuk menganalisis sentimen dalam artikel berita internet mengenai kebijakan Penangkapan Ikan Terukur (PIT) secara komprehensif. Data dikumpulkan dari Google Indonesia menggunakan kata kunci "PIT" pada 15 November 2023. Empat puluh empat artikel berita populer dianalisis dan dikodekan untuk sentimen dan fokus menggunakan perangkat lunak NVivo versi 12. Analisis sentimen menunjukkan 32 sentimen positif dan 22 sentimen negatif. Topik utama dibagi menjadi tiga kelompok: dampak negatif, kendala pelaksanaan, dan manfaat PIT, dengan masing-masing 39, 32, dan 116 kode. Sebagian besar sentimen positif berasal dari Kementerian Kelautan dan Perikanan, sedangkan sentimen negatif sebagian besar berasal dari asosiasi nelayan, asosiasi bisnis perikanan, dan beberapa kantor perikanan provinsi. Liputan media negatif terutama disebabkan oleh kurangnya sosialisasi kebijakan PIT di kalangan nelayan skala kecil, yang menghadapi tantangan dalam melaksanakan kebijakan ini, terutama terkait teknologi informasi. Untuk mengatasi masalah ini, perlu bagi Kementerian Kelautan dan Perikanan untuk berkolaborasi dengan pemangku kepentingan, media, dan akademisi untuk menyampaikan fakta ilmiah terkait kebijakan PIT kepada publik.

Kata kunci: Kuota Tangkap, Nvivo, PIT

ABSTRACT

This research aims to comprehensively analyzes sentiments in internet news articles about the Measured Fish Capture (PIT) policy. Data was collected from Google Indonesia using the keyword "PIT" on November 15, 2023. Forty-four popular news articles were analyzed and coded for sentiment and focus using NVivo software version 12. The sentiment analysis revealed 32 positive and 22 negative sentiments. The main topics were divided into three clusters: negative impact, implementation constraints, and benefits of PIT, with 39, 32, and 116 codes respectively. Most positive sentiments came from the Ministry of Maritime Affairs and Fisheries, while negative sentiments were mostly from fishermen associations, fisheries business associations, and some provincial fisheries offices. Negative media coverage was mainly due to inadequate socialization of the PIT policy among small-scale fishermen, who faced challenges in implementing the policy, especially regarding information technology. To address these issues, it is necessary for the Ministry of Maritime Affairs and Fisheries to collaborate with stakeholders, media, and academics to convey scientific facts about the PIT policy to the public.

Keywords: Capture Quota, Nvivo, PIT

Corresponding author:

Natural Resources and Environmental Management Science, IPB University, Jl. Raya Darmaga, Graduate School Building IPB, IPB Darmaga Campus, Bogor 16680, West Java, Indonesia. Email: Septa.riadi.sr@gmail.co

INTRODUCTION

The potential of fisheries resources, which is a renewable asset, possesses distinctive characteristics due to the governance influenced by the two interconnected principles that govern the marine and fisheries sectors. The first principle is related to ownership rights, while the second revolves around access to these fisheries resources. In Indonesia, ownership rights and access to fisheries resources are usually in line with the first type, which is characterized by state ownership with restricted access (quasi-open access). According to Fauzi (2010), the regulation of access to these resources in Indonesia is generally implemented through licensing mechanisms (Fauzi 2010). In this regard, vessels exceeding 10 gross tons must acquire certain requirements such as fisheries business license (SIUP), and fishing permit (SIPI), and must comply with fisheries levies as stipulated in the regulations. On the other hand, vessels smaller than 10 gross tons are permitted to engage in fishing activities within Indonesian waters without these specific requirements (Sari 2018).

As observed in previous research, the current use status of fisheries resources in Indonesia reflects instances of overexploitation, prompting the need for more comprehensive fisheries management. In order to achieve such comprehensive management, it becomes essential to introduce a moratorium on fishing business permits within Indonesian fisheries area (Cahyarani et al. 2023; Kasim et al. 2024). This method is specifically significant because it represents a strategic initiative that can be adopted to curtail the exploitation of fisheries. This policy was developed with the aim to mitigate the pressure on these resources by implementing limited entry, a mechanism designed specifically to reduce the number of fishing endeavors to a specific threshold. The goal, in this regard, is to optimize capture costs efficiently while alleviating strain on fisheries resources (Cruthfield 1979) as cited in (Sari 2018).

The above situation led the Minister of Maritime Affairs and Fisheries to issue Government Regulation No. 11 of 2023 concerning Measured Fish Capture (PIT). This regulation was tailored to specifically govern the rate at which measured fish are being captured within PIT zones. PIT is a controlled and proportional fishing activity carried out in PIT zones. This activity hinges on fishing quota to maintain the sustainability of fisheries resource and their environment, as well as to promote the equitable growth of the national economy (Hendarman et al. 2024). PIT zones include the Indonesia State Fisheries Management Area (WPPNRI) and the high seas. WPPNRI is fisheries management area for fishing and fish cultivation. This area covers the waters, exclusive economic zone, rivers, lakes, reservoirs, marshes, and other potential water bodies that can be used within the territory of Indonesia (Peraturan Pemerintah Republik Indonesia No. 11 2023).

This Government Regulation comprised several new provisions, such as the establishment of

PIT zones, the imposition of catch quota, the implementation of vessel monitoring systems, the identification of base ports, the mandate for regional fisheries management organizations, and an augmentation in the percentage of non-tax state revenue derived from fisheries sector. Furthermore, each vessel is mandated to install a transmitter for continuous monitoring (Anderson et al. 2018; Patil et al. 2018). The genesis of this regulation is rooted in its multi-sectoral significance in addressing the intricate challenges confronting the maritime and fisheries sectors of Indonesia. These challenges pose potential threats to various facets, particularly in environmental spheres, thereby necessitating proactive measures. The measures, in this context, include ensuring the sustainability of fisheries resources and the environment, supporting livelihoods in the maritime and fisheries sectors, maintaining food security, and fostering economic progress through the utilization of marine and fisheries (Hasibuan et al. 2018; Lee et al. 2020; Carruthers et al. 2023). The ongoing developmental challenges in maritime fisheries, specifically in capture fisheries, comprise:

- a. Inadequate control over fish capture. This poses a potential threat to the sustainability of both fish resources and ecosystems.
- b. The fragmented and suboptimal governance of capture fisheries fails to integrate effectively, thereby hindering the promotion of regional economic growth in line with the potential of natural fisheries resources.
- c. The inadequate and inconsistent infrastructure and connectivity of Fisheries Ports, along with other associated facilities and infrastructure.
- d. The inconsistent availability of raw materials coupled with insufficient competitiveness and quality of fisheries products contributes to instability within the sector.

In response to the aforementioned challenges, the government has crafted PIT policy as a guiding framework for managing capture fisheries in Indonesia while safeguarding marine ecosystems. This policy serves as a vital contributor to national economic growth and it was enacted with the primary aim to maintain the vitality of Indonesian seas. It is important to state that PIT policy was purposefully designed to uphold ecological integrity, preserve biodiversity, bolster regional economic development, and elevate the well-being of fishermen (Hilborn et al. 2020; Sapanli et al. 2020). Furthermore, an integral facet of this policy is its aspiration to eradicate illegal, unreported, and unregulated fishing practices. Given these important considerations, the formulation and implementation of Government Regulations on PIT becomes essential to propel the maritime and fisheries sector in Indonesia forward, ensuring a balanced method that comprises bio-ecological, economic, social, and food security dimensions (Hafsaridewi et al. 2018; Picaulima et al. 2022).

The discourse surrounding the implementation of PIT is characterized by a spectrum of both support and opposition, which is evident not only within the community but also within different

segments of the government (Jaya et al. 2022). Online news platforms have been observed to predominantly feature articles discussing resistance from business sectors, various related issues, and the effects stemming from the execution of PIT policy. Despite this coverage, a comprehensive analysis to gauge the sentiment conveyed in these news articles and a properly conducted examination to identify prevalent themes in this regard remain absent. In this technologically advanced era, access to news via the internet has become effortless. This is evidenced by the continuous streams of news flooding the digital landscape, compelling individuals to perceive and interpret information subjectively. Despite the seamless accessibility to news articles, the art of conducting scientific research requiring an in-depth analysis of information obtained from online news and social media remains infrequent due to the inherent subjectivity. However, several software tools developed with the primary aim of facilitating social research using qualitative methods by harnessing inputs from online media have been made available, and one of these tools is Nvivo (Witomo 2019).

The latest version in NVivo series, NVivo 12 Plus, presents a distinct advantage by offering seamless integration for importing or exporting essential data from diverse sources. This includes online media platforms, social media channels, reference management tools such as Mendeley and EndNote, as well as quantitative data processing tools like SPSS and Minitab. Leveraging these capabilities, NVivo 12 Plus software will serve as the primary tool used in this research (Bandur 2016). This research aims to comprehensively analyze sentiments in internet news articles about the Measured Fish Capture (PIT) policy.

METHODOLOGY

The method adopted in this research comprises qualitative methodology that used coding methods facilitated by NVivo 12 Plus software from the series.

Research Location and Time

The research was carried out within the Indonesian region, and conducted in collaboration with Google Indonesia. Accordingly, the selection criteria for the news articles include choosing the most popular publications using the keywords "PIT"

("Penangkapan Ikan Terukur") as of November 15, 2023, at 7:00 PM WIB.

Types and Methods of Data Collection

In this research, qualitative analysis was conducted on the set of data extracted from 44 widely-read news articles sourced from Google Indonesia. The data collection process included the use of Ncapture software, an integral component of NVivo 12 Plus, which was used in conjunction with Google Chrome for extraction purposes.

Analysis Method

1. Search and Collect Data:
 - Use a computer with Google Chrome and NVivo 12 Plus software.
 - Open Google Chrome, use the Indonesian search engine, and search for "PIT" ("Penangkapan Ikan Terukur").
 - Click on the news channel and save each article using Ncapture
2. Organize Data in NVivo:
 - Open NVivo 12 Plus, create a new Blank project, and title it.
 - Import the saved news articles using Ncapture.
3. Keyword and Relationship Analysis:
 - Conduct a keyword test by searching for "Penangkapan Ikan Terukur."
 - Visualize keyword relationships using the "Word Tree" menu.
4. Sentiment Analysis and Coding:
 - Read each news article and determine sentiment (positive, negative, neutral).
 - Use NVivo's Nodes menu to create categories for sentiment and main topics.
 - Drag statements into sentiment folders and categorize main topics.
5. Qualitative Analysis:
 - NVivo automatically calculates the number of nodes.
 - Analyze interconnected news articles and main topics for a deeper qualitative understanding.

An example of coding for one news article is shown in Figure 1 below:

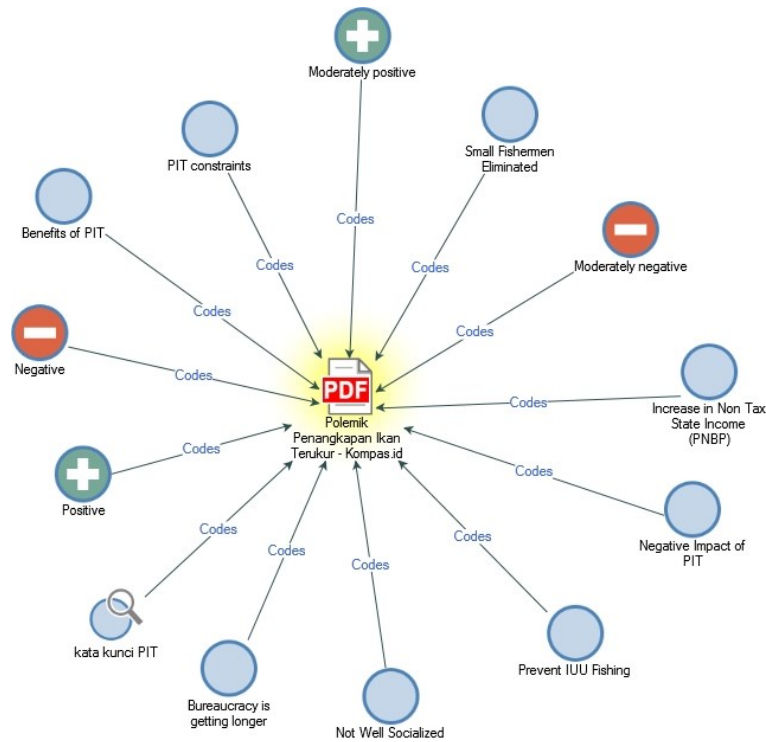


Figure 1 Example of a news matrix diagram that has been coded

RESULTS

From the search results of the most popular news using the Google search engine with the

keyword "PIT" "*Penangkapan Ikan Terukur*," the following online news articles were obtained.

Table 1 Forty-Four Most Popular News on Google Indonesia with the Keyword "PIT" "*Penangkapan Ikan Terukur*"

No	News Source	Title News source	Title in English
1	(Ambari 2023a)	Benarkah Penangkapan Ikan Terukur Bersinergi di Pelabuhan Perikanan	Is PIT Synergizing at Fishing Port?
2	(Helindro & Suprayogi 2023a)	Penangkapan Ikan Terukur Berlaku Awal 2024	PIT Effective Early 2024
3	(Helindro & Suprayogi 2023b)	Penangkapan Ikan Terukur Berpotensi Eksploitasi Berlebihan	PIT Has the Potential for Overexploitation
4	(Anggela 2023a)	Curhat Menteri Trenggono, Sering Diprotes Nelayan karena Kebijakan Ini	Minister Trenggono Expresses Concerns, Fishermen Often Protest Against This Policy
5	(Fauzi & Gultom 2023)	FNB minta Menteri KKP kaji ulang aturan penangkapan ikan	FNB Urges Minister of Marine Affairs and Fisheries to Review Fish Capture Regulations"
6	(Nisditia & Winarto 2023)	HNPB Kritisi Kebijakan Penangkapan Ikan Terukur	"HNPN Criticizes PIT Policy
7	(Baheramsyah 2023a)	KKP Perkuat Pengawasan Zona III Penangkapan Ikan Terukur	KKP Strengthens Supervision of Zone III PIT
8	(Baheramsyah 2023c)	Penangkapan Ikan Terukur Menjamin Keberlanjutan Usaha Perikanan Nasional	PIT Ensures the Sustainability of the National Fisheries Industry
9	(Baheramsyah 2023d)	Transformasi Digital Kunci Sukses Penangkapan Ikan Terukur	Digital Transformation Key to the Success of PIT
10	(Rizky 2023)	Kebijakan Ini Sering Diprotes Nelayan, Ini Kata Menteri KP	This Policy is Often Protested by Fishermen, Says the Minister of Fisheries

11	(Suwarsono 2023)	Kemerdekaan, Perlindungan Nelayan Kecil & Penangkapan Ikan Terukur	Independence, Protection for Small Fishermen & PIT
12	(Somad 2023)	Kisruh PNBP Perikanan Terukur di Mata Nelayan	Controversy over Measured Fisheries PNBP in the Eyes of Fishermen
13	(Sahputra 2023)	KKP Amankan 7 Kapal Melanggar WPPNRI, Bagaimana Aturan Penangkapan Ikan Terukur	KKP Secures 7 Vessels Violating WPPNRI, What are the Regulations for PIT"
14	(Sari & Ika 2023)	KKP Bakal Terbitkan Aturan Turunan PP Penangkapan Ikan Terukur per Juli 2023	KKP to Issue Derivative Regulations for PIT under the Government Regulation starting July 2023
15	(Handoyo 2023)	KKP Dorong Aturan Penangkapan Ikan Berbasis Kuota, Ini Alasannya	KKP Advocates Quota-based Fish Capture Regulations, Here's the Reason
16	(Prasetyadi 2023a)	KKP Klaim Harga Acuan Ikan untuk PNBP di Bitung Cukup Adil	KKP Claims Reference Prices for Fish for PNBP in Bitung are Fair Enough
17	(Putri 2023)	KKP Optimistis Aplikasi Dukung Penangkapan Ikan Terukur Berjalan Efektif 2023	KKP is Optimistic that Applications will Support Effective PIT in 2023
18	(Ambarwati & Situmorang 2023)	KKP paparkan manfaat kebijakan penangkapan ikan terukur	KKP Presents the Benefits of PIT Policy
19	(Prakoso & Gareta 2023)	KKP perkuat pengawasan penangkapan ikan ilegal di perbatasan	KKP Strengthens Supervision of Illegal Fish Capture at the Border
20	(Noor & Nursyamsi 2023)	KKP Perkuat Pengawasan Zona III Penangkapan Ikan Terukur	KKP Enhances Supervision of Zone III PIT
21	(Syahputra & Budilaksono 2023)	KKP siapkan teknologi optimalisasi Penangkapan Ikan Terukur Elektronik	KKP Prepares Technology for Optimization of Electronic PIT
22	(Sari & Pratama 2023)	KKP Targetkan Kebijakan Penangkapan Ikan Terukur Diterapkan Januari 2024	KKP Aims to Implement PIT Policy by January 2024
23	(Aditra & Budilaksono 2023)	91 persen nelayan dan pengusaha perikanan tahu aplikasi e-PIT	91 percent of fishermen and fisheries entrepreneurs are familiar with the e-PIT application.
24	(Anggela 2023b)	Aturan Penangkapan Ikan Terukur Terbit Juli 2023	PIT Regulations to be Issued in July 2023
25	(Grahadyarin i 2023a)	Kuota Ikan Bisa Picu Perburuan Rente	Fish Quota Could Trigger Rent-Seeking
26	(Grahadyarin i 2023b)	Kuota Penangkapan Ikan Dimulai 2024	Fish Capture Quota Begin in 2024
27	(Ambari 2023c)	Lika Liku Penangkapan Ikan Terukur	The Twists and Turns of PIT
28	(Zahra 2023)	Makin Hari Ikan Tangkapan Nelayan Makin Kecil, Apa Masalahnya	With Each Passing Day, Fish Caught by Fishermen Are Getting Smaller, What's the Issue?
29	(Hakim 2023)	Makin Ketat, Kuota Penangkapan Ikan Bakal Diawasi di Setiap Pelabuhan	Getting Stricter, Fish Capture Quota Will Be Monitored at Every Port
30	(Wire 2023a)	Penangkapan ikan terukur untuk implementasi 2024, ini tahapannya di tahun 2023	PIT Implementation in 2024, Here are the Stages in 2023
31	(Sularso 2023)	Penangkapan ikan terukur untuk tingkatkan produktivitas yang keberlanjutan	PIT to enhance sustainable productivity
32	(Susanto & Hidayat 2023)	Penerapan Kebijakan Penangkapan Ikan Terukur Dimulai 2024	Implementation of PIT Policy Begins in 2024
33	(Prasetyadi 2023b)	Menakar Masa Depan Bitung Setelah Penangkapan Ikan Terukur	Weighing the Future of Bitung After PIT

34	(Ambarwati & Wijaya 2023)	Menteri Trenggono tegaskan aturan PIT memihak nelayan dan pelaku usaha	Minister Trenggono emphasizes that PIT regulations favor fishermen and entrepreneurs
35	(Prasetyadi 2023c)	Meski Ditolak Nelayan, Penangkapan Ikan Terukur Jalan Terus	Despite Fishermen's Opposition, PIT Continues
36	(Lubis 2023)	Nelayan di Kepri Protes PP 11 2023 tentang Penangkapan Ikan Terukur	Fishermen in Kepri Protest Government Regulation No. 11 of 2023 on PIT
37	(Sugandhi 2023)	Polemik Penangkapan Ikan Terukur	Polemic Surrounding PIT
38	(Ambari 2023b)	Resmi, 1 Januari 2024 Penangkapan Ikan Terukur Dimulai	Officially, PIT Begins on January 1, 2024
39	(Wire 2023b)	Sinergi KKP dan Kementerian Perhubungan Kawal Penangkapan Ikan Terukur	KKP and the Ministry of Transportation Synergize to Monitor PIT
40	(Prasetyadi 2023d)	Soal Penangkapan Ikan Terukur, Sulut Tunggu Peran Kementerian Kelautan dan Perikanan	Regarding PIT, North Sulawesi Awaits the Role of the Ministry of Maritime Affairs and Fisheries
41	(Harianto & Gareta 2023)	Telkomsat menyiapkan satelit penguat sinyal penangkapan ikan terukur	Telkomsat Prepares Satellite Signal Boost for PIT
42	(B Zack & Supar 2023)	Teluk Wondama terapkan e-logbook penangkapan ikan terukur	Wondama Bay Implements e-Logbook for PIT
43	(Baheramsyah 2023d)	Transformasi Digital Kunci Sukses Penangkapan Ikan Terukur	Digital Transformation Key to the Success of PIT
44	(P Fahky & Dewanto 2023)	Trenggono rilis tahapan implementasi penangkapan ikan terukur	Trenggono Releases the Stages of PIT Implementation

Table 1 presents the collection of the top 44 news articles used in this research. These articles were acquired via the Google Indonesia search engine precisely on November 15 at 7:00 PM WIB. It is important to establish that the emphasis on the specific search time underscores the potential variation in top search results when conducted at different times.

DISCUSSION

The initial test conducted in this research includes sentiment analysis and the results derived from this analysis are presented in Table 2.

Table 2 Sentiment Analysis

Sentiment Analysis				Unit
Very Positive	19	Moderately Negative	13	News
Moderately	15	Very Negative	13	News
Total Positive	34	Total Negative	26	News

The data presented in Table 2 indicates a higher count of positive sentiments compared to negative ones, with a total of 34 positive sentiments and 26 negative sentiments. Accordingly, certain news articles encapsulated both positive and negative sentiments concurrently, reflecting comprehensive

coverage of multiple perspectives. It is important to state that the bulk of positive sentiments stemmed from articles quoting the Minister of Maritime Affairs and Fisheries and associated officials. Figure 2 shows the news articles characterized by positive sentiments.

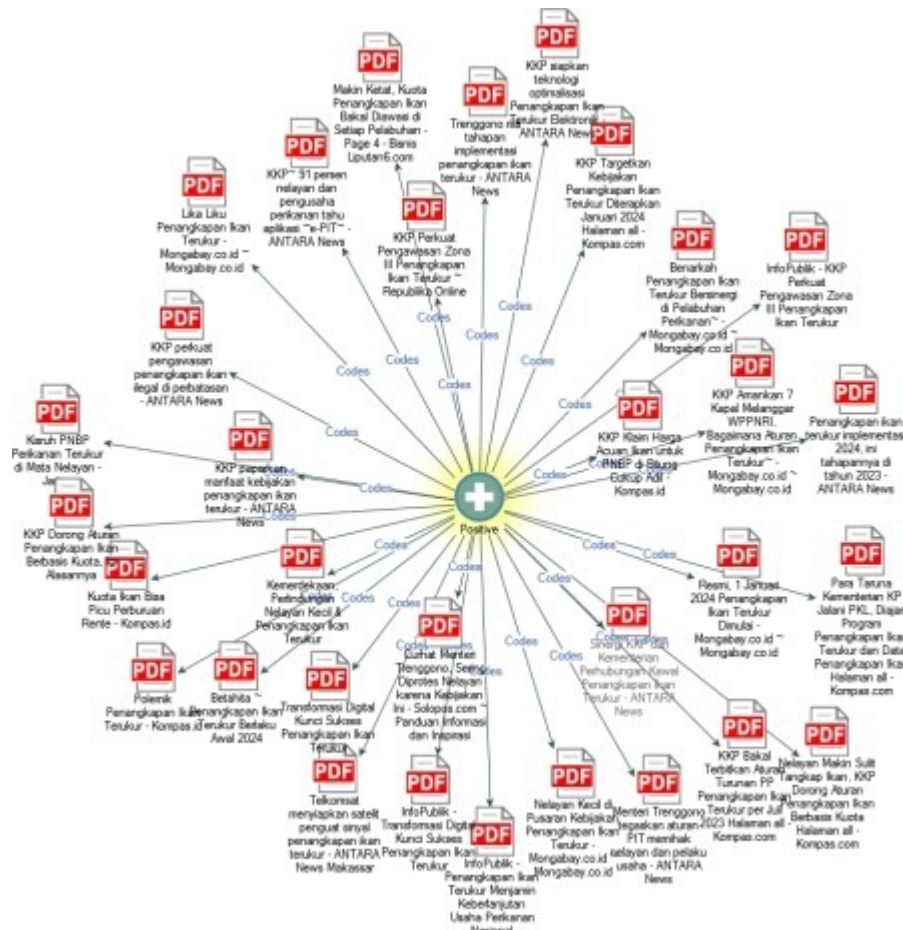


Figure 2 Positive Sentiment Analysis Matrix Diagram.

On the contrary, a significant portion of negative sentiment emanated from various Heads of Province Fisheries and Marine Affairs Offices, the Association of Fishermen, Capture Fisheries Entrepreneurs Association, and several NGOs. The subsequent figure showcases the news articles embodying negative sentiments. Heads of maritime and fisheries Affairs Offices in several provinces refused because this regulation had not been well socialized, especially at the level of small fishermen who sail below 12 nautical miles. Meanwhile, fishermen associations still reject this policy due to the lack of clear catch quotas for this policy, apart from that, installing new equipment on ships and various new permits will make things difficult for them because

the bureaucracy will be longer. Entrepreneurs in the fisheries sector who have many large boats also reject this policy because their ships are only allowed to dock at a maximum of 2 permitted base ports, making it difficult for them to land fish, especially at the port location which has been their landing location so far. According to Hoshino *et al.* (2020) meanwhile, non-governmental organizations are highlighting permits from foreign entrepreneurs and ship owners to catch fish in Indonesia, which might threaten local fishermen, especially small fishermen, and also threaten the sustainability of Indonesian oceans and further increase the rate of overfishing in Indonesian oceans (Cooke *et al.* 2021).

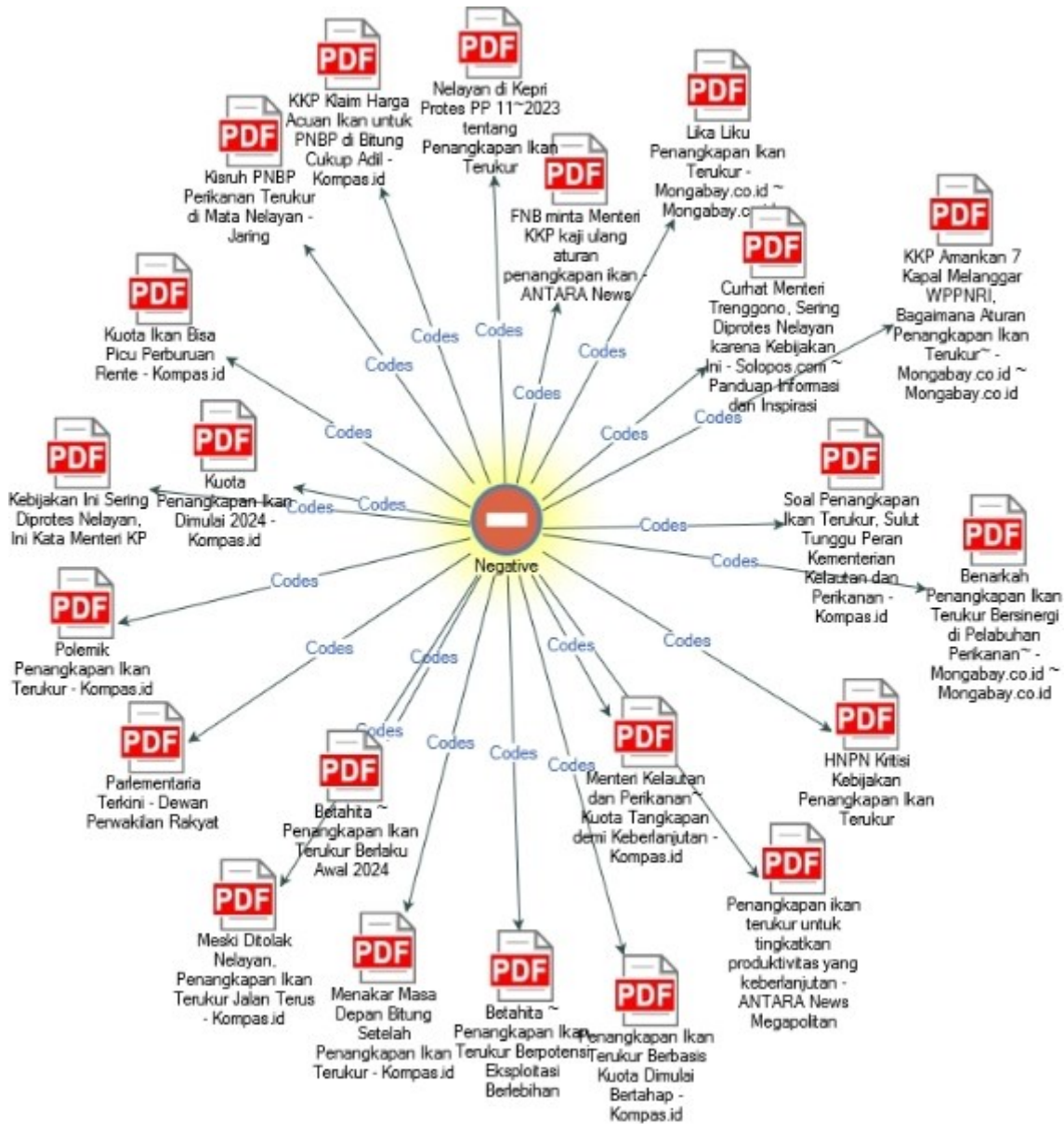


Figure 3 Negative Sentiment Analysis Matrix Diagram.

Main Topic Analysis

After the coding process, several main topics were gotten from the various news articles. The results of the main topic coding are presented in Table 3.

Table 3 Main Topic Analysis Coding Results

Negative Impact of PIT	39
Bureaucracy is getting longer	12
Exploitation of Fish Resources	3
Reducing the Income of Fishermen-Entrepreneurs	7
The emergence of Quota Brokers	2
Small Fishermen Eliminated	12
Seizure of Marine Space by Big Businesspeople	3

PIT constraints	32
There are no quota figures for each region yet	11
Not All Fishermen Have Access to Technology	4
Not All Fishermen Know PIT Policy	3
Not Well Socialized	8
Signal and Internet Connection	6
Benefits of PIT	116
Digitalization of Fish Catching Data Collection	18
There is PIT Zoning	4
Improve fisheries data	8
Prevent IUU Fishing	7
Preventing Conflicts Between Fishermen	2
Preventing Overcatch	6
Increasing Fish Production	7
Increasing the Quality of Caught Fish	5
Maintaining Sustainability	22
Economic Equity	17
Increase in Non Tax State Income (PNBP)	20

As presented in Table 3, numerous issues associated with PIT were identified in this research, drawing from quotes across various news sources, with a total of 187 codes. These codes were categorized into three primary topics namely negative impacts of PIT (39 codes), constraints related to PIT (32 codes), and benefits stemming from PIT (116 codes). Among these, the most frequently cited negative impact revolved around the idea that implementing PIT will elongate bureaucratic processes. This elongation was attributed to new regulations affecting base ports, necessitating new permits, and the installation of digital capture tools on ships. However, this research, in line with (Trenggono 2023), anticipates that these measures will contribute to sustaining the continuity of ecosystems. In this regard, the Ministry of Maritime Affairs and Fisheries intends to bolster supervision efforts by the reinforcement of patrol teams and fleets, as well as the integration of technology to tackle violations effectively. Presently, the Ministry possesses a considerable number of fleets, including surveillance ships, aerial reconnaissance aircraft, and monitoring centers, all of which are leveraging the Vessel Monitoring System (VMS) to track the movement of fishing vessels. Three surveillance phases were implemented namely pre-departure, during the voyage, and post-voyage. Post-voyage inspections were carried out specifically to verify catch results and assess fishing gear used. In accordance with this,

stringent actions were promised against violators using prohibited fishing gear, recognizing the potential for social conflicts and the jeopardy posed to ecosystem sustainability.

The second significant negative impact, represented by a total of 12 codes, emphasized the potential marginalization of small-scale fishermen. This outcome is attributed to quota system, which enabled larger fishermen to acquire allocated quota across different zones. As a result, this could lead to the displacement of smaller fishermen within these areas. These results are in line with the research conducted by the NGO Coalition for Sustainable Fisheries and Marine Affairs (2023) which extensively examined the regulation of PIT policy. This research emphasized the use of industrial quota within Fish Capture Industrial Zone, executed through cooperation contracts and business permits (Article 8, paragraph 1). As observed, these provisions hold the potential to foster rent-seeking behavior, potentially comprising political elites, bureaucratic entities, and security forces in the acquisition of quota. According to Indriyani *et al.* (2021) this is important to clarify that individuals engaged in such activities might not possess vessels but instead opt to sell these quota to foreign or domestic corporations, with the aim of acquiring economic rent. This behavior falls within the realm of comprador capitalism in political economics.

The primary constraint concerning PIT revolves around the absence of quota figures in

various regions, which generally leads to confusion and uncertainty among fishermen and capture fisheries entrepreneurs. This particular issue has been raised on 11 different occasions (Luthfia 2023; Cahyarani *et al.* 2023). Following closely is the inadequacy in the dissemination of these regulations, specifically among small-scale fishermen, represented by 8 codes. Furthermore, the persistent challenge of internet connectivity, especially in remote areas of Indonesia, adds to this constraint, as evidenced by 6 codes. This result is further supported by data from November 2023, which emphasized the ranking of Indonesia as the 7th country with the largest population lacking internet connectivity, totaling 93 million individuals (Annur 2023).

Within the main topic centered on positive responses to the implementation of PIT, the foremost challenge focused on was the preservation of marine resources, which was identified and coded a total of 22 times. This issue has received considerable support in various previous research, including (Anna 2019) where it was stated that good practices in using bio-economic research for policy have been widely adopted in advanced countries such as the European Union, Australia, Canada, and the United States. Moreover, these practices were found to be fully consistent with the insights of the bio-economic model. In line with this, the management method using economic instruments such as Individual Transfer Quota (ITQ), tax measures, and decommissioning is also rooted in bio-economic model research. In Australia, the Maximum Economic Yield (MEY) framework serves as a very important management instrument, as it represents the primary objective in fisheries management (Asche *et al.* 2014; Dowling *et al.* 2023). On the other hand, Canada implements policies such as the buy-back program and quota systems, both of which are also founded on the bio-economic model principles (Bellanger *et al.* 2016; Gou *et al.* 2023).

The issue within the main topic of the benefits of PIT is the increase in non-tax state revenue, which was coded a total of 20 times. The problem associated with the relatively small Non-Tax State Revenue (PNBP) in fisheries sector has been raised in recent times (Afandy *et al.* 2020). The trajectory of capture fisheries production in Indonesia between 2013 and 2018 was found to have a consistent upward trend, albeit with a decline in 2016. In 2018, the production rate hit around 6.7 million tons, significantly boosting the national economy by accounting for approximately 2% annually. More specifically, it represented 2.32% in 2014 and increased to 2.6% in 2018. Furthermore, this growth was mirrored in the nominal value, which escalated from IDR 245.4 trillion in 2015 to IDR 385.9 trillion in 2018. Despite this surge in nominal production value, it is important to comprehend that the collection of Non-Tax State Revenue (PNBP) from fisheries resources did not rank highest. The principal contributor to this revenue within fisheries sector is Fishery Revenue Collection (PHP), which constitutes over 75% of the total PNBP collection of the Ministry of Maritime Affairs and Fisheries (KKP). Paradoxically,

despite its dominance, the financial contribution remains relatively modest, reaching approximately IDR 491.03 billion in 2017, which later decreased to IDR 448.03 billion in 2018. Throughout the period from 2013 to 2018, PNBP realizations consistently fell below the set targets. However, in 2023, the government aims to substantially elevate PNBP from capture fisheries, setting a revenue target of IDR 3.5 trillion.

The last issue under the main topic of the benefits of PIT is the digitization of catch data with 18 codes. The implementation of PIT will also lead to the introduction of an E-PIT application, which will be designed with the primary aim of streamlining the data collection process for captured fish. This system will consolidate upstream-downstream fisheries services into a unified platform, including the submission of various documents such as SLO, SPB, Logbook, STBLK, self-accounting reports, and post-production PNBP calculations (Baheramsyah 2023b)

In accordance with the facts and data obtained in this research, it was found that the implementation of measured fishing (PIT) in Indonesia is actually very necessary to maintain the sustainability and sustainability of fisheries resources in Indonesia, but there are many things that must be improved before implementing PIT (Bertheussen *et al.* 2020; Arkham *et al.* 2022; Aprian *et al.* 2023). Referring to the results of the sentiment test, there is still 43% negative sentiment which is still very high, this is because this policy has not been well socialized, as well as the fears of small fishermen regarding the issue of the entry of foreign fishermen and also the fishing quotas for each region that have not been issued. Apart from that, the implementation of PIT, which is very dependent on full internet availability, cannot be implemented at this time and requires a longer preparation stage, so the Ministry of Maritime and Fisheries Affairs should postpone implementation until the infrastructure is adequate and has been well with the aim that negative sentiment will decrease further.

CONCLUSION

In accordance with the facts and data obtained in this research, it was found that the implementation of measured fishing (PIT) in Indonesia is actually very necessary to maintain the sustainability and sustainability of fisheries resources in Indonesia, but there are many things that must be improved before implementing PIT. Referring to the results of the sentiment test, there is still 43% negative sentiment which is still very high, this is because this policy has not been well socialized, as well as the fears of small fishermen regarding the issue of the entry of foreign fishermen and also the fishing quotas for each region that have not been issued. Apart from that, the implementation of PIT, which is very dependent on full internet availability, cannot be implemented at this time and requires a longer preparation stage, so the Ministry of Maritime and Fisheries Affairs should postpone implementation until

the infrastructure is adequate and has been well with the aim that negative sentiment will decrease further.

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