RIGHTS-BASED FISHING AND INDONESIA'S CAPTURE FISHERIES REGULATION: TEORITICAL AND PRACTICAL PERSPECTIVE

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Abstract
In today's modern fisheries, Rights-Based Fisheries (RBF) is an approach to managing fish resources that has been adopted in various international legal instruments, is practiced by many countries, and has been proven to be able to realize fisheries management that is more effective, sustainable and provides economic benefits for fishing communities. This research aims to find out, from a theoretical and practical perspective, how RBF principles provide a framework for more effective and sustainable fisheries management, analyze how these principles are adopted in current capture fisheries management regulations in Indonesia, what issues and challenges are encountered, and suggest ways to overcome them. This research uses a qualitative approach with descriptive methods. The data used is secondary data from the literature which includes primary legal materials such as international and national fisheries law (customs) and secondary legal materials such as books, journals, and research results relevant to this research's objective. The results of this research show that until the end of 2022, capture fisheries regulations and policies in Indonesia are generally still based on open access and regulated open access, while rights-based fisheries management is implemented in a relatively limited scope, namely in the form of fisheries management by Customary Law Communities. The issuance of Government Regulation No. 11 of 2023 concerning Measured Fishing (PIT) marks the start of the broader application of RBF principles in capture fisheries management regulations in Indonesia. As a new regulation, PIT faces several issues and challenges, including unconsistency government policy, lack of fisheries scientific data, lack of local government involvement in public decision-making, and inadequate technology and facilities for monitoring and law enforcement. Therefore, the central government needs to evaluate and make improvements in several ways so that this policy can be implemented in accordance with its objectives.
Keywords: Overfishing, Rights-Based Fishing, Sustainable Fisheries, Regulation of Capture Fisheries

1. INTRODUCTION

Overfishing has been a critical problem faced by world fisheries in the last few decades (Pauly et al, 2002; Worm et al, 2009; McCauley et al, 2015), which has a broad impact not only on marine ecosystems such as decreasing fish stocks (FAO, 2022), ecological extinction (Jackson, 2021), loss of marine biodiversity (Duarte et al, 2020), and the global degradation of coastal ecosystems (Jackson at al, 2001), but also in socio-economic aspects of society such as the threat of food security (Srinivasan et al , 2010), and revenue and job losses (Teh at al, 2023). Although recently various efforts by the international community to prevent overfishing have shown quite positive results, especially in regions with developed fisheries management (Hilborn et al, 2020; Anon, 2020; Flood at al, 2016; Hilborn and Ovando, 2014), these efforts not yet sufficient to achieve what the UN has planned in the SDGs 14:4 target, namely "to end overfishing of marine fisheries by 2020" (FAO, 2022). At the global level, the critical condition of world fisheries is currently illustrated in the latest FAO report (2022) that 35.4 percent of world fish stocks are overfished, 57.3 percent are maximally sustainably fished, and only 7.2 percent are underfished. A relatively similar picture also occurs in Indonesian fisheries. According to the National Scientific Commission on Stock Assessment (Komnas Kajiskan), of the eight leading fish stocks, 35.3 percent are overfished, 53.5 percent are maximally sustainably fished, and 11.1 % are under fished (Komnas Kajiskan, 2022). This picture is reinforced by several studies which state that around 72% of fish stocks are fully exploited and subjected to overfishing (Adhuri at al, 2015; BPS 2016; CEA, 2018). Likewise, Muawanah et al (2018) concluded

that the condition of Indonesian capture fisheries has reached a critical stage; overfishing occurs in almost all Fisheries Management Areas of the Republic of Indonesia (WPPNRI), and many fish stocks are exploited beyond their biological limits.

In general, the occurrence of overfishing and overcapacity is caused by a lack of effective management (Castello, 2012; Castello at al, 2016; Dowling et al, 2016), especially in controlling access to fish resources (Pearse, 1992). Historically, the use of fish in the sea is based on an open access regime (Reimer and Wilen, 2013) which allows everyone to have unlimited access to fish resources on the principle of 'first come first served', and no individual or group has the power to limit access (Tietenberg and Lewis, 2009). In this case, open access tends to trigger a 'race to fish' (Reimer and Wilen, 2013), is the leading cause of overexploitation (Sutinen, 1999; Gordon, 1954), and is unable to maintain the continuity and prosperity of the fishing industry (Pearse, 1992).

Regulated open access (ROA) was initially hoped to be the answer to the failure of open access. ROA refers to a state where access to resources remains open, but institutions exist to implement and enforce rules for users (Reimer and Wilen, 2013). ROA departs from the idea that no one, of his own free will, wants to catch less fish or use more environmentally friendly fishing gear, while he has the opportunity to gain more profit (Scott, 1999). In fact, ROA only partially eliminates overfishing. Conventional fishing regulations by countries in their Exclusive Economic Zone have failed to stem the decline in fish stocks because they do not change the fundamental incentives that lead to overfishing (Runolfsson, 1998). In this case, managing fish resources through state regulation and control is considered unable to resolve the fundamental incentive problem caused by weak ownership rights over fish stocks, so overfishing still exists due to the absence of property rights (Runolfsson, 1998). Therefore, in the last few decades, many fisheries worldwide have begun to use rights-based fishing (RBF) as a practical alternative to inefficient controls in conventional fisheries management. Under this regime, fish resources are allocated between individuals and groups (Laitila, 2018) to increase fishing efficiency by reducing the need for fishermen to compete to catch fish (Hanesson, 2004). In addition, with RBF, incentives are aligned to provide good resource conservation motivation and generate economic value (Reimer et al., 2013).

Indonesia, as an archipelagic country with three-quarters of its territory made up of sea, places the fishing industry as an essential support for its national economic development, especially to meet food needs, employment opportunities, export income (Warren et al., 2021), and maintain the survival of fishing households (Anna , 2019). Meanwhile, national regulations regarding fisheries management in the last few decades have still been based on open access, ROA and RBF at the top scale. In controlling access to fish resource utilization, the government still prioritizes the incentive-blocking measures approach (Grønbæk, at al, 2020), an approach where the element of compulsion is applied in the form of determining the Total Allowable Catch (TAC) and restrictions on permits, number of vessels, as well as the type and number fishing gears. Meanwhile, the RBF principles recognized in national regulations are only limited to recognizing the existence of customary law communities in managing coastal fisheries (Halim at al., 2020, Harkes et al., 2002; Courtney at al., 2017; Lucky, 2009). The government's limitations in exercising control, coupled with the absence of an incentive system for fisheries business actors to participate in preserving fish resources, ultimately because further degradation of fish resources and the environment, and the use of these resources is not optimal for the socio-economic interests of fishing communities.

Such national regulations and policies are fundamental problems Indonesian capture fisheries face in their efforts to realize sustainable fisheries as mandated in SDG 14. Therefore, in reorganizing regulations and policies for managing its capture fisheries, the Indonesian government recently issued a policy breakthrough called "quota-based measured fishing". This policy is outlined in Government Regulation 11 of 2023 concerning Measured Fishing (PP 11/2023), followed by Minister of Maritime Affairs and Fisheries Regulation No. 28 of 2023 (PERMEN 28/2023). This policy is designed to improve the socio-economic welfare of fishermen, while maintaining the sustainability of fish resources (Trenggono, 2023).

The purpose of this article is to discuss the application of RBF in capture fisheries regulations in Indonesia in an effort to overcome the problem of overfishing and realize sustainable fisheries, the

problems and challenges faced, and how to overcome them. To answer these questions, this article will begin by discussing RBF from a theoretical perspective.

2. METHOD

This research uses a qualitative approach with descriptive methods. The research technique uses library research. The legal sources used include primary legal materials such as international agreements, international customary law, constitutions, laws, and other relevant regulations, and secondary legal materials such as books, legal journals, fisheries management journals, and scientific works that are relevant to the research topic.

3. RESULTS

3.1 Property Rights and RBF: A Theoretical Perspective

In the context of natural resource management, including fish resources, property rights are defined as legal rights to property, and these rights can lead to or become the basis of economic rights to the resource itself (Sloan, 2016). In the literature, four types of ownership rights over natural resources are found, namely open access, private property, common poverty, and state poverty (Feeny et al., 1990; Bromley, 1992; Lynch et al., 2002). Each property rights regime has its own characteristics. In open access, control/ownership rights over resources are not recognized at all, resources are open for anyone to access, there are no regulations governing them, and property rights are not clearly defined. In private property, resources are owned by organizations or individuals, there are regulations regarding the owner's rights in utilizing natural resources, use and financing are borne by the owner himself, and ownership rights can be transferred. In common property, resources are controlled by a group of people where the members have an interest in sustainable use, and outside parties who are not members may not use them. Although ownership rights in common property are not exclusive, they can be transferred as long as they comply with mutually agreed rules. Meanwhile, in state property, the right to use natural resources is exclusively controlled by the state, then the state, through the government, regulates the level and nature of exploitation of access to natural resources.

Here it is clear that only open access regimes have no clarity regarding who has access to the benefits and quantities that can be obtained from resources, including the absence of responsibility for maintaining these resources (Nathand et al., 2007). If so, why is open access included in the property rights category? This is understandable because for some experts open access is in principle can be divided into two, namely pure open access and ROA. Even though the property right element in both of them is "ill defined", in the second category there is an element of strict control from the authorities regarding harvest, even though it is not carried out effectively (Greboval et al.,, 1999). This view is supported Huppert (2005) which states that Even in open access fisheries, fishermen basically have the right to access resources. This right may be guaranteed by the government, fishermen also of course have property rights over the fish they have caught, it's just that these rights are still weak because they are non-exclusive, non-transferable and non-divisible.

Regarding resource management, Gordon (1954) in the Journal of Political Economy argued that resources managed under an open access regime generally experience excess exploitation and loss of potential economic value (dissipation of potential economic rent). According to (Butle at al., 1995), in open access fisheries as long as there are still profits to be made, they will always invite newcomers to enter, until there are no more profits to be made. To overcome the problem of open access, (Scott, 1955) in his paper entitled "The Fishery: The objective of sole ownership" put forward an idea by positioning property rights as the main issue in fisheries problems. This view is followed by (Arnason et al., 2007) who in their analysis place property rights as a vital part of fisheries, and the absence of property rights will cause fishing activities to operate in an economically inefficient manner.

According to (Scott, 1989), property rights have six characteristics, namely duration, flexibility, exclusivity, transferability, divisibility, and quality of title. Duration is related to the period of time the property rights are valid, so the longer the period, the greater the certainty for the rights holder,

and the reduced costs that may be incurred for renewal. Flexibility relates to the ability of rights holders to determine their options such as increasing the value of the catch rather than just the volume of the catch. Exclusivity is related to how far a person's property rights overlap with other people's rights. The more overlap, the weaker the level of exclusivity of the rights. Transferability is related to the ability to transfer ownership of property rights, thereby giving more efficient rights holders the option to purchase rights from less efficient holders. Divisibility is related to the ability to divide, either in the form of dividing rights into new, smaller rights, or dividing the quota into smaller amounts. Quality of title is related to certainty and security, that is, the more predictable the title, the higher the quality of their title, and the safer they are to invest in.

Meanwhile, in slightly different terms, (Bromley, 2016) mentions four attributes inherent in RBF, namely exclusivity, security, performance and transferability. Exclusivity is the ability to prevent other parties from interfering with what belongs to the right holder, in this case the right to a number of fish catches (quota) allocated to him. Performance gives rights holders the ability to make long-term plans, including dealing with the uncertainty of the unavailability of fish stocks at a certain time. Transferability is the ability to sell or transfer rights to another party. The final attribute, namely security, provides assurance to the owner that the rights they hold will not be taken by other parties, even if in certain cases the government takes those rights, with certain compensation.

In the field of fisheries management, the realization of a property rights regime generally refers to (RBF), which is intended to increase economic efficiency, reduce fish discards, and enable catch management by managers to be more precise (Maharaj, 2010). RBF relies on the logic that, if fish stocks are privately owned, there will be an incentive to conserve those resources. Therefore, private owners will not compete to take fish or deplete stocks, because if the owner does, he will be the one who bears the costs (Runofsson, 1998). RBF is intended to overcome the problem of resource degradation and economic rent dissipation due to open access by determining and allocating ownership rights among individuals or groups (Laitila, 2018). Thus, RBF will increase fishing efficiency by reducing the need for fishermen to compete to catch fish (Hanesson, 2004). If implemented correctly, RBF will increase compliance with catch limits, stabilize catches, and reduce the danger of overfishing (Arnasson, 2000).

In general, RBF can be grouped into three categories and eight variations of form (Huppert, 2005). The first category is “access rights”. The access rights that arise from this permit cannot actually be fully categorized as RBF, considering that even though they have an exclusive nature, they are not well defined and are unable to overcome overcapacity and overfishing. Although in many cases, access rights are the first step towards a more definitive RBF regime (Huppert, 2005). Access rights can take the form of limited entry permits, cooperative fishing, or territorial use rights in fisheries (TURFs), namely fishing rights that can be granted in areas with certain boundaries. The second category is “harvest share rights” which refers to the rights of an entity or individual to fish based on the TAC share. Each rights holder is entitled to a certain percentage of the TAC which is determined periodically by the competent authority. Harvest share rights can be in the form of individual quota shares (Individual fishing quota (IFQ) or individual transferable quota (ITQ)), collective quota or territorial rights, and short-term leases. The third category is “in situ rights to fish and shellfish” which refers to exclusive rights to fish within certain areas for species with limited mobility or within artificial areas in public waters.

According to Maharaj (2010), the performance of RBF can be seen from the three effects produced, namely economic effect, conservation effect, and equity and socio-cultural effect. Economic effects can be seen from economic performance through reducing ship capacity, increasing capital efficiency, and increasing profits generated. Conservation effects can be seen in improving the health of fish populations, reducing discards of fish, the effectiveness of managers' control over catch control, the existence of adequate incentives for fishermen to carry out exploitation and conservation efficiently, and the implementation of strong poverty rights. Meanwhile, equity and socio-cultural effects can be measured through the level of sustainability of the workforce in the fisheries sector, length of service and fishermen's income, including success in relocating fishermen. Apart from that, what is no less important is the achievement of non-economic social goals in the form of protecting

the participation of small fishermen and avoiding the accumulation of wealth among a small number of people.

RBF as an alternative resource management prioritizes management aspects rather than simply encouraging fishing capacity which can result in overfishing. This approach emphasizes alignment between fishing business incentives and long-term conservation interests, namely that fishermen are given access to participate in resource management in order to gain profits from these activities (Halim at al, 2020). To overcome the complexity of heterogeneous fisheries, and to meet various objectives in a particular fishery, in practice several variations of RBF can be applied together (Maharaj, 2010).

As a relatively new fishery management tool, which is generally characterized by weak regulatory design, it is not uncommon for the application of RBF to cause controversy (Lubchenco at al, 2016). Scott's (2005) hypothesis which equates private fishermen (sole owners) with wheat farmers who have ownership of land, sometimes cannot be taken for granted in the context of fisheries. This is because fish resources, with all their complexity such as the wide range of fish species, unclear marine boundaries and sometimes overlapping, as well as the protected status of certain fish species, make these resources difficult for someone to "own" (Huppert, 2005). On the other hand, the word "rights" itself leads to a strong sense of ownership, exclusion, and seems to place private rights over public resources (Bromley, 2002). Therefore, to avoid contradictions, a number of groups prefer to use the terminology "designated access privileges" or "use rights" rather than "fishing rights" (Huppert, 2005). According to Halim at al, (2020), in RBF management, ownership rights over fish stocks are not granted, instead, special access rights such as the right to share the catch are permitted. In practice, to avoid multiple interpretations and meanings of the words 'rights' and 'property rights', there are a number of terminologies used by countries such as catch share, limited access, access privileges and managed access, which are defined according to the social, legal, context and local fisheries.

Criticism of RBF is also often related to problems with the initial initiation of quota allocation, weak and inadequate scientific/scientific data for determining catch limits, as well as a lack of community or public involvement (Lubchenco at al., 2016). In developing countries where the majority of fishermen depend on fishing, IQ/ITQs considered that it will exclude poor fishermen from their lives, because they are forcibly eliminated from work by a small number of fishermen who can afford to pay more (Wyman, 2008). In addition, the government will tend to place quota approved ordinary and thus subject to a series of civil procedures such as foreclosure for bad debts or sale for separation (Runolfsson, 1998). This aspect of the distribution of private ownership rights sometimes makes observers switch from ITQ to communal property rights, in the hope that this will maintain the good values of ITQ without fisheries being controlled by a small number of fishermen (Wyman, 2008)

According to Halim at al., (2020), although the main attributes of RBF tend to differ from one country to another, two main attributes differentiate it from other fisheries management tools, namely safe access (security) and exclusivity for rights holders. Security of rights stems from a tenure duration that is long enough for participants to capture the benefits of their stewardship activities, while exclusivity refers to the fact that only eligible fishery participants can access fish resources. In an effective RBF system, these two attributes are clearly recognized and can be enforced by law.

On a global scale, when demand for fish resources continues to increase and fishing effort continues to increase, regulations to change from open access based fisheries to limiting the number of fish that can be caught, will shift fisheries towards a more profitable and sustainable fisheries, and of course if managed well, will have a positive impact on fishing communities (Melnychuk, 2020). This raises the question of which property arrangement is best for fisheries problems? In this case experts generally agree that there is no one property the particular arrangement that is best for all fisheries, in addition to whether the choice is optimal or not property arrangement also depends on time and place, as well as a number of influencing factors, namely the level of demand for resources - such as due to an increase in population or new market shares; externalities on the resources used; prospects for realizing economies of scale; and administrative costs (Wyman, 2008).

3.2 The Implementation of RBF in Indonesia's Capture Fisheries

Indonesian capture fisheries regulations have changed from time to time. At the beginning of independence, capture fisheries regulations were still based on colonial legacy regulations. At that time, capture fisheries regulations were still limited to fisheries under 3 nautical miles and were based on open access, although RBF-based fisheries management, on a limited scale, already existed, namely in the form of area-based fisheries management by customary law communities in coastal areas. In the 1980s, Indonesia began to develop national fisheries regulations in a more comprehensive manner by referring to the 1982 United Nations on the Law of the Sea (LOSC) and the 1945 Constitution as the constitutional basis.

LOSC 1982, which Indonesia ratified in 1985, is an international agreement which regulates, among other things, the rights and obligations of countries regarding the management and conservation of fish resources in the sea. Based on this convention, coastal states have rights and obligations in exploiting fish resources both in areas within their sovereignty, namely internal waters, archipelagic waters, and territorial sea (art. 2 and 49 LOSC) as well as in sea areas where the coastal state has sovereign rights over the resources within it, such as in the EEZ [art. 56 (1) LOSC 1982] and the Continental Shelf (specifically for sedentary species) [art. 77 (4) LOSC 1982], and on the High Seas [art. 87 (1) e LOSC 1982]. In this case, LOSC 1982 has significantly transferred marine resources that were previously managed based on an open access regime (freedom of fishing) to a new legal status (rights-based), while promising to produce more conservation-oriented utilization (Reimer et al., 2013) .

Meanwhile, Article 33 paragraph (3) of the 1945 Constitution states that "earth, water and the natural resources contained therein are controlled by the state and used for the greatest prosperity of the people". Based on the provisions of this article, the Indonesian people have collectively given a mandate to the State, cq. The government as the party given the "power" to carry out policies and actions for the administration, regulation, management and supervision of the earth, water and natural resources contained therein, including fish resources (Constitutional Court Decision No. 002/PUU-I/2003, Constitutional Court Decision Number 012/PUU-2003, and Constitutional Court Decision No. 21-22/PUU-V/2007). The right to control is limited by the provision "for the greatest prosperity of the people" as the aim of control by the state (Constitutional Court Decision No. 3/PUU-VIII/2010). In the context of the sea and fish resources, the 1945 Constitution places the sea and fish resources as resources belonging to all Indonesian people (common property) which are mandated to be controlled by the state, in this case, the State cq. The government acts through its power to make policies, administer, regulate, manage and supervise the sea and its fish resources, including determining how people access these resources.

Based on UNCLOS 1982 and the 1945 Constitution, the Fisheries Act. 31/2004 (last amended by Fisheries Act 11/2020) regulates and mandates the State cq government, cq. Minister of Maritime Affairs and Fisheries to determine, among other things: fisheries management plans; potential and allocation of fish resources in WPPNRI; the number of catches allowed in WPPNRI; type, number and size of fishing gear; type, number, size and placement of fishing accessories; area, route, and fishing time or season; requirements or standard fishing operational procedures; fishing vessel monitoring system; the minimum size or weight of the type of fish that may be caught; and protected fish species.

With regard to access to fish resources in the sea, before the issuance of PP 11/2023, Indonesian national regulations basically implemented a regime of pure open access, regulated open access, and on a limited scale rights-based access. Regulated open access applies to industrial scale fisheries with access to fish resources regulated through licensing mechanisms and a number of restrictions such as limiting the number of vessels, as well as the type and number of fishing gears. Meanwhile, pure open access applies to small fishermen, where access is exempt from licensing obligations, requirements for installing a vessel monitoring system (VMS), and fisheries levies (Halim, 2019). For small fishermen, to gain access to fishing, it is enough to have Certificate of Vessel Registration or now it has been changed to Fishing Vessel Registration Certificate for Small Fishermen (TDKP). Meanwhile, RBF is implemented in the form of recognition of the rights of Customary Law Communities, where

they make their own regulations regarding the use of fish resources in their customary law areas, including rights, obligations and sanctions for violations that occur. RBF-based management in customary law communities is relatively successful in preventing overfishing, but in comparison with the area WPPNRI, the number of areas managed by customary law communities is clearly very limited. Meanwhile, the implementation of open access and regulated access can be said to be ineffective in preventing "the tendency to compete for capture and expand investment" (Clark, 2006). In addition, controlling fishing capacity is very difficult to implement, including controlling the fishing capacity of small fishermen, who account for 95.6 percent of the total number of Indonesian fishermen (Waeassih at al., 2018). Overfishing in Indonesia is also triggered by other factors, such as IUU fishing, illegal transshipment, and weak supervision (Narwati, 2021). Apart from that, the problem of fishing poverty has politically encouraged the government to take short-term policies by encouraging fisheries production, providing massive subsidies, and making fisheries as one of the prime movers of the national economy. As a result, fish resources continue to decline, the ecosystem is increasingly damaged, while the economic condition of fishing communities is getting worse.

After the publication of PP 11/2023, which is also called measured fishing policy (MFP), the capture fisheries management paradigm experienced a significant shift, from being based on open access and regulated open access, to rights-based fisheries (RBF). This policy combines an ecosystem approach to fisheries and quota-based fisheries management (Aprian, 2023). This policy encourages optimal use of resources by paying attention to existing carrying capacity and sustainability through the regulation of measured fishing zones and fishing quotas. The fundamental difference in this new policy lies in the output-based aspect of controlling resource utilization, which is controlled by licensing, taking into account quotas (catch limits), and the amount of government levies (PNBP) which is based on the number of catches landed. This is different from the previous policy where control was input-based, control was carried out by licensing, without providing a quota per ship, while the amount of PNBP was based on the type of ship and size of the ship. On the one hand, input-based control triggers a race to fish; on the other hand, fishermen may also experience losses because the fish they obtain do not cover all the costs incurred (Trenggono, 2023).

Based on PP 11/2023, eleven WPPNRI divided into six MFP zones, of which zones 1-4 cover WPPNRI 711, 716, 717, 715, 718, 714, 572, and 573 are allocated to industrial fisheries, while zones 5-6 include WPPNRI 571, 712, and 713 are intended for local fishermen. Meanwhile, in the interests of resource conservation and sustainability, WPPNRI 714 is designated as a limited use zone and spawning/nursery ground (see figure 1).

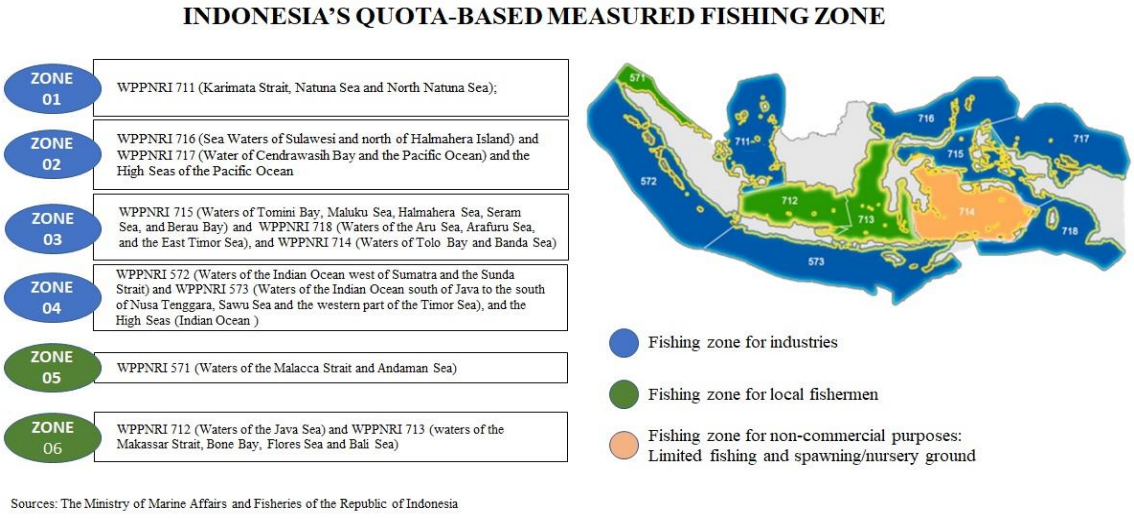

Figure 1: Indonesia's Measured Fishing Zones

In general, the business process of MFP starts from stocks assessment by Kajiskan followed by the determination of MSY and TAC by the Minister; determination catch quotas ; processing business permits in the fisheries sector; fishing operations; fish landing at the port; marketing; as well as monitoring activities carried out on all activities from start to finish (see figure 2).

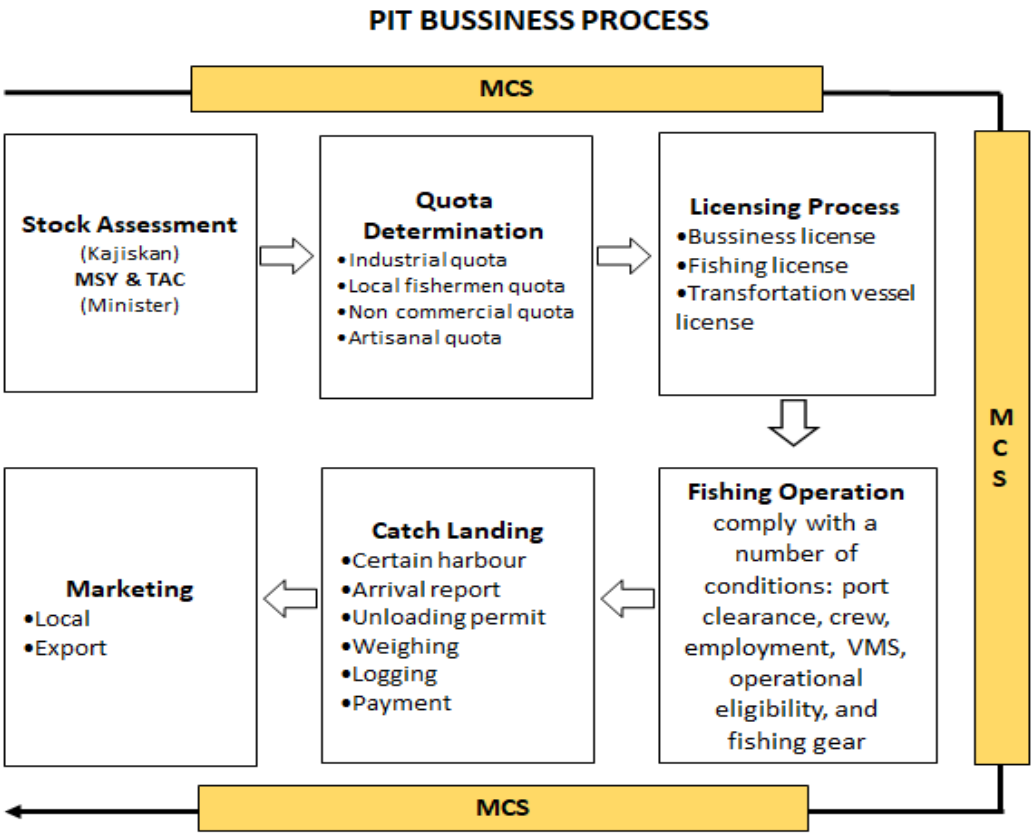

Figure 2: Business process PIT policy

Stock assessment is the first step in implementing the MFP policy. The study of fish stock assessment by Kajiskan will produce a Maximum Sustainable Yield (MSY) and Total Allowable Catch (TAC) which are then determined by the Minister and used as the basis for allocating quotas in each fishing zone, taking into account data from the RFMO. The resource data used by Kajiskan comes from self-assessment and logbooks. In the event that the MSY and TAC data determined by the Minister and data from the RFMO are not yet available, the results of historical data analysis of fish caught by considering the precautionary principle will be used.

Based on Ministerial Regulation 28/2023, catch quotas are divided into three types, namely: (1) industrial quotas for fishing zones over 12 miles; (2) local fishing quotas for fishing zones up to 12 miles; and (3) non-commercial activity quotas for fishing zones up to 12 nautical miles and above 12 nautical miles. The distribution of quotas is carried out based on the proportion of fish species and/or fish resource groups, taking into account the number of fishermen, number and size of fishing vessels, fishing gears, production of caught fish, log-book data, characteristics of fish resources and their habitat, and the number of organizer of fishing activities not for commercial purposes. Industries quotas and/or local fishermen quotas in each measured fishing zone are distributed to each base port in each measured fishing zone. Fishing quotas are given before the start of the 1 year fishing season. Fishing quotas are given in the form of Fishing Quota Certificates with a validity period corresponding to the SIUP validity period.

Industrial quotas are given by the Minister (cq. Directorate General of Capture Fisheries) to individuals or business entities that are legal entities (Limited Companies or Cooperatives). This business entity utilizes industrial quotas in Zone 0l, Zone 02, Zone 03 and Zone 04 for PMDN and PMA,

while Zone 05 and Zone 06 are specifically for PMDN. Quota requests must meet the requirements: have a SIUP, have a BKP for each fishing vessel, and a statement of taxpayer status, with valid status. The granting of industrial quotas the following year is carried out without an application. Every person who has received an industrial quota must submit an application for a fishing sub sector business permit, with a validity period of 1 year for the fishing season, including if the permit is issued in the current year. For the first time, industry quotas are calculated based on the size of fishing vessels that have been realized multiplied by the productivity of fishing vessels.

Local fishing quotas are given by the Governor to individuals or legal entities (Limited Liability Companies and Cooperatives). The granting of quotas to local fishermen the following year was carried out without an application. Every person who has received a local fishing quota must apply for a fishing sub sector business permit, with a validity period of 1 year for the fishing season. Local fishermen who already have a SIUP with a maximum period of 2 years from the time it was first issued and have not yet realized their fishing vessel allocation will not be given a local fishermen quota for the fishing vessel allocation that has not been realized.

Meanwhile, quotas not for commercial purposes are given by the Minister or Governor in accordance with their authority to every person, central government and regional government who carry out activities in the context of education, training, research or other scientific activities, as well as pleasure and tourism. This quota is given to activity organizers.

In addition to the three types of quotas, there are also small fisherman quotas which are allocated from industrial quotas (by the Minister) and local fisherman quotas (by the Provincial Service) taking into account the number of small fishers and the production of fish caught by small fishermen at fishing ports and/or fishing centers. In granting quotas to small fishermen, priority is given to those who are members of cooperatives that have a fishing business. Small fishermen who have received industrial quotas and/or local fishing quotas must submit an application for a fishing sub-sector business permit that contains a measured fishing zone and a base port or fishing center, with a validity period for the duration of the fishing business. The Ministry and regional governments facilitate the provision of industrial quotas and/or local fishing quotas for small fishermen, in the form of providing supporting facilities, technical guidance, and/or counseling and assistance.

With regard to the utilization of catch quotas, fishing quotas are used within a 1 year fishing season and are limited by the fishing quotas given each year. In the event that there is an excess in the total number of fish species and/or groups of fish resources caught, the excess difference is calculated as utilization of the following year's fishing quota, except for small fishermen. On the other hand, if you do not reach the fishing quota given in the current year, the remaining quota cannot be accumulated in the next 1 year fishing season.

Furthermore, Ministerial Decree 28/2023 also regulates the possibility of transferring industrial quotas and local fishing quotas that have not been utilized, either by fishing vessels that are in the same SIUP or different SIUPs. The transfer of industrial quotas from fishing vessels within one SIUP can be carried out under the following conditions: (a) both vessels have the same fishing area; (b) use the same fishing gear; (c) have the same base port. Meanwhile, transferring industrial quotas for fishing vessels with different SIUPs can be carried out provided that: (a) both vessels have the same fishing area; (b) both vessels have the same fishing equipment; (c) both ships have utilized the industrial quota for at least 2 years; (d) the fishing vessel transferring the industrial quota has realized an industrial quota of at least 50% of the industrial quota in the 1 year period of the current year's fishing season; (e) both ships have the same base port; (f) the receiving vessel cannot transfer its industrial quota to a fishing vessel with a different SIUP. Transfer of catch quota from vessels with one SIUP is not subject to PNBP and vice versa. The validity period of a changing fishing certificate does not change the validity period of the previous fishing certificate.

Likewise Ministerial Decree 28/2023 regulates the possibility of holders quota catch to submit a reduction, addition or revocation of the catch quota to the Minister or Governor. Any reduction, addition or revocation of quotas is subject to administrative sanctions in the form of revocation of business permits for the fishing sub sector and revocation of business allocations in the SIUP for fishing vessels. In the event that a reduction, addition or revocation of the fishing quota is proposed by the

fishing quota holder for activities not for commercial purposes, then he will be subject to administrative sanctions in the form of revocation of approval.

Everyone who takes advantage of quota industry, local fishing quotas and quotas for non-commercial activities are required to report the realization of the utilization of these quotas in the form of a business activity report every January 31 of the following year to the Director General or Governor in accordance with their authority. The Director General and the Governor carry out monitoring and evaluation of the business activity reports they receive and submit the results of the monitoring to the Minister. In addition, the Ministry carries out monitoring and evaluation of fishing quotas above 12 nautical miles, which includes calculating, granting and utilizing fish catch quotas, while the Provincial Government carries out monitoring and evaluation of fishing vessels whose business permits for the fishing and transport sub sector are issued by the Governor.

The PIT regulation based on catch quotas has basically adopted the principles of RBF. Access to resources is determined based on the amount of quota that has been determined with reference to resource conditions. If prior to the issuance of the PIT policy, the regulation of capture fisheries management prioritized the incentive blocking measures approach by means of the government intervening in the management of capture capacity by blocking incentives in open access fisheries (both pure open access and regulated open access), then after the enactment of PIT, fisheries management in Indonesia entered a new phase where the incentive adjusting measure approach was prioritized, namely by providing incentives for fishers to help conserve fish resources. PIT has changed the approach from input-based control, which focuses on limiting the number and size of vessels, as well as the number and type of fishing gear, regardless of the amount of fish caught, to output-based control, which in addition to continuing to use these restrictions, resource utilization is based on catch quota limits and the amount of fish caught. In addition, where previously the PNBP was collected in advance, PIT places the PNBP based on the amount of catch, so that the costs incurred by fishermen become fairer, less risky and provide a sense of justice.

However, when compared with the characteristics of RBF proposed by Scott (1998) and Bromley (2016), the application of RFB principles in PIT still leaves a number of gaps. The validity period of the fishing quota certificate for one fishing season in a particular fishing zone reflects the principle of duration and exclusivity for each fishing quota holder reflects the principle of duration and exclusivity for each fishing quota holder. However, by allowing small-scale fishers to enter the industrial zone and local fishermen zone, the level of exclusivity is slightly reduced, especially since the validity period for the use of industrial quotas and local fishing quotas by small fishermen is unlimited (as long as they are still carrying out fishing business). The principle of divisibility is illustrated by giving quota to cooperatives or communities which allows for the division of the rights into smaller forms of rights, when the cooperative or community distributes these rights to its members, but this does not apply to industrial quotas and local fishing quotas which are not a legal entities. The principles of flexibility and transferability are reflected in the possibility of transfer catch quota from one fishing vessel to another fishing vessel either in one SIUP or in different SIUPs. If quota transfer is carried out by vessels in one SIUP, then both vessels must have the same fishing area; use the same fishing gear; and have the same base port. Meanwhile, for fishing vessels with different SIUPs, apart from meeting the requirements above, both vessels must have utilized the industrial quota for at least two years and the fishing vessel that transfers the industrial quota has realized an industrial quota of at least 50% of the industrial quota in the one year season period arrests in the current year. Another weakness is related to the principle of title of right and security. Although fishing quota certificates provide sufficient guarantees of certainty and security, such as the potential loss of rights held by other parties, under certain conditions, such as drastic changes in resources and the environment, the government can take away rights from rights holders and the PIT does not provide for mechanisms that allow compensation for rights holders.

One thing that needs to be emphasized here is that a PIT policy that is not fully in accordance with the characteristics of RBF does not mean that this policy is not useful at all. It should be noted that each policy must consider and be adapted to the local fisheries situation and conditions. However, the capture fisheries management model in Indonesia, which is dominated by small fishermen, for

example, does not allow for full adoption of RBF elements. For example, although quotas are given to industrial fishermen, local fishermen and small fishermen, in the context of partiality, it is necessary to have some exceptions that are only given to small fishermen.

3.3 Challenge

Although the PIT policy is considered by the Government to be the "best policy" for managing Indonesian capture fisheries, there are still a number of problems and challenges that must be resolved to ensure this policy can achieve its initial objectives. These problems and challenges include, among others, inconsistent government policies, lack of scientific fisheries data, insufficient involvement of local governments and communities in public decision-making, and inadequate technology and infrastructure for monitoring and enforcement.

Firstly, as explained previously, the 1945 Constitution serves as the constitutional basis, placing fish resources as state property where all Indonesian people have given the state the power to carry out policies and actions for the administration, regulation, management, and supervision of these resources to the greatest extent possible for the prosperity of the Indonesian people. In this case, a rights-based fisheries management policy can be applied as long as it does not absolve the government of its obligation to manage the resource and ensure its utilization for the greatest prosperity of the people (Halim, 2023). With this logic, rights-based fisheries management is not intended to reduce the goal "for the greatest prosperity of the Indonesian people", but is instead necessary to ensure that these resources can be managed sustainably, so that in the end they provide the greatest benefits for the prosperity of the people. The challenge is, to what extent this perspective can be maintained in the long-term plan for managing capture fisheries in Indonesia. In many cases, policies change when there is a change in government or a change in leadership, making a policy unsustainable. Therefore, in order to ensure that the PIT policy is not easily changed and can be sustained for a long period of time, consideration should be given to making this policy an integral part of the new Fisheries Act.

Second, the validity of fisheries data is a fundamental problem that has been faced in the management of capture fisheries in Indonesia (Umar, 2011, Indah, 2012). Scientific data on fisheries is very important, especially in balancing fishing capacity with the allocation of fish resources that can be caught so that the use of fish resources can be carried out sustainably. Departing from this condition of "uncertainty", based on the precautionary approach, the Government is obliged to take policies with the “minimum risk” to avoid overcapacity or overfishing. Referring to the data released by Komnas Kajiskan in 2022, it appears that 88.9 percent of capture fisheries in Indonesia are already in overfished and maximally sustainably fished conditions and only 11.1 percent are left in moderate/under fished conditions, so it can be said that with the current state of fishing capacity, there is actually not much room to expand fishing capacity. Moreover, when Kajiskan conducted a study of resource potential in 2022, the data used was rough data and did not take into account "unreported fishing" whether in the form of fishing by small fishermen or due to IUU fishing practices. The problem then is that the PIT policy not only accommodates the current existing fishing capacity, but also opens up opportunities for foreign investment to participate in fishing industry. Even though there are catch quota limits, with more efficient fishing methods, equipment and technology, this foreign capital has the potential to trigger excess capacity and cause overcapacity and overfishing. Moreover, in PIT the number of small fishermen's catches exceeds the quota provided will not be taken into account in determining the number of catches for the following year. Therefore, this PIT policy is more focused on empowering local fishermen and small fishermen. At the same time, the government must continue to improve the validity of scientific fisheries data, starting from methods of collecting, processing and presenting fisheries data.

Third, this policy appears to be more top down in nature, therefore it has not fully received support from key fisheries stakeholders such as local governments, academics, NGOs, fishermen associations and small-scale fishermen. As we have seen, there was resistance from some quarters when this policy was first launched in 2022, as carried out by a number of NGOs, including Destructive Fishing Watch (DFW), EcoNusa, Greenpeace Indonesia, Indonesia Ocean Justice Initiative (IOJI), Indonesian

Center for Environmental Law (ICEL), the People's Coalition for Fisheries Justice (KIARA), Pandu Laut Nusantara, the Indonesian Forum for the Environment (WALHI), and the Terangi Foundation, KIARA, and Jala Ina, which generally highlighted the PIT policy formulation process which seemed rushed without being based on adequate scientific studies. Protests were also conveyed by fishermen from several local district such as fishermen from Pati, Juwana, Riau Islands, Tegal, Lebak, Anambas, Natuna, Maluku, Banda, etc. This could actually have been avoided if this policy had involved relevant stakeholders from the beginning.

Fourth, the PIT policy is still faced with inadequate technology and infrastructure for monitoring and enforcement. For example, until now, the technology that supports supervision has not been adequately provided, both on the supervisory vessel and at the fishing port. The same applies to fishing harbor facilities where fishing vessels depart and unload their catches. The involvement of private harbors as fish landing sites is considered a solution, but there are concerns that government functions will not be carried out, especially in private harbors that have been indicated to be involved in IUU Fishing cases.

4. CONCLUSION

Indonesia, as the world's largest archipelago with vast marine areas and abundant potential fish resources, should be able to manage and utilize these resources for the greatest benefit of the people, especially the fishing community. The interpretation of Article 33 of the 1945 Constitution concerning state control over fish resources and their utilization for the purpose of maximizing the prosperity of the people should not be interpreted as opening unlimited access to resources. Instead, it should be interpreted as ensuring that the resources are managed optimally and are able to provide benefits. For the greatest prosperity of the people, access to fish resources must be limited in accordance with the carrying capacity and ability of the resources themselves to recover. The main objective of the RBF regime is to control access to resources to protect fisheries resources while maintaining the sustainability of the fisheries business itself. Even though the PIT policy is not fully in accordance with the RBF principles, most of the RFB principles have been adopted in the PIT policy. Therefore, this policy is expected to be a more effective instrument for controlling access to fish resources, maintaining the health of fish resources and the environment from threats, including overfishing, as well as making fishing activities provide more economic value for fisheries business actors. As a newly implemented policy, continuous evaluation of emerging problems and challenges is absolutely necessary so that the PIT policy can be implemented effectively, especially in relation to policy consistency, validity of fisheries scientific data, stakeholder participation, as well as monitoring and law enforcement facilities and infrastructure. As stated by Beddington and Clark (2000), problems in fisheries management sometimes do not merely lie in the inadequacy of "tools" for managing fisheries, but rather in the failure to implement them.

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