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THE EFFECT OF BLUE ECONOMY POLICIES IN CAPTURE FISHERIES ON INDONESIAN COMMUNITIES

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Blue Economy; Marine; Fishery.

ABSTRACT

Ocean acidification, intense weather, more frequent storms, increasing sea levels, and rising temperatures are just a few of the negative effects of climate change that endanger marine ecosystems and the economic potential of the seas. With 6.4 million km2 of water, Indonesia has tremendous economic potential and fishing riches potential. The maritime sector had a potential of IDR 3,000 trillion, according to data from the Ministry of Maritime Affairs and Fisheries, but only IDR 291.8 trillion of that potential had been realized. The development of sustainable fisheries must adhere to the notion of development that benefits the current generation while also taking sustainability for future generations into consideration. An acceptable and successful marine development strategy to promote the best and most sustainable use of fishing resources is the creation of blue economy policies and initiatives. This legal study is conducted utilizing pertinent legal documents and a statutory methodology. This research tries to rebuild current policies and incorporate blue economy concepts into marine and fisheries policy. A policy model based on a blue economy is suggested as a consequence of this study in order to ensure sustainable national marine and fisheries management. This research tries to rebuild current policies and incorporate blue economy concepts into marine and fisheries policy. A policy model based on a blue economy is suggested as a consequence of this study in order to ensure sustainable national marine and fisheries management. This research tries to rebuild current policies and incorporate blue economy concepts into marine and fisheries polic.

INTRODUCTION

Indonesia as an archipelagic country where more than 70% of its territory is sea has enormous marine economic potential. According to national reference data from the Coordinating Ministry for Maritime Affairs, based on the results of mapping and geospatial information carried out by the Geospatial Information Agency (BIG) and the Indonesian Navy's Hydro-Oceanographic Center, the area of Indonesian waters is around 6.4 million km2, out of a total of 8.3 million km2 Indonesia's land and water area. Indonesia's maritime economic potential is estimated at US$ 1.33 trillion per year, 1.3 times the 2017 National Gross Domestic Product (GDP) (Dahuri R 2018). In 2017, the marine and fisheries sector contributed to the volume of national fishery production reaching 23,186,442 tons with a production value of around 384.48 billion Rupiah.

Data from the Ministry of Marine Affairs and Fisheries show that the total national fish consumption in 2017 and 2018 was 47.34 kg/capita/year and 50.69 kg/capita/year, respectively. The target for national fish consumption in 2019 is

54.49 kg/capita/year. For exports of fishery products, the export value of Indonesian fishery products in 2017 reached 1,078.11 thousand tonnes with a value of US$4.52 billion.

With this enormous maritime economic potential, Indonesia is also under threat from current global climate change. Threats such as rising sea levels, rising global and ocean temperatures, extreme weather, and ocean acidification will threaten the existence of marine ecosystems and threaten the economic potential of the oceans. The new State of the Climate Report confirms that 2018 was the fourth warmest year on record dating back to the mid-1800s. The global average surface temperature is 0.30°C to 0.40°C above the 1981–2010 average. Sea surface temperatures are nearing record highs. Global mean sea surface temperature increased by 0.33° +/− 0.05°C over the 1981–2010 average during 2018. Global sea level is the highest on record. For seven consecutive years,

The blue economy offers an approach to boosting the economy while preserving the ocean and its ecosystem. This study will review the implementation of marine economic management policies in Indonesia, examine obstacles to implementing regulations, and provide suggestions for improvements to the integration of blue economy principles into Indonesian marine economic policies.

METHOD

This study aims to review current fisheries management policies in Indonesia, identify barriers and deficiencies, as well as provide input and propose a fisheries management policy model that integrates blue economy principles. The scope of this research includes studies of national and international regulations related to marine and fisheries management.

This research is a legal research using a normative juridical approach based on the main legal materials, namely the applicable laws and regulations and other documents related to this research. This study uses primary legal material sources in the form of laws and regulations and its derivative regulations as well as secondary legal materials originating from previous research related to the problem under study.

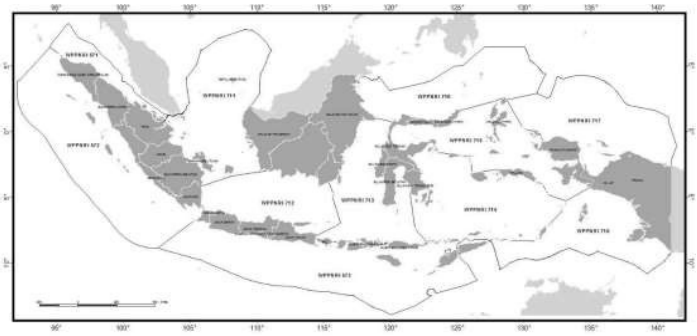
RESULTS AND DISCUSSION

Marine and fisheries policy review in Indonesia

Indonesian waters contain 27.2% of all flora and fauna species in the world. These types of flora and fauna include mammals 12%, amphibians 23.8%, reptiles 31.8%, fish 44.7%, molluscs 40%, and seaweed 8.6% of all species in the world (Central Bureau of Statistics, 2017) There are 3,476 fish species that have been identified in Indonesian waters. This wealth of aquatic resources makes Indonesia the second highest capture fisheries production in the world in marine fisheries, and the seventh highest capture fisheries production in the world in public waters.

Currently the fisheries management policy in Indonesia is based on Law Number 31 of 2004 concerning Fisheries, as amended by Law Number 45 of 2009 concerning Amendments to Law Number 31 of 2004 concerning Fisheries. The Government of Indonesia divides the Indonesian sea area into 11 (eleven) Fisheries Management Areas of the Republic of Indonesia (WPPNRI) through the Regulation of the Minister of Maritime Affairs and Fisheries Number 18/PERMEN-KP/2014 as shown in Figure 1. This WPPNRI is a fisheries management area for fishing, fish farming, conservation, fishery research and development which includes inland waters, archipelagic waters, territorial sea, additional zones, and Indonesia's exclusive economic zone.

To be able to carry out fishing and fish transportation activities in the WPPNRI, fishermen must complete a series of permits to carry out fishing activities at sea. Provisions regarding fishing requirements are contained in the Regulation of the Minister of Maritime Affairs and Fisheries Number Per.30/Men/2012 concerning Capture Fisheries Business in the Fisheries Management Area of the Republic of Indonesia as amended twice, most recently with the latest amendment in the Regulation of the Minister of Maritime Affairs and Fisheries. Regulation Number 57/PERMEN-KP/2014 concerning the Second Amendment to the Regulation of the Minister of Maritime Affairs and Fisheries Number PER.30/MEN/2012. For large fishing vessels over 30 GT, all permits are issued by the central governmentthrough officials at the level of the Director General. For fishing vessels between 10 GT and 30 GT, issued by the Regent or Mayor. For small fishermen, fishing vessels under 5 GT are exempted from permits.



Picture1. Republic of Indonesia State Fisheries Management Area (WPPNRI)

For permits related to fishing areas, each fishing vessel can be assigned a fishing area in 1 (one) WPPNRI or 2 (two) adjacent WPPNRI by stating the coordinates. Each fishing vessel is also determined by its base port and transit port, and must land its catch at a predetermined base port. This fishing area policy does not apply to small fishermen who are free to catch fish throughout the WPPNRI and are free to land their catch at any port in Indonesia.

To avoid overfishing, the government also determines the estimated amount of potential, the number of catches allowed, and the level of utilization of fish resources in each WPPNRI. The most recent estimate of potential and utilization rate stipulated by the government is the Decree of the Minister of Marine Affairs and Fisheries Number 50/KEPMEN-KP/2017 concerning Estimation of Potential, Amount of Allowed Catch, and Level of Utilization of Fish Resources in the Indonesian Fisheries Management Area. The allowable catch is set at around 80% of the estimated total potential (Kepmen KP, 2017). This policy functions to regulate the distribution of fishing activities and balance the exploitation of fish resources throughout the WPPNRI.

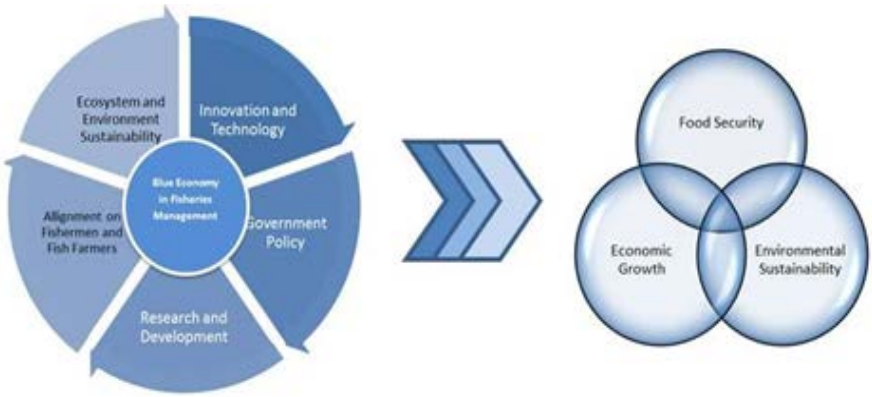
The government has also regulated permissible and prohibited fishing gear. In the Regulation of the Minister of Maritime Affairs and Fisheries Number 71/PERMEN-KP/2016 concerning Fishing Routes and Placement of Fishing Equipment in the Fisheries Management Area of the Republic of Indonesia, fishing gear is prohibited if it can threaten the extinction of marine biota which results in habitat destruction. , and endanger the safety of users. The government has also issued Regulation of the Minister of Maritime Affairs and Fisheries Number 49/PERMEN-KP/2014 concerning Aquaculture Business. This regulation regulates permits related to fish hatcheries and/or fish cultivation, as well as permits for fish transport vessels.

Blue economy and technology-based innovation

The Blue Economy concept was introduced with two principles. First, natural efficiency, where the blue economy imitates natural ecosystems and works according to what nature provides efficiently and does not reduce but instead enriches nature. The second principle is zero waste, meaning that waste from one source becomes food or an energy source for other sources, so that the living system in the ecosystem becomes balanced and sustainable (Rani F and Cahyasari W, 2015). The Blue Economy is an economic development model that combines sea and land development, emphasizing the utilization of technology optimization, in order to increase the utilization rate of marine resources (Rani F and Cahyasari W, 2015).

Innovation is the key word in the application of blue economy principles in marine and fisheries development in Indonesia. Innovation is needed to increase fisheries production while ensuring the sustainability of fish resource stocks in the future. The government through the Research and Development Agency of the Ministry of Maritime Affairs and Fisheries is trying to conduct research on innovation breakthroughs and appropriate technology that can be used in fisheries management. The Blue Economy places technology as an important basis for economic development innovation, because it can accelerate the growth and diversification of products produced by society, utilizing waste as a means of production to produce new products.

Blue economy integration in national fisheries management requires harmonization of various sectors, in supporting the main objective of national fisheries management. Based on the review of national fisheries management policies above, a blue economy integration model in sustainable fisheries management can be created as shown in Figure 2.



Picture2. Blue economy integration model in sustainable fisheries management

This integration model involves several aspects, namely:

a. *Innovation and technology.*Innovation and technology act as enablers that enable fisheries management techniques to be more efficient and produce more than before. This is in accordance with the blue economy principle which requires the use of efficient and innovative methods, while maintaining ecosystem and environmental sustainability. With new innovations in the utilization of fishery resource technology, it is hoped that new fish management techniques can be developed so that nature can enrich itself, engineer ecosystems that are better for nature or bring out superior varieties of fish resources that are better and can produce more abundantly.
b. *Ecosystem and environmental sustainability.*The blue economy requires that economic development does not negatively impact the environment. Catching fish in ways that can damage the environment must be avoided and replaced with fisheries management that pays attention to the sustainability of fish resources, because these resources are limited and still need to be preserved for the future. Choosing a fishing method that does not damage the ecosystem, avoids overfishing, avoids catching small and protected fish, and minimizes waste is a must for fishing businesses. High fishery economic growth will be in vain if the ecosystem is damaged and there is no guarantee that economic growth can last in the future.
c. *Alignment with fishermen and fish cultivators.*Improving the marine and fishery economy at the macro level must also improve the micro-economy of fishery businesses, especially fishermen and fish cultivators. Economic development in the blue economy must also be able to improve people's welfare, not only increasing economic income for fishermen and fish cultivators, but also increasing the human resource capacity of fishermen and fish cultivators. They must also be equipped with the ability to not only capture, process and sell the produce, but also be taught about efforts to improve the quality and capacity of their business, especially using new, innovative techniques so that in the end they can increase their business. fisheries and allows for the creation of new jobs.
d. *Government policy.*Summarized from the basis of fisheries management (Ministry of National Development Planning or Bappenas, 2014), there are three main bases for formulating policies related to fisheries management, namely: First, input control, namely input from fishing activities that can be controlled. This includes policies to regulate fisheries management areas, and the number of fishing vessels allowed to catch fish. Second, output control, namely output from fishing activities that can be controlled. This includes the amount of catch allowed and an analysis of the level of fish utilization in a fishery management area. Third, permissible technical actions in fishing activities. This includes the types and methods of fishing that are allowed, as well as the time of day that fishing is allowed.
e. *Research and development.*Research and development activities are efforts to find new ways to manage fisheries in accordance with blue economy principles. In 2018, the national research budget is only around 0.3% of national GDP. In addition, research and development efforts will be better if carried out with the principle of open science, where research results are published and the public has wide-open access to the research results without commercialization which will quickly encourage fisheries business actors to develop innovations and increase their fishery output. . production. The integration and harmony of all the above aspects is expected to be able to bring blue economy-based national fisheries management to achieve the main goal of national fisheries development, namely achieving food security, economic growth,

f. *Obstacles and challenges in blue economy-based fisheries management*Fishery management activities must always be evaluated continuously and the identification of obstacles must be resolved as soon as possible so that they do not develop into major obstacles that can interfere with the achievement of objectives.

g. *Climatechange problem.*Several studies have shown that changes in air temperature and sea temperature and the appearance of El-Nino have caused many types of fish to migrate from their natural habitat. For coastal areas, seawater intrusion into groundwater in large quantities will increase utrophication or water pollution due to an excessive increase in the amount of nutrients, and can cause hypoxia and anoxia in fish. When the environment changes, fish will adapt to the new environment so that fishing patterns also need to be changed. Changes in species composition, fish abundance, and fish size will lead to changes in fishing methods and times. The blue economy principle that flows as a natural ecosystem also means that innovation and engineering in fisheries technology is needed to anticipate changes in ecosystems and changes in fish behavior that occur due to climate change, so that fishery production is maintained and even can be maintained. increasing despite global climate change.

h. *Illegal fishing and overfishing.*According to the Minister of Maritime Affairs and Fisheries, Susi Pudjiastuti, the Illegal Fishing Eradication Task Force (Satgas 115) has arrested at least 633 illegal fishing vessels during January 2017 - October 2018, of which 366 fishing vessels were Indonesian-flagged and 267 fishing vessels were Indonesian-flagged. foreign fishing vessels. In addition, based on court decisions as many as 488 illegal fishing vessels have been sunk. The threat of overfishing is also one of the obstacles in national fisheries management. Many waters in the western and central regions of Indonesia are showing symptoms of overfishing, such as the Malacca Strait, East Sumatra Waters, Java Sea and Bali Strait. Meanwhile, in eastern Indonesian waters, the level of utilization of fish resources is not optimal or is still underfishing(FAO, 2016). Globally, 90% of the world's fish stocks are either fully exploited or overexploited. In Indonesia, illegal fishing and overfishing caused Indonesian fishing households to decrease by 50% in just 10 years, from 1.6 million in 2003 to only 800 thousand in 2013. Illegal fishing also threatens around 65% of Indonesia's coral reefs which are their habitat. nature and a place for fish to breed.

i. *Marine debris problem.*The issue of marine waste, especially plastic waste in the oceans, has recently become a concern for environmental activists. Some studies state that there are more than 150 million tonnes of plastic in the oceans today. In a business-as-usual scenario, the oceans are expected to contain 1 ton of plastic for every 3 tons of fish by 2025, and by 2050, more plastic than fish (by weight). Marine debris does not only come from waste that is directly disposed of into the sea or the coast, but more often comes from household waste that "leaks" into streams or rivers and is finally carried to the sea. Most of the leakage of waste that enters rivers mainly comes from houses along rivers and canals. To address the issue of marine debris, the Government of Indonesia has issued a National Action Plan for Handling Marine Debris for 2018-2025 in Presidential Regulation Number 83 of 2018 concerning Management of Marine Debris. This calm new regulation must be implemented properly so that marine debris does not threaten the marine ecosystem.

CONCLUSION

The government's commitment to implementing marine and fisheries management based on the blue economy still faces many challenges and obstacles that must be resolved immediately. Towards blue economy-based fisheries management, the government must intensify policies related to the following issues, such as immediately revising the Fisheries Law to protect local and small fishermen; Law enforcement against illegal fishing and application of innovation and technology in the field of fisheries

Management where the use of innovation and technology must reach the applicative stage for fishermen, including in the form of assistance and maintenance. If this commitment can be fully implemented, the national marine and fisheries sector can achieve its main goals, namely food security, economic growth and environmental sustainability, including mitigating the impact of climate change.

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