

# Practices of Illegal Fishing in Pemalang Region: A Policy Analysis

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**Abstract.** The use of unsustainable fishing gear has resulted in the decline of fish resources and threatens the sustainability of fish resources. This can cause harm to the state and the interests of the fishermen themselves. Although various policies governing fishing gear are already in place, unsustainable fishing practices remain. This, of course, has resulted in overfishing and causing environmental damage. Using the case of fishing practices in Pemalang Region, this study found that fishing gears used by fishermen are prohibited tools because they have negative impacts on the environment. Some fishing gear is quite popular used by fishermen in Pemalang Region are stun, fishing nets, fishing rods and poison. Unfortunately, the use of electric current tool (stun) is found to be more dominant than fishing nets and fishing rods. Similarly, it has developed among fishermen to use toxic methods in fishing. This phenomenon encourages researchers to formulate an effective public policy to control and minimize illegal fishing practices.

## 1 Introduction

Indonesia as an archipelagic country has huge potential of fish resources and high biodiversity, with Indonesian waters having 27.2 percent of all species of flora and fauna found in the world. Species include 12 percent mammals, 23.8 percent amphibians, 31.8 percent reptiles, 44.7 percent fish, 40 percent molluscs, and 8.6 percent seaweed. The potential of fish resources includes large pelagic fish resources, small pelagic fish resources, penaeid and other crustacean shrimp resources, demersal fish resources, mollusk and cucumber resources, squid, commercial commercial seed resources, coral resources, reef fish consumption resources, ornamental fish resources, turtles, mammals, and seaweed.

The wealth of the sea will not be exhausted forever for the benefit of the welfare of the people of Indonesia when used with attention to sustainability and justice. Fish resources can be utilized as much as possible for the welfare and prosperity of the people of Indonesia. The fact that fish resources have not been able to improve the standard of living is sustainable and just. This is due to overfishing, fish theft and illegal fishing and the use of unsustainable fishing gear.

Unsustainable fishing activities not only threaten the sustainability of coastal and marine natural resource use, but also spur the increase in the number of poor people in the region.

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The use of unsustainable fishing gear such as the growing cantrang has caused serious problems. The use of fishing gear of this type can damage the marine environment or marine resources because fishing is done with no attention to environmental aspects. In addition it also raises the social problem of conflict between traditional fishermen and machine fishermen. The impact of such environmental degradation is causing the suffering of present and future generations for not being able to consume the much-needed fish for the growth of the human body.

In order for sustainability of resources to be maintained, human (anthropogenic causes) activities that directly or indirectly potentially undermine the sustainability of fish resources and aquatic ecosystems should be minimized. Given that environmental damage is caused more by human activities as stated by Homer-Dixon [1]. Human activities can cause environmental damage or scarcity of fish resources in three ways: (1) human activities can lead to a decrease in the number and quality of fish resources, especially if resources are exploited at speeds that exceed their recovery power; (2) the decline or scarcity of fish resources is caused by fishing equipment that causes overfishing. With increasing population and declining fish resources will affect the income of the fishermen and cause harm to the state and the interests of the fishermen themselves. This means the utilization of fish resources over the regeneration of the fish itself; and (3) access to unbalanced fish resource environments will also cause many problems. These three factors of human activity can occur individually or in combination.

Human activities that can cause environmental damage also occur in Pemalang District. Most of the fisheries in the waters of Pemalang Regency use an environmentally unfriendly fishing tool that uses stun and toxic materials. It seems that the public has begun to pay less attention to environmental ethics and the principle of justice. If viewed from the anthropocentric perspective of an environmental ethics theory, that human being as the center of the system of the universe. Human beings and their interests are deemed the most decisive in the ecosystem order and in the policies taken in relation to nature, either directly or indirectly. Nature is seen as just objects, tools and means for the fulfillment of human needs and interests. An anthropocentric outlook gives rise to greedy and greedy attitudes and behaviors that cause humans to take their needs from nature without considering conservation of environmental functions. Preservation of environmental functions is not thought of by anthropocentric people.

In the perspective of justice, Santosa and Quina [2] said that there are five principles of justice: (1) the principle of intergenerational equity, every generation of mankind in the world has the right to receive and occupy the earth not in a bad condition due to the actions of previous generations; (2) the principle of intragenerational equity, in which the burden of environmental problems must be shared by the community within a generation; (3) precautionary principle, when there is a threat.

## **2 Research Method**

This research uses several methods, namely:

1. Normative juridical method, conducted through literature study, which examines (mainly) secondary data in the form of legislation relating to Fishing Using Destructive and Inhospitable Materials or Tools. The normative juridical method includes 3 (three) approaches, namely: (a) the legal dogmatic approach (juridical) aims to study and apply legal norms in accordance with applicable laws and regulations relevant to Fishing Arrangements Using Destructive or Destructive Substances and Tools Environmentally Friendly in Pemalang District; (b) the legal theory approach (conceptual), aims to study and apply theories, concepts, opinions, legal teachings, associated with Fishing Using Destructive and Inhospitable Materials

or Tools in Pemalang District; and (c) the philosophical (philosophical) philosophical approach, is to discover and analyze the legal principles that can be used as reference in Fishing Arrangements Using Destructive and Inhospitable Materials or Tools in Pemalang District.

2. The empirical juridical method, or sociolegal, is a study initiated by normative research, followed by in-depth observation to obtain relevant non-legal data.
3. Survey method, is a research method used to find information factually. With this method, it can discuss and analyze a problem that is closely related to Fishing Problems Using Destructive and Inhospitable Materials or Tools.

### **3 Results and Discussion**

Pemalang District is located at coordinates 109 17 '40 "to 109 40' 30" East Longitude and 08 52 '30 "to 07 20' 11" South Latitude. Geographically Kabalang Pemalang is one of the districts located on the north coast of Java Island. While administratively Pemalang District with an area of 111.530 Km<sup>2</sup> consists of 14 Districts and 211 Villages and 11 Villages. Based on Law Number 23 Year 2014 on Regional Government, Pemalang District is granted authority of fishery management, in accordance with geographical position with long coastline ± 35 km and width of sea waters 4 miles (1 nautical mile = 1,852 m), so Pemalang Regency has sea an area of 259.28 km. All Pemalang Regency is limited by the north is Java Sea, south of Purbalingga regency, west of Tegal regency, and east of Pekalongan Regency.

Marine fish production in Pemalang Regency reaches 27,507 tons per year with value of Rp 182,444,210.00. In Central Java, Pemalang District ranks fifth after the City of Tegal, Rembang, Pati, and Batang. The catch is quite abundant making Pemalang District as one of Central Java coastal fishing centers. Furthermore, the production of fish cultivation and river fish whose potential is also quite large. For fish cultivation, the area of tambak reaches 1,728 hectares which includes milkfish, shrimp and shrimp soka. Meanwhile Pemalang Regency also has the potential of river fish which is also quite big from the three largest rivers in Pemalang Regency is the river comal, river waluh and river hair.

Most of the population Pemalang livelihood is a fisherman consisting of skipper, pandega, and sideline. While the fish auction places are in Tanjungsari, Asemdayong, Mojo, Ketapang, and Tasikrejo. Characteristics of residents of Pemalang Regency generally live around the city center (coastal area), where the number of people living in coastal areas reached 57.77% (739,252 souls) of the total population. Fishery is also the largest contributor to Gross Regional Domestic Product (PDRB) Pemalang Regency that reaches 20,036.5 billion rupiah (GDP at Current Prices). In addition, beach tourism namely Widuri Beach became the most favorite place visited by tourists during the last three years. There are 187,538 domestic tourists who come to visit these attractions in 2017.

In addition, the sea for Pemalang Regency is also as a nature reserve area, namely: (1) natural marine reserve area, ie asylum to marine waters, coastal, river estuaries, coral clusters and atolls that have characteristic of diversity and or uniqueness of ecosystem. Marine marine reserve area in Pemalang Regency in the form of river mouth located in District Ulujami; and (2) coastal areas of mangrove forests, ie vegetation areas located on the coast and / or rivers at the mouth of the river that serves as a coastal protection area, is a habitat of certain fauna and also ecological functions. Pemalang Regency is the area that has the widest mangrove area in Pantura which is equal to 10.94%. Furthermore, the beach is also a protected area of marine germplasm located along the coast in Pemalang District namely Petarukan Subdistrict, Taman, Pemalang and Ulujami. Marine germplasm protection in Pemalang Regency is directed to two things: (1) in-situ conservation of germplasm conservation in the form of fish, by establishing and breeding species of fish

whose population is limited to germplasm marking, conservation area determination, collection formation, and regulation of germplasm expenditure; and (2) ex-situ conservation, ie the conservation of germplasm of fish outside its habitat which can be done in the form of an aquarium collection container equipped with facilities having certain conditions for storing the germplasm for survival and genetic properties. Next is the protection of the local area that is intended for land use activities that can maintain the sustainability of quantity, quality and provision of water system and smoothness, order regulation and utilization of water from water sources. Local protected areas consist of: (1) the river border area, along the right and left of the river including artificial river / primary irrigation canals which have important benefits for maintaining river functions. The river border area in Pemalang Regency is located in all areas passed by the river that is waluh river and its 15 tributaries pass through Moga, Randudongkal, Bantarbolang, Pemalang and Taman. The hair river consisting of 13 tributaries passing through Moga and Pemalang sub-districts as well as the waluh river along with its 30 tributaries that pass through Belik, Moga, Randudongkal, Bantarbolang, Ampelgading, Comal and Ulujami districts with a length of about 92.5 km; (2) coastal border areas, ie certain areas along the coast, are useful to maintain the sustainability of coastal functions of various activities that may threaten its sustainability. The boundary line criterion is at least 100 meters from the highest tide point towards the land. The coastal border area of Pemalang Regency is located along the coast of Petarukan, Pemalang and Ulujami sub-districts along the 600,272 hectare coastline; and (3) the area around the spring, is the area around the spring that has important benefits for maintaining the function of the spring. The purpose of protection of this area is to protect the springs from cultivation activities that can damage the water quality and physical condition of the surrounding area. The boundary line criterion around the springs is 200 meters around the springs, while the protection of this area is in accordance with existing regulations covering the area within 200 meters around the springs (the area around the springs in the area of Pemalang Regency is 2,722,337 Ha).

Fish resources are very beneficial to people's lives, not least in Kabupaten Pemalang. Besides as a source of protein as well as the main income, especially for the fishermen. Therefore, sustainability and sustainability must be maintained both from its fish resources and its ecosystem. Nevertheless, fishing in Pemalang Regency is currently mostly done with no attention to environmental sustainability. Until the 1990's fishing in Pemalang Regency is still traditional such as installing bubu and fishing. After that fishing is mostly done in ways that are destructive and environmentally unfriendly such as the use of stun guns, explosives (mercury), insect poison and potassium and other chemicals. The results showed that the use of stun fishing equipment by 60 percent, nets 15 percent, fishing rod 15 percent and 10 percent racum.

Meanwhile, modern fishing equipment is destructive and less environmentally friendly today is widely used by fishermen Pemalang District, among others cantrang and payang. Cantrang is one fishing tool in the form of nets. Jar cantrang has a length of 53 meters with a pocket length of 3 meters. The mesh size of cantrang is 0.5 - 4.5 inches. Operation cantrang done at 04.00 am until 13.00 pm. The method of operation of fishing equipment cantrang starting from the stage setting of the decline buoy signs followed by the right strap with the direction of the ship in a circle, then the net is lowered and followed by the left strap to meet the sign buoy. Furthermore the buoy sign was raised to the ship followed by the drawing of the drawn string and the withdrawal was aided with axle. In this process the position of the ship is stopped but the axle machine is still running and this stage is called hauling. Continuous use of cantrang causes extinction of various species of fish and coral reef resources. This is because small fish that have not spawned caught by this tool so as not to have the opportunity to spawn and multiply the species. As a result in a certain period of time, the fish will run out because it did not get natural regeneration.

The next catch is Payang. It is also one of the fishing nets. It is used in Pemalang District that is often called payang gemplo which has a body part that resembles a bag, a wing that blends with a cone-shaped body and a pull strap. Construction of payang net, among others, the overall length up to 200 meters with a pocket length of 7 meters. The size of the mesh (mesh size) is 1 - 20 inches and the pockets are made of warnet nets. Operation of payang is done at 04.00 WIB until 12.00 WIB. The mode of operation starts from the setting stage, where the mark buffer is lowered then followed by the left-handed strap with the direction of the ship's movement in a circle, then the net is lowered and followed by the right-hand strap until it meets the mark buoy. After that the buoy sign is raised to the ship followed by manual drawn drawn rope which usually takes between 9 - 14 people. In this process the ship is still in a state of road but with medium speed. This stage is called hauling. The process works almost the same as cantrang, so the potential destruction of fish resources and ecosystems are also the same as cantrang.

This condition certainly can not be allowed, requires its own policy so that the damages of water environment in Pemalang Regency is not getting worse. The policy can be poured through the Regional Regulation on Prohibition of Fishing Using Destructive and Inhospitable Materials or Equipment. This public policy aims to: (1) protect small fishermen from engaging in activities in the fishing sector; (2) to protect fishermen, especially fishermen located in coastal areas of Pemalang Regency from outside fishermen who use banned fishing gear; (3) protecting the potential of fish resources as a result of the use of prohibited materials or equipment; (4) applying local wisdom as one way to prevent prohibited fishing gear; (5) preserving the environment; and (6) involving the community in the oversight function of the territorial waters of Pemalang Regency.

In such arrangements also need to be affirmed in relation to fishery areas and types of fishing gear that are environmentally friendly and non-environmentally friendly. The fishery areas include sea, river, lake, swamps, rice fields, dams and other waters in Pemalang District. Types of non-destructive and environmentally-friendly fishing gear include gill net, trammel net, fish-folding bubu, crab bubbles, fishing rods, bottom rivers, drifting drifting, tonda fishing lines, and pole and line. Further, other types of destructive and non-environmentally friendly fishing gear include explosives, toxic chemicals, electrically ground devices, trawl, trawl, trawls and trawls drag (seine nets).

In order for the effective arrangement, it is necessary coaching and supervision and community participation. Guidance and supervision may be undertaken by the Regent through the relevant Regional Apparatus Organizations. Coaching and supervision can be made directly to the site and or using technical guidance. The community can participate in assisting local wisdom-based supervision [3]. Hardjasoemantri as described by Santosa and Quina [2], that community participation is needed in decision making related to environment and natural resources.

Community participation provides valuable information and knowledge to decision makers [4, 5]. In addition, public participation will also reduce the likelihood of non-availability of communities to accept decisions that have a significant effect on the formation of public policy [6,7]. In order to empower community participation in supervision and protection, the local government through the relevant Regional Government Organizations can budget the funds through the Regional Revenue and Expenditure Budget. This community participation is intended to encourage the growth and development of community groups of supervisors and conservation groups of fish resources and their ecosystems.

## 4 Conclusion

Fish resources and ecosystems are needed by the community, both for the fulfillment of nutritional needs and for sources of income. Similarly for local governments, fish resources and ecosystems are expected to increase the GRDP so that per capita society is also getting better. Aquatic resources are also expected to increase tourism potential for both local governments and communities. There are many more benefits that can be drawn from the potential of fish resources along with its ecosystem, so it needs a commitment to maintain its sustainability and sustainability.

In Pemalang Regency has been widely used fishing equipment that can damage and less environmentally friendly, among others, stun, explosives, toxic materials, cantrang and payang. If this is allowed to continue, there will be damage and possibly even the extinction of fish resources and their ecosystems. The sustainability of fish resources and their ecosystem will be disrupted.

These conditions require a policy that can be set forth in a Regional Regulation on Ban on Fishing by Using Destructive and Inhospitable Materials and Tools. The goal is to maintain the sustainability and sustainability of fish resources and their ecosystems. In addition, to empower the community, especially fishermen. Regulatory items may include regulatory objectives, fishery areas, types of eco-friendly and non-environmentally friendly fishing gear, prohibition, guidance and supervision, and community participation.

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