Environment and Polemic of Cantrang Ban in Lampung Bay: The Importance of Stakeholder Mapping

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Environment and Polemic of Cantrang Ban in Lampung Bay: The Importance of Stakeholder Mapping

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Abstract. The prohibition of using cantrang fishing gear in the waters of Lampung Bay is one of the government's efforts to reduce the problem of marine ecosystems. Polemic in the form of pros and cons of implementing the cantrang prohibition policy, has resulted in a wave of rejection and the emergence of horizontal conflicts between fishermen, a shift in vertical conflict against the government. The role of stakeholders in the failure and success of public policy implementation is very strategic. The study aims to conduct a stakeholder mapping analysis of the cantrang prohibition policy policy. The method uses Power versus Interest Grid Analysis. The results illustrate the identification of stakeholders from the classification of strong supporters and strong opponents with their interests, resources, influence and actions taken. Using the stakeholder role matrix, information on grouping of stakeholders that is comparative, influential, involved and only receives information is obtained. *Contribution:* improvement of policy making and the realization of democratic governance.

Keyword: *Cantrang, Cantrang Polemic, Environment, Policy Implementation, Mapping Stakeholders, Policy formulation, Governance*

1. Introduction

Cantrang is a fishing tool which is prohibited and considered to be damaging to the marine ecosystem environment. Studies conducted on the workings of cantrang by sweeping the entire ocean floor have the potential to damage the substrate ecosystem where organisms or micro-organisms that feed fish and also damage coral reefs grow [1], [2]. Research reveals that only about 60-82% of cantrang catches are bycatch or not used [3],[4], The catch of cantrang is not selective with the composition of the catch of all sizes of marine life, so it will interfere with the recruitment process and threaten the sustainability of the resource [5].

The prohibition of using cantrang fishing gear in Indonesian waters one of the government's efforts to reduce the problem of marine ecosystems. In 2015, the Indonesian Minister of Marine Affairs and Fisheries issued a regulation in the form of Permen KP No.2 of 2015 concerning the prohibition on the use of trawls and seine nets in the fisheries management area of the Republic of Indonesia, one of the fishing gears used for fishing. prohibited to be used throughout Indonesia in the regulation is cantrang [6].

Research based on the existence of a polemic in the form of pros and cons of implementing the cantrang prohibition policy has generated a wave of resistance [7], [8],[9] and the emergence of horizontal conflicts between fishermen and a shift in vertical conflict against the government [10], [11]. Teluk Lampung, in Lampung Province, is one of 8 regions in Indonesia, namely Central Java, West Java, East Java, North Kalimantan, West Kalimantan, Jambi and North Sumatra which operates cantrang. In 2015, there were 5,781 cantrang units spread across Indonesia. Then in early 2017, an increase in cantrang fishing gear was obtained to 14,367 units [12].

The cantrang ban policy is in line with international principles in sustainable fisheries management as stipulated in *Code of Conduct for Responsible Fisheries* (CCRF) or Responsible Fisheries Management [5], [13]. One of the ways in which this arrangement is that each country must take policies to reduce by-catch fish and regulate the size of the mesh to protect juvenile fish [5]. The policy also does not conflict with Law Number 31 of 2004 in conjunction with Law 45 of 2009 concerning Fisheries, which states that everyone is prohibited from using fishing gear that disturbs and destroys the sustainability of fish resources. This law also gives authority to the Minister of Marine Affairs and Fisheries to determine fishing gear that disturbs and destroys the sustainability of these fish resources [7]. Several studies have looked at the various ecological impacts of the cantrang ban, namely that coastal biological resources such as coral reef ecosystems as spouning ground for fish and other marine and coastal ecosystems can be minimized, the amount of fish production can be controlled and the physical degradation of the aquatic ecosystem that is more severe can be prevented [1]

Studies related to the condition of Indonesian fisheries show that the conditions are always decreasing every year. The decline in fishery production is caused by damage to the marine ecosystem caused by the use of cantrang fishing gear which is not environmentally friendly [1]. On the other hand, the cantrang ban has also changed and shifted the structure of social and economic life, especially the fishing community [1]. Several studies have described the cantrang prohibition policy as having an impact on economic and social aspects. The resulting economic impact is decreasing cantrang fishermen's fish catch, increasing non-cantrang fishermen [1], [14], [15], [16];   The income of cantrang fishermen has decreased and non cantrang fishermen have increased [1], [14], [17], [18]. Meanwhile, the social impact is in the form of decreasing welfare level of cantrang fishermen [15], The livelihood strategy of cantrang fishermen's household changes [14], [19], Conflict within the class, as well as conflict between classes of fishermen related to the use of cantrang is reduced [1], [20]. The prohibition regulations issued in 2015 have the potential to lead to policy failure due to the absence of community support (stakeholders) as actors as well as policy targets [21], [22].

This study focuses on the important role of stakeholders in the failure and success of implementing public policies. Stakeholders are parties or actors who influence and influence public policy [22]. Stakeholder adalah people or small groups with the power to respond to, negotiate with, and change the strategic future of the organization [23], [24]. The importance of stakeholders is based on changes in the governance approach from government to governance that place actors outside the government such as NGOs, the private sector, civil society organizations including cantrang fishermen to become actors in policy making [25]. Studies of strengthening democratic governance redefine views related to the importance of actors who are stakeholders in policy making and policy implementation [25]. Governance views the process of formulation and implementation to achieve public goals carried out by actors as a plurality of organizations, with a more flexible relationship at the vertical and horizontal levels, motivated by public values, including validity, responsiveness, and creativity. Conducted in the spirit of equality and strong netwoking to achieve accountable public goals. The study of governance interpretations explains governance as a social concert involving actors to accelerate public interests more equitably and to spread roles more evenly according to the reality of the plurality of interests and actors [26].

Several previous studies have studied the success of implementing the cantrang prohibition policy with the rationalization and ecological approach to fighting [27], bureaucratic model and political model [28] . It is very limited to see that the success of implementing a policy is determined by the understanding and management of the supporting and opposing stakeholders, major and non-main stakeholders. In the study, stakeholder mapping is relevant to the success of identifying important actors in the policy-making process and assessing the knowledge, interests, positions and attitudes of stakeholders towards policies. This relevance becomes strategic, because the interaction between policy makers and stakeholders can increase support for programs or policies. Stakeholder mapping can also

identify stakeholder interests in a policy or program; know the potential conflict or risk from the policy; build relationships with stakeholders and most importantly can reduce the risk of failure of a policy [23], [24].

The research objective was to analyze the stakeholder mapping of the cantrang prohibition policy. Research recommendations for improving policy making and the realization of democratic governance.

2. Methods

The research was conducted at the Lempasing Beach Fishing Port, Bandar Lampung City, Indonesia in July-September 2019. The survey technique (mapping) was carried out on groups related to cantrang policy. Qualitative techniques are used to analyze data and information obtained in research. Data collection was carried out through interviews, observation, and documentation study. Interviews were conducted with 28 stakeholder groups consisting of: elements of government, NGOs, business actors, community groups. The collected data is then reviewed using stakeholder mapping techniques [23], [24]. This technique identifies key stakeholders and stakeholder relationships in the success of the policy implementation process through a Power versus Interest Grid Analysis to determine interventions and steps to be taken on mapped stakeholders.

Power versus interest grid analysis explains the success of the implementation of the cantrang prohibition policy from the processes that influence each other:

(a). Mapping of Power and Interest

Power Power is the potential for stakeholders to influence policies or organizations that come from power based on their position or resources in the organization, or perhaps their influence comes from their credibility as a leader or expert. Meanwhile, a stakeholder's interest in a particular policy or project will be measured by its level of activity.
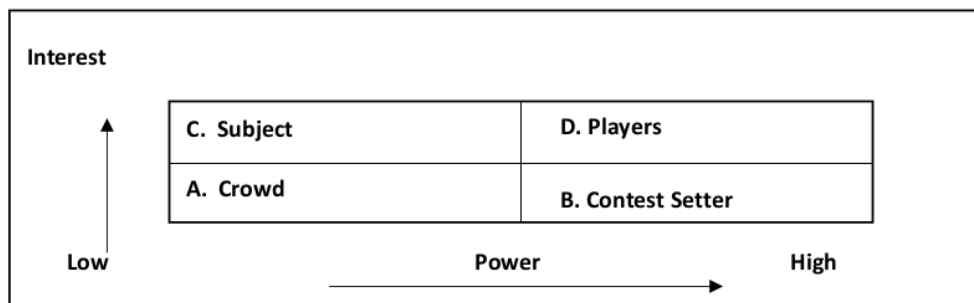

Figure 1. Matrix of Stakeholder Role Analysis

Consists of:
A. Crowd (weak in power and interest).
B. Contest setters (own the power, but only possess little direct interest).
C. Subjects are stakeholders who have interest but with little power.
D. Player is a stakeholder who has power and interest significantly.

(b). Stakeholder intervention

After mapping the power and interests of each stakeholder, the important thing to do is determine the interventions and steps that need to be taken for the stakeholders that have been successfully mapped, namely: Stakeholders in the sector A (Crowd) carried out monitor; Stakeholders in the sector B (Contest setters) known and in data; Stakeholders in the sector C (subject) in the field and stakeholders in the sector D (Player), must be managed properly.

3. Result and Discussion

3.1. Study Site Conditions

Cantrang is widely used in the coastal area of Lampung Bay. Administratively, Lampung Bay is scattered in Bandar Lampung City, Pesawaran District, and South Lampung Regency. The area of the waters in this area is 161,178 ha, a place to live and a source of livelihood for fishermen and fish cultivators. It was recorded that there were 2,336 fishery households (RTP) in 2017 and 3,653 FHs with the highest number of FHs in South Lampung Regency. Fishing boats operating in Lampung Bay are close to 2,500 units, with various types and sizes of boats, both motorized and non-motorized. In 2019, the cantrang ships operating around Lampung Bay are under 30 GT with a total of 28 units [24].

3.2. Identification of Stakeholders

The first step in identifying problems and needs is a stakeholder analysis. Stakeholders are those who are directly or indirectly involved in determining what a program needs to achieve and how to achieve it. The category of stakeholders as actors in the cantrang prohibition policy consists of several components as shown in table 1.

Table 1. Matrix of Stakeholders Interests, Resources & Influence

Stakeholders	Interest	Resource	Influence	Action
Strong Support				
Ministry of Maritime Affairs and Fisheries of the Republic of Indonesia	Nature Conservation, especially marine life	Government Apparatus and Policy	Very strong using policy	Pass the cantrang ban policy
Provincial / Regency / City Department of Marine and Fisheries	Maintain the marine ecosystem according to the direction of the central government	Government Apparatus and Policy	Very influential (extension of Central Government policy)	Implement policies
Technical Implementation Unit Fish Landing Base Fish Auction Place	Fisheries economic development	Provision of facilities and infrastructure for fishermen and fisheries business actors	Very influential (welfare of fisheries and fishermen businesses)	Forward policy
Fisheries Cooperative	Improve the economy	Improve fishermen welfare efforts	Affects the level of fishermen's capital	Capital capital
Community Fisheries Resources Monitoring Group (POKMASWAS)	Field supervision with the community in responsible fisheries management	Relations with the community and government	High, Make a report aimed at the Provincial and District or City DKP	Accept it, because it directly monitors the state of the sea coast
Water police unit	Maintain maritime security, law enforcement and guidance	POLAIR members, Patrol Boats	High	Accepting, preventing security, smuggling
Non Cantrang Traditional Fishermen	Obtain fish catch as an economic source	High skill in fishing	Low	Accept, the maintained ecosystem supports the fishermen's economy
Large Non Cantrang Fishermen	Catch the maximum number of fish for maximum profit	Modern fishing gear with high quality	Low interest	Accepting policies, pro and supportive stakeholders
Association of Indonesian Shells and Ornamental Fish Corals	Addressing the issue of environmental conservation violations, especially coral,	Member performance in environmental preservation activities	Strong influence, strong interest	Accept, this policy can preserve the environment (especially corals,

	shellfish and ornamental fish			shellfish and ornamental fish)
Maritime and Fisheries Independent Training Center	To train fishermen who lack skills in the marine ecosystem	Skill trainer	High, Adding Knowledge to Fishermen	Contribute to the sustainability of the fishermen
Strong Repellent				
Perum Perikanan Indonesia	Expanding cultivation, fishing to processing and trading of fish and other marine products	Maritime education and tourism service business	High	Refusing, the fishermen's catch decreases, the fish processing and trade is reduced
Fish Processing Industry	Processing fish into processed fish that have a high selling price	Adequate production tools	High influence	Refuse, with the prohibition of cantrang because it reduces income
Small Traders / Collector Fishermen	Collect fishermen's catch to be resold to distributors, markets or consumers	Become a mainstay for distributors, markets, consumers to buy marine catches	High interest, less strength	Refuse, continue to support fishermen by using cantrang for optimal catch
Dasa Wisma	Selling produce; catch of fish to meet economic needs.	Own the ability to manage fish into high value processed fish.	Neutral to policy	Refusing for the sake of supplying fish
Sort Labor	Sorting out between small and large fish catches	Able to become professionals in catch fisheries separation.	Less Influential	Refuse the cantrang policy.
Ship Service	Maintain employee income for a living	Individual skills	Low	Refused because it hurt the ship workshop
Subscription or Skipper	Get as many fish as you can to make a profit	Possess the power to fish with wealth.	High	Refuse, because it is considered detrimental to personal gain
Grocery Store Owner	Their welfare is reduced by the presence of cantrang	Provide groceries	Low	Refused because it was detrimental to shop income
Coordinating Ministry for Maritime Affairs and Investment	Stabilizing investment	Apparatus and policy	Strong influence strong interest	Refuse, disturb investors / fish entrepreneurs to invest
Village Administration	Receive and serve the Cantrang fishing community	Village apparatus	Netral	Carry out the rules
Kapa's men;	Maintain employee income for a living	Employees	As a tool for the operation of cantrang activities	Refuse, it is detrimental to the crew members so that there is no deposit

Based on stakeholder mapping, the stakeholders play different roles [23], [24]. Based on the stakeholder mapping matrix, the stakeholder classification consists of:

The main stakeholders, are those who are directly affected by the positive or negative impact of the cantrang prohibition policy, among others, fishermen of the cantrang, the Indonesian Fishermen Association. Bakul / Collector Fishermen, Sorting Workers, Ship Service, Crew, Subscriber6 Skippers, Non Cantrang Traditional Fishermen, Non Cantrang Large Fishermen, Satpol Air, RI Ministry of Marine Affairs and Fisheries, Provincial Marine and Fisheries Service (DKP), Marine and Fisheries Service (DKP) Regency / City.

Supporting stakeholders, are the intermediaries in helping the process of the implementation of the cantrang prohibition policy. Among them, the fish processing industry, Dasa guesthouse, owner of

grocery stores, the Coordinating Ministry for Maritime Affairs and Investment, Village Administration, Fisheries Cooperatives, Indonesian Shells and Ornamental Fish Coral Association, Marine and Fisheries Independent Training Center, UPT (Technical Implementation Unit) PPI (Landing Base Fish) and TPI (Fish Auction Place), POKMASWAS for Fishery Resources.
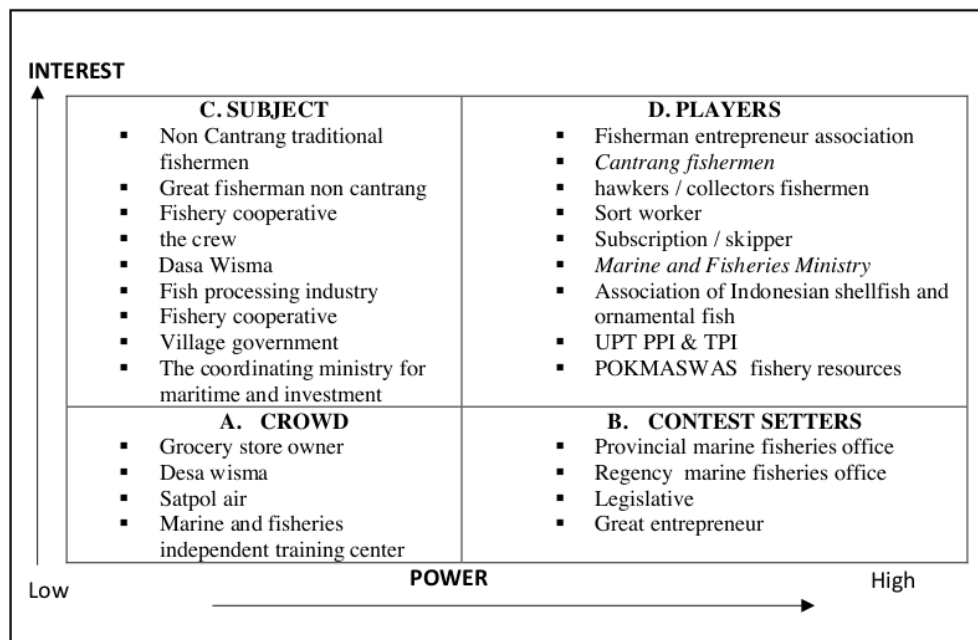
3.3. Analisis Mapping Stakeholder

INTEREST		
C. SUBJECT		**D. PLAYERS**
▪ Non Cantrang traditional fishermen ▪ Great fisherman non cantrang ▪ Fishery cooperative ▪ the crew ▪ Dasa Wisma ▪ Fish processing industry ▪ Fishery cooperative ▪ Village government ▪ The coordinating ministry for maritime and investment		▪ Fisherman entrepreneur association ▪ *Cantrang fishermen* ▪ hawkers / collectors fishermen ▪ Sort worker ▪ Subscription / skipper ▪ *Marine and Fisheries Ministry* ▪ Association of Indonesian shellfish and ornamental fish ▪ UPT PPI & TPI ▪ POKMASWAS fishery resources
A. CROWD		**B. CONTEST SETTERS**
▪ Grocery store owner ▪ Desa wisma ▪ Satpol air ▪ Marine and fisheries independent training center		▪ Provincial marine fisheries office ▪ Regency marine fisheries office ▪ Legislative ▪ Great entrepreneur

Low — **POWER** — High

Figure 2. Matrix for Analysis of the Roles of Stakeholders in the Cantrang Prohibition Policy

Based on field data, using the Power versus Interest Grid Analysis matrix can be explained as follows:

Stakeholders in the sector A (crowd) do not have high interest in institutional decisions, also low power to influence and have a big impact. however, the organization should still keep these groups informed within the necessary limits, but not necessarily invest too much into them.

The recommendations made for them include:
a. Provide understanding and direction on the importance of protecting marine ecosystems for the realization of sustainable development.
b. Providing socialization of policies to replace cantrang fishing gear
c. Helping to maintain the marine ecosystem so that the quality of the fishermen's catch is maximized.

Stakeholders in Sector B (contest setters) have a high interest in responding to all organizational decisions even though they actually do not have much power to influence. These stakeholders can be used as allies in supporting the cantrang prohibition policy. It is therefore important to inform them of the issues they are interested in.

The recommendations made for them include:
a. The right information so that stakeholders remain neutral with the news
b. The fishermen's welfare policy, including the crew
c. Distribution of aid funds.
d. Field simulation and monitoring.

e. During the extended period of the moratorium, together with the local government prepared a social protection scheme for the ABK and their families who could be potentially affected

Stakeholders in sector C are usually investors or legislators. They behave passively and show a low interest in public affairs. In dealing with this type of stakeholder it is necessary to analyze the potential interests and reactions of these groups in all important developments in the organization, and to engage them according to their interests.
The recommendations made for them include:
a. Maintain the stability of Indonesian seafood prices
b. Provides easy access to using a cantrang replacement tool
c. Guarantee the welfare of fishermen cantrang
d. Providing fishing gear assistance according to the needs of cantrang fishermen.
e. Provide recommendations for environmentally friendly fishing gear, so as not to damage the marine ecosystem
f. Facilitating capital assistance related to the replacement of fishing gear for cantrang by cooperating with the banking sector.
g. Providing compensation to overcome economic impacts in the short term, especially for cantrang fishermen

The most important stakeholders who are in sector D as key players must be involved in all organizational developments.
The recommendations made for them include:
a. Provide recommendations for environmentally friendly fishing gear
b. Facilitating assistance for capital equipment related to replacement of cantrang fishing gear, the government and maritime coordinators and investment must continue to invest even though fishermen do not use cantrang fishing gear.
c. Conducting a comprehensive ecological study related to the environmental impact due to the operation of cantrang fishing gear.
d. Support the development of fishery cooperatives (fishermen) in order to improve fishermen's welfare.
e. Ensure protection of fishing areas for traditional fishermen from fishing gear conflicts through recognition of traditional fisherman management areas in zoning plans in every coastal province and regency / city.
f. There needs to be guidance / training for traditional fishermen so that they can use the correct techniques so that the catch can be maximized.

4. Conclusion

Stakeholder analysis is useful in examining the interests of stakeholders in relation to the policy of prohibiting cantrang from becoming marine ecosystems and the environment. Stakeholder analysis can provide information on stakeholders who are most cooperative, influential, involved and only receive information and information from difficult and opposing stakeholders, so that interventions can be carried out on risk groups that require special attention.
The failure to implement the cantrang prohibition policy can be minimized by a stakeholder analysis, and it means that the marine ecosystem and marine resources can be maintained.

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