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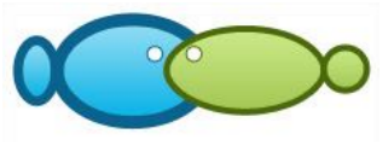

Forms and strategies of conflict resolution in fishing resources utilization in the coastal area of Maros District, South Sulawesi Province

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Abstract. The study in the coastal area of Maros District, South Sulawesi Province, Indonesia aimed to find out the form of conflict resolution and the parties involved in the fishermen conflict resolution process and to propose a strategy for the space utilization of fishing ground. The form of conflict resolution in space utilization of fishing ground has been done through negotiation and mediation involving community figure of fisherman user of fishing gear of shrimp entangling gill net and mini trawl, *Muspida* (Council for District level) of Maros District, *Muspika* (Council for Subdistrict level) of Bontoa, The Regional House of Representatives (DPRD), Transportation and Communication Department, Fishery and Marine Department, civil servant investigator (PPNS) of Fisheries, Research and Service Agency (BPP) of Fisheries, and Village Heads. Strategies of conflict resolution were in the form of 1) improvement of fishery fishing gear supervision based on the government regulation; 2) optimization of fishery resources in offshore waters; 3) optimizing the role of law enforcement apparatus in supervising fishing gear; 4) improvement of the number of motorized boat fleet with large tonnage; 5) the development of fishing technology based on stakeholders' interests; 6) arrangement of spatial planning of fishing ground referring to the decree of Minister of Agriculture no. 392 of 1999; 7) spatial planning of fishing ground should involve all stakeholders concerned; and (8) relevant officers must actively provide coaching and counseling to fishermen.

Key Words: conflict, fishing resources, shrimp entangling gill net, mini trawl.

Introduction. Until now, the utilization of coastal and marine resources is still in the old pattern, and that is not sustainable and not friendly to the ecosystem because of the maritime policy which is based on the doctrine of common property resources with no ownership (Daris 2017). Therefore, the utilization of coastal and ocean resources usually follows the principle of open access that anyone can maximize the usage of the coastal and marine resources at anytime (Idris 2001).

The potential of fishery utilization in Indonesia is still very large. In addition to fishing activities, aquaculture can also be done to overcome conflicts occurring in South Sulawesi, for example through seaweed and mangrove crab cultivation (Aslamyah et al 2016; Tahya et al 2016a, b; Sunarti et al 2016; Karim et al 2016; Nursidi et al 2017).

The operation of trawl nets has been banned based on Presidential Decree no. 39 of 1980 with the reason for the emergence of social unrest resulting from physical clashes between traditional fishermen and fishermen using trawl in the waters. In addition, the use of trawl nets resulted in the destruction of coastal fish resources due to the low selectivity of trawl nets. However, trawl is the most effective fishing tool for catching shrimp, so fishermen continue to operate trawl nets in the potential shrimp areas (Satria et al 2002). Satria et al (2002) also stated that the fishermen conflict in Maros District was caused by the traditional fisherman who conducted the activity of shrimp catching with mini trawl or in the local language known as *gadang pukat*, *pattarik* or *perrenreng*. The operation of mini trawl leads to conflicts of fisherman using other fishing gears, especially fishermen who use dominant fishing gear in Maros District reaching 1626 units (Fishery and Marine Agency of Maros District 2016).

The above problems have led to a conflict between local fishermen in Maros District, although fishermen have made an agreement that is a 0-3 mile zone for traditional fishermen (including fishermen using the shrimp entangling gill net) and a 3-mile outing route for fishermen using mini trawl (Achmad 2003). However, the agreement is still violated by one of the parties, so that efforts to resolve conflicts by both local communities and the government are still required.

The objectives of this study were: (1) to know how the conflict resolution has been done and who is involved in the process of solving the fisherman's conflict, and (2) to propose the strategy in space utilization of fishing ground to minimize the conflict among fisherman in the coastal area of Maros District, South Sulawesi Province, Indonesia.

Material and Method. The research was conducted in October 2015 until January 2016 in the coastal area of Maros District, South Sulawesi Province. Population in this research was all fishermen who used fishing gear of shrimp entangling gill net and mini trawl and involved in the conflict of space utilization of fishing ground at research area. The sample was determined by combining purposive sampling and snowball sampling techniques. The number of samples was not determined, depending on the information obtained from interviews in the research area. This technique was purposely determined by the researchers based on criteria to achieve the research objectives (Nasution 1982).

The technique of data collection was done by: (1) observation, (2) interview, and (3) Participatory Rapid Appraisal (PRA). Analysis method used was SWOT analysis.

Analysis of strategic decision making was done by formulating some alternative strategy of fishermen conflict resolution in space utilization of fishing ground in the coastal area of Maros District.

Results and Discussion

Form of resolution of fisherman's conflict. Several efforts to resolve the conflicts of marine and fishery resource utilization commonly used were non-court dispute resolutions such as negotiation, and mediation.

Negotiation. Negotiation is one of the efforts to resolve conflicts or disputes on the utilization of fisheries and marine resources through the direct resolution of conflict parties involved in order to reach the agreement of parties involved in the conflict. This conflict resolution was fully implemented by parties involved in the conflict on the basis of a win-win solution. Jurisdictionally, the results of the negotiations are not binding, the determination of the negotiations depending on the good faith and will of each party involved in the conflict. Negotiation is one form of communication. Communication must be able to anticipate the movement of development. The role of communication in development should result in a change to a zone (Bishop & Said 2012). Discussion on the lives of the people found in the negotiation of a common problem. It allows people to express their opinions and interests with the existing problems in the area. Communication in a negotiated settlement of the problem is the real form of participation of the community to enhance the quality of life of the inhabitants of the colonies (Akortor 2012).

Mediation. Mediation is an attempt to resolve conflicts or disputes on the management of fisheries and marine resources through the assistance of the mediator to meet the resolution form agreed by the parties involved in the conflict.

The form of conflict resolution of fishery resource utilization through mediation is a form of conflict resolution between traditional fishermen and fishermen using mini trawl, it has been done in Bontoa Sub-district of Maros District by making a written agreement to each of parties involved in the conflict on January 11th, 2002 mediated by the local government of Maros District; the contents of the agreement are as follows:

1. Traditional fishermen groups (including fishermen who use the net as fishing gear) in conducting fishing activities must comply with; (a) do not leave the installed fishing gear and completing the net with easy-to-see and lighted float signs, (b) a motor

boat/without motor boat of traditional fishermen must be signed by painting the boat at least a quarter of the left and right hulls with white paint and registration number on each boat, and (c) the fishing line limit is on line I (0-3 miles) and can enter other fishing lines;

2. Fishermen groups of trawl net users or mini trawl in fishing activities must comply with; (a) do not operate trawls within a traditional fishing line (0-3 miles) and only operates its fishing gear off the track or those signed by the deepest chart, (b) the outboard motor must be signed by painting the boat at least a quarter of the left and right hulls with red paint and registration number on each boat, (c) do not operate and produce modified fishing gear that has the same functions and uses as trawl and only operates the fishing gear in accordance with the licence;

3. When both parties involved in the conflict do not comply with the agreement, then the violating party will occupy punishment in the form of; (a) the operating license is revoked by the competent authority and is no longer permitted to perform the operation, and (b) shall bear the loss suffered by the injured party and further prosecuted under applicable law.

The agreement was mediated by the Government of Maros District consisted of *Muspida* and *Muspika* of Maros District, The Regional House of Representatives (DPRD) of Maros, Department of Fisheries and Marine of Maros, *Muspika* of Bontoa Subdistrict, and Civil Servant Investigator (PPNS) of Fisheries.

Strategy of fishing ground utilization. To determine the case-wise strategy, it is generally used SWOT analysis model (Rangkuti 2002). The model compares external factors in the form of opportunities and threats (Table 1) as well as internal factors in the form of strengths and weaknesses (Table 2). The determination of strategy in spatial utilization of fishing ground with SWOT analysis used a participatory approach.

Table 1

Analysis of external factors of the strategy

External factors of the strategy	*Weight (B)*	*Rate (R)*	*B x R*	*Comments*
Oppurtunity (O)				
1. Offshore waters have not been optimally utilized	0.15	4	0.60	- the main opportunities are: (1) offshore waters have not been optimally utilized; (2) the size of ships/boats are still possible to be developed; - average value: 0.488
2. Fishermen recognize the importance of marine resources as shared resources	0.10	3	0.30	
3. Political will of the government on law enforcement efforts in the territorial waters	0.18	3	0.54	
4. Fishing gear is possible to be developed	0.10	4	0.40	
5. The tonnage size of ships/boats is still possible to be developed	0.15	4	0.60	
Threat (T)				
1. Many stakeholder activities are damaging the water condition	0.05	1	0.05	- the main threats are: (1) many stakeholder activities are damaging the water condition; (2) the operation method of some fishing gear is destroying the aquatic environment; - average value: 0.108
2. There is no spatial planning of the fishing ground	0.07	2	0.14	
3. Supporting facilities of law enforcement efforts (such as speed boat) in the territorial waters are limited	0.10	2	0.20	
4. The operation method of some fishing gear is destroying the aquatic environment	0.05	1	0.05	
5. Only a few of ships/boats are operated in offshore waters	0.05	2	0.10	
Score	1.00		2.98	

Source: processed data, 2015.

The external factors of the strategy in Table 1 above show that the average cumulative value for the opportunity factor (0.488) is greater than that of threat factor (0.108). This indicates that the opportunities for resolving fishing conflicts in space utilization of fishing grounds are greater than those threatened as obstacle in the effort to resolve the conflict.

The main threats in efforts to resolve the fisherman conflicts in space utilization of fishing ground were; (1) many stakeholder activities are damaging the water condition; (2) the operation method of some fishing gear is destroying the aquatic environment. While the main opportunities in the process of resolving conflicts of fishermen in space utilization of fishing ground were; (1) offshore waters have not been optimally utilized, and (2) the tonnage size of the existing ships/boats are still possible to be developed.

Optimization of the offshore waters utilization was done by directing and developing the tonnage of ships/boats operated by fishermen in fishing activities in coastal areas. This will reduce the activities of stakeholders and fishing activities which can damage coastal areas.

Table 2

Analysis of internal factors of the strategy

Internal factors of the strategy	*Weight (B)*	*Rate (R)*	*B x R*	*Comments*
Strength (S)				
1. The fishing ground is relatively close and still in good condition	0.10	3	0.30	- PPNS of fisheries and water and air police (*Polairud*) ready to enforce the law in the territorial waters; a lot of boats used machines; - average value: 0.410
2. Marine resources can be utilized by fishermen anytime and anywhere	0.10	4	0.40	
3. PPNS of fisheries and water and air police (*Polairud*) ready to enforce the law in the territorial waters	0.15	4	0.60	
4. Fishing gear is available in various types	0.10	3	0.30	
5. A lot of boats used machines	0.15	3	0.45	
Weakness (W)				
1. Conflicts of interest among stakeholders in fishing grounds often occur	0.08	1	0.08	- the main wiknesses were: (1) conflicts of interest among stakeholders in fishing grounds often occur; (2) the number of PPNS of fisheries and *Polairud* is limited; - average value: 0.130
2. There is a difference of fisherman's perception for sea as common proverties resources	0.10	2	0.20	
3. The number of *PPNS* of fisheries and *Polairud* is limited	0.10	1	0.10	
4. There is still much traditional technology of fishing gear	0.10	2	0.20	
5. Ships/boats mostly have small tonnage	0.07	1	0.07	
Score	1.00		2.70	

Source: processed data, 2015.

The internal factors of the strategy in Table 2 above show that the average cumulative value for the strength factor (0.410) is greater than that of weakness factor (0.130). This indicates that the strength factor for solving the fisherman conflicts in space utilization of fishing ground is greater than the weakness factor which inhibits the efforts of conflict resolution.

The main weaknesss in efforts to resolve the fisherman conflicts in space utilization for the fishing ground were; 1) conflicts of interest among stakeholders in fishing grounds often occur, and (2) the number of *PPNS* of fisheries and *Polairud* is limited. While the main strengts in the process of resolving conflicts of fisherman in space utilization of fishing ground were; (1) *PPNS* of fisheries and *Polairud* is ready to enforce the law in the territorial waters, and (2) a lot of boats used machines.

Based on the analysis above, it is necessary to increase the supervision and control on the operation of fishing gear used by fisherman based on the fishing lines that have been set by the government by optimizing the role of existing *PPNS* of fisheries and *Polairud*. In addition, it can also be done by directing a large fishing cruiser to carry out fishing activities in offshore areas, thereby minimizing the occurrence of fishing conflicts on fishing line I (particularly at 0-3 miles zones towards the sea). Dür & Mateo (2010) state that comprehension strategies that always exist in a community group planning decisions would affect development in an area. They further mentioned this approach: (1) motivating communities to live and be active in the negotiations; (2) problem-solving in a way that is good in a negotiation; and (3) the existence of an integrative negotiation from the beginning to the end of the negotiations. Other factors may also influence strategies in the negotiations that the power factor, preferences, and culture. Negotiations must obtain results in line with expectations, so the process must have the authority. Several factors affect the strength of the negotiations, these factors include (1) resources in the negotiations; (2) making the voting rights; (3) the size of the economy; (4) information; and (5) cooperation (Bailer 2010).

Conclusions. The form of conflicts resolution of spatial utilization for a fishing ground is done through negotiation and mediation with the parties involved.

We have few recommendations: supervision of fishing gear used by fisherman based on government regulation; optimization of fishing in offshore waters by directing ships with large cruising range; optimization of role of law enforcement apparatus in supervising fishing gear; development of fishing gear technology by considering the interests of other stakeholders; arrangement of spatial planning of fishing ground in the coastal area of Maros District; spatial planning of fishing ground should involve all stakeholders concerned; and activation of the role of coaching and counseling on fishermen.

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