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# Model of Waters Resource Management, based on Capture Fisheries Conflict Resolution

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**Abstract** - Fisheries conflicts is one issue that needs serious attention, because it could threaten the sustainability of marine resources. This study aims to determine the effectiveness of the causes of conflict and conflict resolution in the management of aquatic resources. Research using survey methods with quantitative approaches. Variables were divided into three groups: input variables (factors causing conflict); output (conflict resolution techniques) and outcome. The primary data source is 200 stakeholders of water resources. Statistical analysis using structural equation modeling. The results showed that the cause of the conflict is a competition factor in the utilization of marine resources, the presence of the opposite parties, the economic condition, the extent of the parties involved as well as the cultural background. Conflict resolution is the most effective use of facilitation techniques.

**Keywords** : *management, waters resources, conflict resolution, capture fisheries.*

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# Model of Waters Resource Management, based on Capture Fisheries Conflict Resolution

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## I. INTRODUCTION

Since the issuance of Law No.32 of 2004 on Regional Government, the local authorities have an important role in resource management. Marine and fisheries sector development in South Kalimantan will be hampered if the conflict fisheries do not get attention in proportion. Utilization of marine resources tend to be unlimited and more oriented to economic interests, adversely impact the sustainability of marine resources.

Conflicts among users of water resources in southern Kalimantan escalated since 1979 until 2011. There are several cases of conflicts such as and on fishermen using purse seine usage with higher technology than the local fishermen, fishing ground scramble case, case of catch sea cucumbers using a compressor, case of modification lampara by adding outer board, case of bagan, and cases of illegal fishing (Rusmilyansari, 2012).

Management of aquatic resources is essentially the management of human use. Management of human behavior is setting them in terms of resource management. Priscoli (2002) suggests that natural resource conflicts can be caused by poor communication, different perceptions, ego battles, differences in personality and stereotype issues, differences of opinion about the good and the bad,

different interests and structural factors. Conflict fisheries varies between regions and over time. Bennett and Neiland (2000) stated that the conflict is multidimensional and generally involve multiple parties in complex relationships.

The Government has sought to address the fisheries conflicts that arise by issuing rules, but the results have not been effective. Research on water resource management model based conflict resolution is important because it will contribute significantly to the fishery resource management planning, because without proper management, conflicts can inhibit the development of fisheries and marine in South Kalimantan. This study aims to determine the causes of conflict and determine the effectiveness of conflict resolution in the management of aquatic resources.

## II. RESEARCH METHODS

The experiment was conducted in the coastal village of South Kalimantan. Selection of the study area conducted purposive as the base area of conflict Kotabaru district, Tanah Bumbu district and Tanah Laut District. The study was conducted in 2012.

Research using a survey of 200 stakeholders methods of fishing resources. comprising government agencies, nongovernmental organizations, village chiefs, community leaders, fishermen, and academics. Information was collected using a structured questionnaire aimed to determine the perceptions of the three groups of variables respondents on the variable causes of conflict, conflict resolution and variable outcomes.

Variable factors causing conflict consists of people's economic condition (X1), the extent of the parties involved (X2), the presence of the opposite party (X3), a growing issue in society (X4), number of fishermen (X5), competence in resource use (X6), the presence of a character in conflict (X7), public perception of the stock (X8), a certain desire in society (X9), the existence of regulatory and law enforcement (X10), cultural backgrounds (X11). Conflict resolution techniques fishery consists of litigation (Y1), negotiation (X2), Facilitation (X3), avoidance (X4). Outcome variables consist of community participation in fisheries management (Z1), resource sustainability (Z2), the management of fisheries resources with justice (Z3).

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Data were analyzed using structural equation modeling statistics. According Wijanto (2007) Structural equation modeling is an integrated approach between factors, structural models and path analysis, but it is an integrated approach to the analysis of the data by construction concept.

### III. RESULTS AND DISCUSSION

#### a) Causes of Conflict

Referring to the analysis of structural equation modeling (Figure 1 and Figure 2) showed a significant

relationship between the causes of conflict, conflict resolution and outcome. There are indicators that the causes of conflict significantly contributed to the causes of the conflict, namely: competencies in resource use, the presence of the opposite parties, the economic condition, the extent of the parties involved and the cultural background.

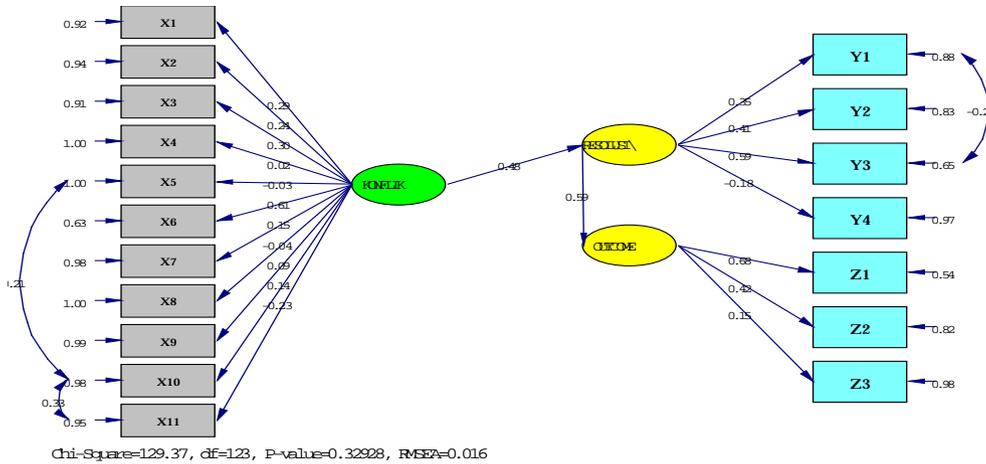


Figure 1 : Structural equation modeling showed that the estimated value

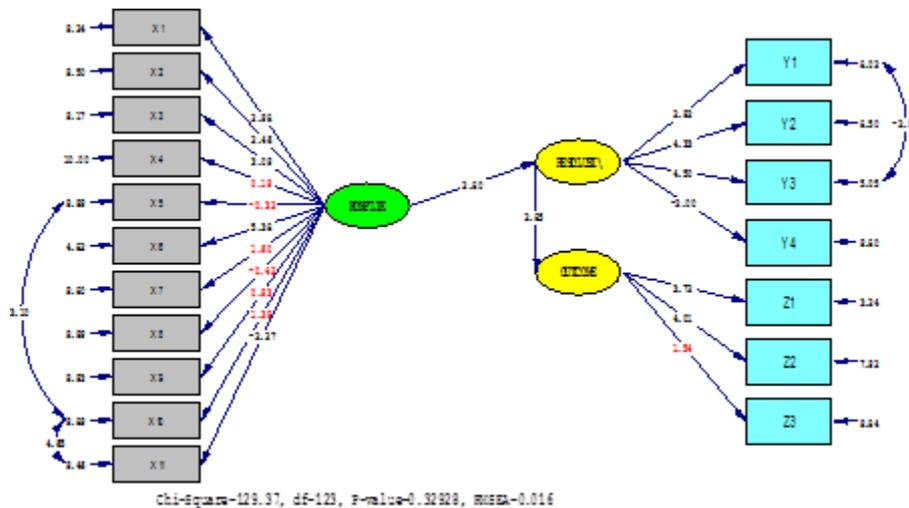


Figure 2 : Structural equation modeling showed-calculated value

Factors causing conflict in South Kalimantan caused by the interaction of several factors. This is consistent with research Walter (2000) who pointed out that the conflict is not only caused by a single factor but a combination or accumulation of various factors that cause conflict. The results Bennett (2004) also stated that the cause of the conflict variables can be derived from three-dimensional variables, namely actors,

resource conditions and environmental conditions. Additionally reinforced by research Boediono (2005) which states that the cause of the conflict consists of one or a combination of several variables causes of conflict.

The first factor is influential as a factor of conflict is Competition. Competition is the greatest indicator of the effect as the cause of conflict fishing in the waters of

South Kalimantan. Competition in this study is a resource dimension. Competition is closely linked to community activities, such as competition in the use of fishing gear and fishing ground scramble.

Competition in the utilization of fishery resources also relates to the behavior of fishers in the operation of fishing gear. The existence of different fishing gear or have a higher technology tends to be considered a contender for the local fishermen. For example, the presence of purse seine fishing using lights, cantrang fishing with high technology and the hunting of sea cucumber fishing using compressor. The presence of such a device believed to be a competitor and a very deplete water resources. This is consistent with Dahuri et al. (1996) which states use conflicts occur due to multiple competing resource users to use the same resource in the same sea space, and implement activities that take advantage of the resources that do not fit with the others. Lasut and Kumurur (2001) also found that competition among users for the same land or facilities may lead to conflict among users. Other researchers also said the same thing, In (Cincin-Sain and Knecht 1998) conflict generally occurs due to several reasons such as the area of competition, resource competition, or competition over resources that are interrelated. Neither the Warner (2000) identified four things that can explain the emergence of conflicts over natural resources, such as natural resource competition (increased dependence on natural resources can increase competition).

The second, factor influencing the conflict factor is the opposition. The opposition in this study include the actor dimension. In this case opposition occurred where many parties who have direct or indirect interests in fisheries resources. The opposition is due to the policies that are inconsistent, as happened in the case of fishing ground. In that case, a group of fishermen who joined INSAN (Saijaan Fishermen Association) does not support the division of fishing areas.

The third, factor influencing the conflict is economic condition. The economic condition of the people in this regard include the environmental dimension. Perceptions of economic conditions of fishing communities is the trigger conflict fishing. Poverty and high dependence on coastal and marine resources often leads to people engage in activities that degrade the quality of resources

Differences in economic conditions of fishermen in South Kalimantan look at the difference fisheries conducted consisting of traditional fishermen, as well as the spring and modern social classes in fishing communities. The differences seen in the fishing equipment (boats, nets, and other equipment), differences in the level of capital investment scale its business, as well as the level of technology used fishing equipment. Fishing gear is used including gillnet, purse seine, charts and so on. This condition has the potential

to increase the scale of exploitation of marine resources. As stated Nikijuluw (2002) that the majority of people living in coastal areas are poor, this is caused by the limited ability and knowledge, limited access to capital, technology, information, and market and community involvement in decision-making and resource allocation coastal islands small island. This condition, also has the potential for exploitation by irresponsible fishing.

Further influencing factors as causes of the conflict is an actor. The extent of the parties involved regarding the characteristics of individuals and groups. Increasingly diverse character of the individual in a region increasingly lead to conflict. These differences are d to individual expertise, the agreement to a group, individuals in the group as well as the strength of social relationships.

Finally, the influencing factors as the cause of the conflict is cultural. Culture negative effect as a cause of conflict. Thus the smaller the difference in cultural background of the community, the greater the likelihood of conflict. This is understandable because of cultural differences in coastal communities in South Kalimantan has become part of life of coastal communities. As in Tanah Bumbu regency has several ethnic groups. Based on the history since the 17th century. Bugis tribes borrowed land in the Coastal South Kalimantan, later founded the kingdom Pagatan. Until now many coastal areas of ethnic people from Bugis, Mandar, Bajau, Banjar, Java, Madura and Bali.

#### *b) Effectiveness of Conflict Resolution in Water Resource Management*

Conflict resolution techniques performed in South Kalimantan consists of litigation, negotiation, facilitation and avoidance. By passing teknik right and appropriate to the needs of the completion of the case, the results are significantly influenced the development of fisheries. In this case an increase in community participation in fisheries management and resource sustainability.

Referring to tructural equation modeling analysis showed that the greatest indicator of contribution is facilitation, conflict resolution techniques thus best suited to study the causes of conflict in the region is facilitated. This is consistent with Koesno (1979) which says that the characteristics of Indonesian society that prefers harmony and cooperation, an important prerequisite for the successful use of Alternative Dispute Resolution techniques. It is also evident that the use of conflict resolution techniques correlated significantly with outcome variables especially community participation in fisheries management and resource sustainability.

In the case of conflict andon fishermen using purse seine and conflicts taking trepang and pearl oysters. Occurred among fishermen in South Kalimantan with Central Java, including the fishermen

inter-provincial scale. So done with the involvement of government (Figure 3). Based on Figure 3 shows the relationship between the conflicting parties and involves a lot of facilitators. In this case the facilitator will help

create a climate for problem solving and help frame the issue so that it can be solved. Facilitators can also suggest formatting options or procedures to help the group work more effectively.

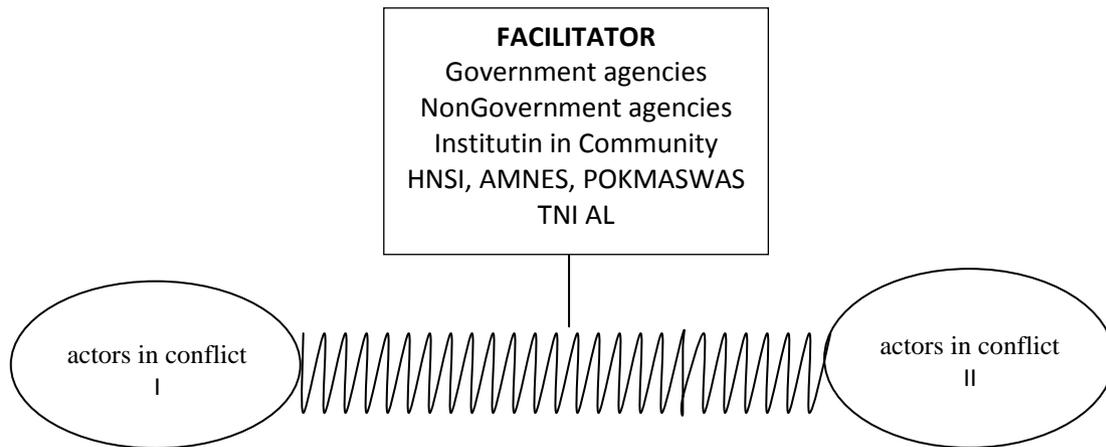


Figure 3 : Relationship between the stakeholders in the process of conflict resolution

Facilitation techniques performed by qualified facilitators just as mediator, should not affect decisions made. The deal is expected to reach a state of "continuous agreement (durable settlement). In order to achieve a durable settlement to the conditions according to Lincoln (1986) there are three (3) things that have to be considered, namely: (1) substantive interest, namely: content need, funds, time, materials and resources (2) procedural interest, namely the need and certain behavior or the way something can be resolved (3) relationship or phsychological interest, namely the requirement refers to one's feelings, how one is treated and preconditions for creating an ongoing relationship.

In the context of water resource management in South Kalimantan, the government can do with policy attention Influential factors as causes of conflict. Then conducting conflict resolution should be prudent and careful in using resolution techniques, because these techniques certainly have their advantages and disadvantages. To respond to this, and before approving a method of conflict resolution, the local communities need to prepare as well as possible. In this case one of the effective ways is organizing.

Malik et al. 2003 states that the organizing, the parties involved can learn from each other. On the one hand, the outsiders can learn from the experiences of local community issues or problems other communities. Organizing goal is to integrate the funds, manpower, knowledge, experience, technique and strategy between the local community with the care outsiders efforts on natural resource conflict resolution.

#### IV. CONCLUSION

1. Factors that cause water resource conflicts in South Kalimantan is the competition in the presence of resource use are contradictory, the economic conditions, many at least the parties involved as well as the cultural background.
2. Conflict resolution that has the largest and most significant contribution to public participation in fisheries management and resource sustainability is influential in the use of facilitation techniques.

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