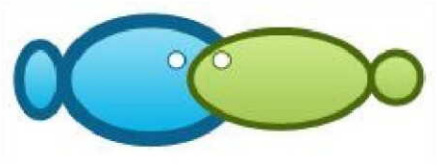

Analysis of institutional development strategy for *Sasi* on Ambon Island, Indonesia

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Abstract. The existence of *Sasi* institutions as a system for managing fisheries resources is still needed in Ambon Island, Indonesia. To know the factors affecting the development of *Sasi*, the SWOT analysis was applied to see if both internal and external factors were affected. Data were collected in the form of primary and secondary data. The primary data were obtained through interviews with respondents from Sasi, and fishermen. Secondary data were obtained from the relevant agencies and departments concerned with marine management and fisheries in Ambon and other research reports. This study is going to explore the various internal and external factors and their strength and weakness that influence the institutional development of the *Sasi*. The internal factor that is the strength of Sasi's development is the existence of customary heads and supervisory systems. Internal factors which are becoming the weakness of the institutional development of *Sasi* are limited operational funds and conflict among fishermen organizations. The external factor which is becoming the biggest opportunity for institutional development is the involvement of the whole community and the use of equitable resources. Whereas external factors which become the biggest threat to institutional development are the loss of community trust, increased commercialization, and over-fishing. The results of the SWOT analysis of the current condition of the situation are in squared II (Strategy Diversification). These conditions indicate that institutional development of *Sasi* faces a major threat. Strategies for institutional development can be done by increasing management cooperation between institutions, strengthening regulations and sanctions, increasing socialization to the community.
Key Words: institutional *Sasi*, SWOT, internal factors, external factors, Ambon Island.

Introduction. Indonesia has 17,504 islands with waters reaching 5.8 million km^2. Indonesia's potential for marine and fisheries is estimated at US $ 1.2 trillion per year with employment of around 60 million people (Bapenas 2014). The coastal sector is of strategic value for national economic development and improving public welfare. Strategic issues and problems in realizing sustainable fisheries activities in Indonesia are fisheries management, law enforcement, and fisheries business actors (Bapenas 2014). The management of fisheries resources basically has a goal to improve the welfare of the entire community in a sustainable manner, especially the fishing community living in coastal areas. Management of fisheries resources in Indonesia is still exploratory oriented, siding with investors, and sectoral management implementation (Nurjaya 2008). Problems that hinder the management of small islands in Indonesia are habitat damage, pollution, over-exploitation of resources, a conflict between fishermen and those involved in management (Dahuri et al 2001). An important aspect of fisheries management is the actors involved in the management process. According to Satria (2015), these actors can be classified into three groups, namely: government (government-based management), community (community-based management), and their cooperation (co-management). One of the community-based fisheries management in Indonesia is the institution of *Sasi*. This is a traditional natural resource management system carried out by communities in eastern Indonesia, including Maluku and Papua. *Sasi* institution is a system of belief, rules, and rituals for the use of resources in certain regions (Adhuri 2013). *Sasi* is a tradition of people who have substantive legal value, namely the prohibition against taking marine products at a certain time (Pattinama & Pattipelony 2003). *Sasi* has norms and rules relating to the ways, habits, behavior, and customs that govern resource management. The role of *Sasi* in the management and

utilization of resources in the community has been going on for a long time and is the ancestral heritage of the Ambon island community. *Sasi* is an effort to conserve natural resources on land and sea by the indigenous people. The practices are based on the knowledge of the community, *Sasi* set the time or period when a resource can be harvested in order not to disrupt its life cycle (Nadia et al 2018). The practice of resource management with institutional *Sasi* undergoes structural and cultural changes. The existence of *Sasi* institutions is also influenced by external and internal factors. Internal factors in the form of trust, and community participation, while external factors such as political policy and regulatory interventions. Both of these factors have an impact on weakening *Sasi*. In a number of cases in the deserted regions, the community began to abandon the practice of fisheries management activities with *Sasi* institutions. Political, economic and conflict policies that occur in the villages cause the institution of *Sasi* to be abandoned by the community (Harkes & Novaczek 2002). The practice of *Sasi* was highly influenced by adat, customary laws set by feudal system that have been replaced by the modern state (Patriana et al 2016). The development of *Sasi* practices from time to time depends on the role of the community as actors who carry out fisheries activities. Based on the above problems, this study analyzes the factors that influence the development of institutional *Sasi* and formulates a strategy for *Sasi* institutional development in Ambon, Indonesia.

Material and Method. The study was conducted from September to December 2018 on Ambon Island, Maluku as shown in Figure 1.

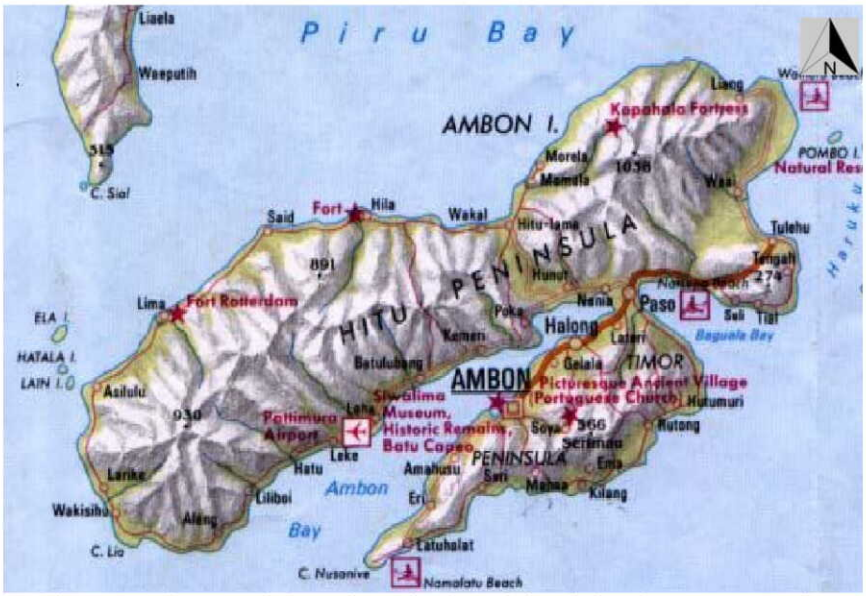

Figure 1. Research location, Ambon Island (scale 1:154,821).

The study employed descriptive and survey methods, using literature review and survey methods. Descriptive analysis was used in this study to describe or illustrate the research object trough data sample or undisturbed population without analyzing and making a general conclusion (Suharyadi & Purwanto 2009). Data were collected in the form of primary and secondary data. The primary data obtained through interviews with respondents from *Sasi*, and fishermen. Secondary data were obtained from the relevant agencies and departments concerned with marine management and fisheries in Ambon and other research reports. Analysis of factors and strategies for *Sasi* institutional development uses analysis of strengths, weaknesses, opportunities, and threats (SWOT) (Rangkuti 2015). Internal factors have a positive contribution (strength) and negative contribution (weakness). External factors have also the same features, positive (opportunity) and negative (threat). Internal Factors Analysis Strategy (IFAS) and External Factors Analysis Strategy (EFAS) were employed for internal and external factors, respectively.

Results and Discussion

History context of Sasi. *Sasi* is traditional wisdom that contains values in preserving the environment and has developed since the seventeenth century (Cohen & Foale 2013). Historically this local wisdom system was widespread in several coastal areas of Indonesia, such as in Aceh with Panglima Laot (Mustaqim 2018), Lombok with institutional Awig-awig, and in Maluku with *Sasi* institutions. Resource management systems have traditionally evolved over the years and generally include resource extraction rules (Bennet et al 2006). *Sasi* is formed based on local knowledge developed over time. In the era of colonialism, the orientation of the implementation of *Sasi* was still aimed at protecting the community from over-exploitation. Post-independence, the Indonesian government took control of natural resource management. Indonesian government control in the post-independence era posed a threat to the institution of *Sasi*. Some villages on Ambon Island and parts of West Papua have begun to abandon resource management with *Sasi* (Harkes & Novaczek 2002). The occurrence of commercialization and modernization has eliminated the traditional value of the *Sasi* system. Currently, the development of the fisheries resource management system by the community has not yet received recognition through the law (Satria & Adhuri 2010). In the future, efforts to develop *Sasi* institutions are needed as an alternative to natural resource management in coastal areas.

SWOT analysis. The SWOT analysis focuses on the institutional sustainability factors in Ambon Island. Based on the results of the analysis, there were identified several internal and external factors that influence the sustainability of *Sasi*. Internal factors consist of strengths and weaknesses. External factors consist of opportunities and threats.

Internal factors that affect the development of Sasi. Internal analysis aims to utilize the institutional strengths to overcome weaknesses. Based on the Internal strategic Factors Analysis Summary (IFAS), it is known that the *Sasi* institutional development has an IFAS score of 3.757. This means that the internal position is at a good level (Rangkuti 2015). Analysis of internal factors (strengths and weaknesses) is found in Table 1.

Table 1

Internal strategic factors analysis summary (IFAS)

No	*Strength*	*Weight*	*Rating*	*Score*
S1	The presence of customary chief	0.115	3.9	0.450
S2	Presence of regulation and sanction	0.112	3.8	0.427
S3	Presence of control system	0.113	3.8	0.428
S4	Government recognition	0.109	3.7	0.404
S5	Having organization structure	0.113	3.8	0.428
	Sub Total			2.137
	Weakness			
W1	Limited of areal management	0.109	3.7	0.405
W2	Limitation of operational funds	0.112	3.8	0.427
W3	Conflict among fishermen	0.109	3.7	0.405
W4	Lack of counseling and outreach to fishermen	0.106	3.6	0.383
	Sub Total			1.620
	Total = Strength + Weakness			3.757

Source: processed primary data.

There are nine internal factors (strengths and weaknesses) that influence *Sasi* institutional development. The existence of customary leaders in each village in Ambon island gives strength in the implementation of management activities with the *Sasi* system (0.450). The traditional leader plays a role in making decisions about the management area, making rules and leading traditional ceremonies. Customary leaders have an influence in mobilizing the community to be involved in fisheries resource management activities. The factor of enactment of rules and sanctions with a value of

0.427. Organizing and sanctions are a force that has a major influence on the institutional development of *Sasi*.

The rules that apply in the research location include the rules on the use of fisheries resources at a specified time and the rules for prohibiting the use of fishing equipment that damage the environment such as explosives and potassium. Giving sanctions to the community based on the level of violations committed. According to Ostrom (2011), the rule system gives instructions about actions that are required, prohibited or allowed to use resources. *Sasi* has a supervision system that becomes an internal force with a value of 0.428. The *Sasi* supervision mechanism is carried out in a participatory manner with the Ambon Regency government.

According to Agrawal & Gupta (2005), high participation can encourage the decentralization of resource management by developing appropriate institutional mechanisms. Recognition of local government towards institutional *Sasi* becomes an internal force that affects *Sasi* institutional development with a value of 0.404. Based on the analysis it was produced that local wisdom received legal recognition after the enactment of Law No. 31 of 2004 concerning Fisheries and Law No. 27 of 2007 concerning Management of Coastal Areas and Small Islands. The existence of an organizational structure with a value (0.428), becomes an internal force to regulate *Sasi* institutions. The existence of an organizational structure makes management to be coordinated, controlled and gives maximum results.

Weakness factors that influence the development of management areas are unclear, with scores (0.405). The lack of clarity in the boundaries of the management area results in conflicts between fishermen and makes supervision difficult. The limited institutional operational funds are also factors that influence institutional development with a value of 0.427. The limited operational funds cause the management and supervision of resources to be not optimal. The occurrence of fishermen conflicts and resource use conflicts are weaknesses in institutional development with a value of 0.405. Institution of *Sasi* does not have a mechanism for conflict resolution between fishermen. The process of resolving the conflict of fishermen is often brought to the police institution. The lack of counseling and socialization of the community became a weakness of the *Sasi* with a value of 0.383. Lack of counseling to the community causes frequent violations of the rules of *Sasi*.

External factors that affect the development of Sasi. External analysis aims to see what opportunities can be utilized to develop institutions and prepare strategies to minimize threats. Based on External Strategic Factors Analysis Summary (EFAS), it is known that institutional development has a EFAS score of 3.383. This means that the internal position is at a good level. Analysis of external factors (opportunities and threats) is presented in Table 2.

Table 2

External strategic factors analysis summary (EFAS)

No	*Opportunity*	*Weight*	*Rating*	*Score*
O1	Involvement of whole fishermen	0.089	3.3	0.294
O2	Conserving fish resources	0.081	3.0	0.244
O3	Partnership with others	0.081	3.0	0.243
O4	Developing community awareness	0.086	3.2	0.276
O5	Utilities of equal resources	0.089	3.3	0.294
	Sub Total			1.351
	Treats			
T1	Increasing of commercialization	0.097	3.6	0.350
T2	Decreasing community accountability	0.103	3.8	0.390
T3	Fishing activities harmful coastal environment	0.095	3.5	0.332
T4	Over-fishing	0.100	3.7	0.370
T5	Increasing population growth	0.094	3.5	0.330
T6	Conflicts among organizations	0.084	3.1	0.260
	Sub Total			2.032
	Total = Opportunity + Treats			3.383

Source: Processed primary data.

There are eleven external factors (opportunities and challenges) that influence the development of institutional *Sasi*. External factors that have the opportunity in *Sasi* institutional development are the involvement of all fishing communities with a value of 0.294. Direct community involvement makes resource management more effective and efficient. The application of the *Sasi* system in the management of fisheries resources has the opportunity to conserve resources with a score of 0.244. The *Sasi* regulation system has limited the community to use security tools and regulate the use of resources in certain zones. The establishment of collaboration between institutions has the opportunity to develop *Sasi* with a score of 0.243. Collaboration with the government, self-reliance institutions and society have made resource management more effective, especially in supervision. Increasing public awareness has the opportunity to develop an institutional system with a value of 0.276. The use of resources through local wisdom is more responsible for protecting natural resources (Berkes 2009). Factors in the application of the regional regulation system and restrictions on fishing gear in judging the use of resources are more equitable with a value of 0.294.

External factors which are a threat to institutional *Sasi* are increasing commercialization with a value of 0.350. The loss of people's trust in the application of sanctions is also a threat to the continuation of *Sasi* with a value of 0.390. Trust is an important capital in the sasi management system. Resource management with institutions guarantees compliance and trust (Jentoft 2004). The existence of fishing activities that damage the coastal environment is a threat to the development of *Sasi* with a value of 0.332. The increase in over-fishing also posed a threat to *Sasi* with a value of 0.370. Increasing population growth in Pulau Ambon poses a threat to the availability of resources and the sustainability of *Sasi* with a value of 0.330. Increased population growth in coastal areas causes increased dependence on fisheries resources. Demographic development factors and population homogeneity are challenges to the development of *Sasi* (McLeod et al 2009). Conflicts between resource management institutions pose a threat to development with a value of 0.260. Conflicts that occur in the village and between village authorities infighting over resources cause threats to *Sasi* (Harkes & Novaczek 2002).

Sasi institutional development level. Institution of *Sasi* plays an important role in the management of Ambon's fisheries resources. Development of *Sasi* depends on the capacity and condition of the resource. Analysis of the level of *Sasi* development uses IFAS and EFAS metrics, then is to graph the results of the SWOT analysis. The total multiplication value between weight and branch at IFAS is 3.757. This means that *Sasi*'s internal institutional conditions are at a good level. While the total multiplication value between weights and branches in EFAS is 3.383. This means that the external conditions of the Panglima Laot institution are also at a good level. The total value of IFAS which is the difference between strength and weakness is equal to 0.517. This indicates that the positive IFAS value means that the strength factor is greater than the weakness factor. The total EFAS value which is the difference between opportunity and threat is equal to -0.681. It is a negative EFAS value which means the threat factor is greater than the opportunity factor. The thing that needs to be done is to strengthen the internal institutions to anticipate threats. Based on the graph, strategies can be obtained that must be taken in the effort of sasi institutional development. Graphs of the Cartesian Diagram of the SWOT analysis can be seen in the Figure 2.

Based on Figure 2, the current position or institutional conditions are in quadrant II (Strategy Diversification). The position in quadrant II implies that the institutional position is strong, but faces many major challenges. A big challenge has the potential to hinder the development of *Sasi*. Therefore, the institutional *Sasi* is recommended to multiply the variety of tactical strategies by modifying the rules and transforming values according to the needs of the community.

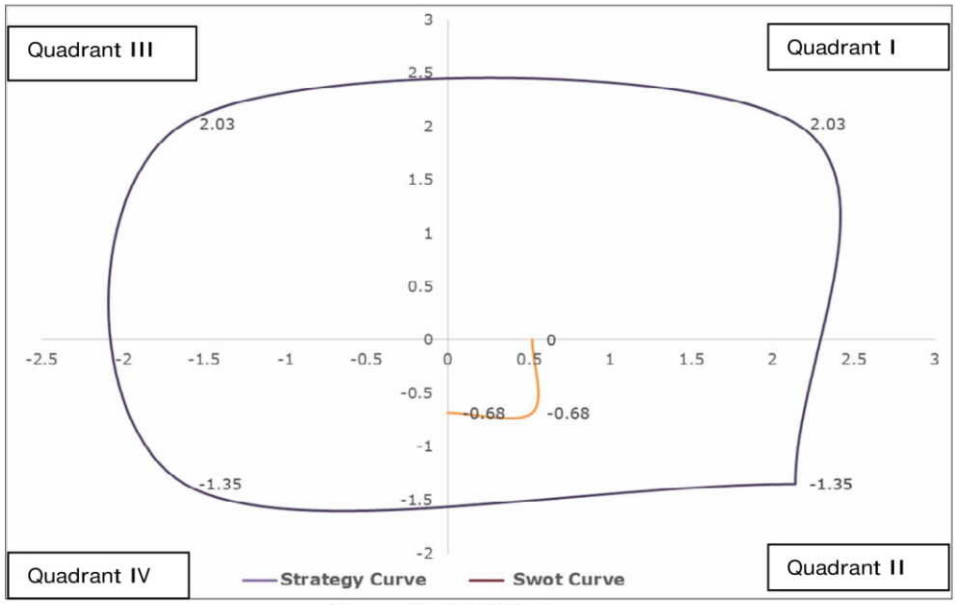

Figure 2. SWOT diagram

Sasi development strategy analysis. Alternative strategies for *Sasi* development are generated from the SWOT issue which is the output of the SWOT analysis. Based on this approach, alternative strategies such as SO, ST, WO, and WT were created as follows:

SO-strategy: strategy to utilize power (S) maximally to equalize the opportunity (O):
- increasing the role of the government in disseminating customary rules to the public and tourists;
- giving training on the operational methods of environmentally friendly fishing technology to fishermen.

ST-strategy: strategy in utilizing the power (S) maximally to anticipate and overcome the threat (T):
- institutional development to support integrated management, minimize conflicts of interest and guarantee management priorities;
- building coordination, and integration between the government and the community to prevent illegal fishing and minimize violations of the rules;
- application of management systems integrated into conservation areas.

WO-strategy: strategy in minimizing weakness (W) to seize the opportunity (O):
- develop a network of collaboration between institutions to overcome the constraints of operational funds in the supervision and enforcement of rules;
- strengthening community participation in the management and utilization of resources with local wisdom.

WT-strategy: strategy in minimizing weakness (W) to avoid threat (T):
- increase the institutional capacity of fisheries resource supervisors and stipulation of clarity on boundaries of management areas;
- doing community empowerment, providing per-supporting facilities, and increasing the role of the community in disseminating rules to tourists

Conclusions. The existence of *Sasi* institutions as a system for managing fisheries resources is still needed in Ambon Island, Indonesia. *Sasi* is a form of common (pool) resource management practice which has been implemented for generations in Ambon Island. It has long been trusted as one of the most efficient traditional practices in maintaining the sustainability of resources in coastal areas. There are twenty internal and external factors that predominantly influence *Sasi* institution development. The internal factor that is the strength of *Sasi*'s development is the existence of customary heads and supervisory systems. Internal factors which are becoming a weakness of the institutional development of *Sasi* are limited operational funds and conflict among fishermen

organizations. The external factor which is becoming the biggest opportunity for institutional development is the involvement of the whole community and the use of equitable resources. Whereas external factors which become the biggest threat to institutional development are the loss of community trust, increased commercialization, and over-fishing. The results of the SWOT analysis of the current condition of the situation are in squared II (Strategy Diversification). These conditions indicate that institutional development of *Sasi* faces a major threat. Strategies for institutional development can be done by increasing management cooperation between institutions, strengthening regulations and sanctions, increasing socialization to the community.

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