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SASI AND ITS RELATION TO THE ECONOMIC DEVELOPMENT AND MARINE PRESERVATION (CASE STUDY: RAJA AMPAT)

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Abstract

Raja Ampat, West Papua, Indonesia, is one among many marine tourism spots such as Derawan, Bunaken, Wakatobi and Tiga Gili. Raja Ampat is known for its diversity, rich coral reefs and marine resources. Raja Ampat's characteristic is not only based on their beauty of marine natural resources but also its tradition, culture and living indigenous law. The existing indigenous law in Raja Ampat is called "SASI". This tradition and living law has an important relation in sustaining tourism activities and the variety of marine activities that can be carried out in the ocean, particularly in marine protected areas on Raja Ampat. This writing is meant to analyze Sasi; to examine Sasi and its relation to economic development; and to analyze the impact of Sasi's implementation on marine preservation for marine sustainability. It appears that Sasi's implementation as the indigenous living law on Raja Ampat offers positive advantages including restoration and livelihood of the marine environment (incorporating with their marine natural resources). Therefore, the existence of Sasi on Raja Ampat is able to maintain the economic progress and marine environment sustainability.

Keywords: Sasi, economic, development, marine, preservation

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I. INTRODUCTION

As in other regions in Indonesia, Raja Ampat's coral reefs are severely threatened by various activities of marine resource utilization by local residents and migrants. Some of the issues that threaten the existence of coral reefs in this area are fishing with explosives and potassium, overfishing, and the influx of nutrients and sediments into waters due to deforestation and land clearing for settlement.¹ The efforts made by the local government to prevent the depletion of marine resources in Raja Ampat is done through employing good fishing management such as applying restrictions on fishing equipment and areas. In addition, the Raja Ampat's District Government and the Ministry of Marine Affairs

¹ S. N. Larsen, C. Leisher, S. Mangubhai, A. Muljadi, R. Tapilau R. *Laporan Penelitian Desa Pesisir di Kabupaten Raja Ampat, Papua Barat, Indonesia*. Sorong: The Nature Conservancy, 2011.

and Fisheries of the Republic of Indonesia have, since 2006, established regional marine protected areas.

One form of local wisdom/method in Raja Ampat which has the potential for aiding conservation is *sasi*. *Sasi* as a tool of management of natural resources based on customs have received significant attention as a potential method of conservation management in the Indo-Pacific region.² It is followed by serious efforts from the government, non-governmental organizations (NGOs), and the academic world to integrate marine conservation initiatives with customary practices that restrict the use of resources,³ this is based on the reasoning that until now modern marine resource conservation management often fails to become a product of government policies that meet the expectations of the community. Instead, natural resource management undertaken by indigenous communities has been quite successful in maintaining the sustainability of fishery resources by applying the knowledge and technology that is passed down from generation to generation.⁴ Therefore, this writing further analyzes the context of interconnectedness of *Sasi* with economic development and marine preservation.

The results of the research conducted by McLeod *et al.*⁵ in this area has demonstrated that the villages which still maintain the practice of *sasi* have better marine resource conditions compared to villages which have already abandoned the practice. This study is supported by a previous study by Hickey & Johannes⁶ and Novaczek *et al.*⁷ which

² J. E. Cinner, S. G. Sutton, T. G. Bond, "Socioeconomic threshold that affect use of customary fisheries management tools", *Conservation Biology*, vol 21, no. 6 (2007): 1603-1611.

³ J. E. Cinner, *et al.* "Institutional designs of customary fisheries management arrangements in Indonesia, Papua New Guinea, and Mexico," *Marine Policy*, vol 36 (2012): 278–285. <http://dx.doi.org/10.1016/j.marpol.2011.06.005>.

⁴ J. E. Cinner, S. Aswani, "Integrating customary management into marine conservation. *Biological Conservation*, vol 140 (2007): 201–216. <http://dx.doi.org/10.1016/j.biocon.2007.08.008>.

⁵ E. McLeod, B. Szuster, R. Salm, "Sasi and marine conservation in Raja Ampat, Indonesia," *Coastal Management*, vol 37, no. 6 (2009): 656–676. <http://dx.doi.org/10.1080/08920750903244143>.

⁶ F. R. Hickey, R. E. Johannes, "Recent evolution of village-based marine resource management in Vanuatu," *SPC Traditional Marine Resource Management and Knowledge Information Bulletin* (2002).

⁷ I. Novaczek, I. H. Harkes, J. Sopacua, M. Tatuhey, "An Institutional Analysis of

showed that the spatial and temporal closure of the waters for trochus harvesting for certain lengths of time in coastal villages have been far more profitable than continuous trochus harvesting practices. Efforts to adopt the traditional management of marine resources into modern conservation have succeeded in improving the condition of coral reefs in Oceanic countries.⁸

II. RESULTS AND DISCUSSION

A. SASI SYSTEM

Before we analyse things further, we need to know the definition of Sasi. What is *Sasi* actually? *Sasi* is a spatial and temporal closure of an area of natural resources in the form of agricultural fields (gardens), forests, coral reefs, and fishing locations.⁹ It is also known as the processing of natural resources. The area closure is intended to give a chance for certain animals or plants to grow and thrive in order to produce more crops.¹⁰

One area that used to be under the rule of the Kingdom of Sailolof was Raja Ampat, the *Sasi* was controlled by the Tribal council and was broken down into impartial authorities under *Petuanan* (indigenous people that has sovereign rights to certain areas). Each *Petuanan* has several villages and determines and control how wide the territorial water is.¹¹

Similar activities like Sasi are being practiced in other regions such

Sasi Laut in Maluku, Indonesia,” Penang: *ICLARM Technical Report* No. 59 (2001).

⁸ S. Aswani, S. Albert, A. Sabetian, T. Furusawa, “Customary management as precautionary and adaptive principles for protecting coral reefs in Oceania,” *Coral Reefs*, vol 26 (2007): 1009–1021. <http://dx.doi.org/10.1007/s00338-007-0277-z>.

⁹ C. C. Thorburn, “Changing customary marine resource management practice and institutions: the case of sasilola in the Kei Islands, Indonesia,” *World Development* vol. 28, no. 8, (2000):1461–1479. [http://dx.doi.org/10.1016/S0305-750X\(00\)00039-5](http://dx.doi.org/10.1016/S0305-750X(00)00039-5).

¹⁰ J. R. Mansoben JR. “Konservasi sumber daya alam Papua, ditinjau dari aspek budaya,” *Jurnal Antropologi* vol. 2, no. 4 (2003): 1–12.

¹¹ Suntoko, et.al, 2016. Sasi Role of Tradition in the Management and Conservation of Naturak Resources As a Source of Human Life. *International Journal of Education and Research*.

as the Indo-Pacific.¹² *Sasi* is an example of a social institution established to safeguard the utilization of natural resources in the form of prohibiting residents from harvesting forest or marine products in a certain place for a certain duration.¹³ The final goal in the implementation of *sasi* for local communities in Raja Ampat is improvement in harvests in terms of quantity and size/quality, therefore also generating a large amount of cash revenue.¹⁴

In Raja Ampat, every ethnic group has their own terms for *sasi*. The Maya people who live in Dampier Strait calls it *Sasi Kabus*, while the Matbat people who dwell on Misool Island calls it *Samson*. In other Papuan regions such as Biak and Jayapura, it is known as *Sasisen* and *Tiatiki*, respectively.¹⁵ In Kupang, East Nusa Tenggara, the practice of temporary closure of an area is known as *Lilifuk*.¹⁶ *Sasi* itself is a well-known term in the management of natural resources in the Moluccas.¹⁷ In the Pacific region where the indigenous culture still retains ownership of their land/waters, *sasi* management is also known as *taboo* in Fiji,¹⁸ *Tabus* in Vanuatu,¹⁹ and *Tambu* in the Solomon Islands and Papua New

¹² M. Lam, "Consideration of customary marine tenure system in the establishment of marine protected areas in the South Pacific," *Ocean & Coastal Management*, vol 39 (1998): 97–104. [http://dx.doi.org/10.1016/S0964-5691\(98\)00017-9](http://dx.doi.org/10.1016/S0964-5691(98)00017-9); P. J. Cohen, S. J. Foale, "Sustaining small-scale fisheries with periodically harvested marine reserves," *Marine Policy*, vol. 37 (2003): 278–287. <http://dx.doi.org/10.1016/j.marpol.2012.05.010>.

¹³ Mansoben, note 10; D. S. Adhuri, *Selling The Sea, Fishing for Power: A Study of Conflict Over Marine Tenure in Key Islands, Eastern Indonesia*, Canberra: ANU E Press, 2013.

¹⁴ Handayani. *Kajian terhadap bentuk-bentuk kearifan lokal dalam pengelolaan sumber daya pesisir di Kabupaten Raja Ampat*. Master Thesis. Semarang: Universitas Diponegoro, 2008.

¹⁵ Mansoben, note 10.

¹⁶ A. R. F. Anakotta, D. Bessie, W. Anakotta, *Kajian Kelembagaan Daerah Perlindungan Laut Berbasis Masyarakat dengan Kearifan Lokal di Desa Bolok*, Laporan Penelitian Hibah Bersaing. Kupang: Universitas Kristen Artha Wacana, 2009.

¹⁷ A. Wahyono, et al. *Hak Ulayat Laut di Kawasan Timur Indonesia*. Yogyakarta: Media Pressindo, Yayasan Adikarya Ikapidan, The Ford Foundation, 2000.

¹⁸ Lam, note 14.

¹⁹ A. Caillaud, et. al., "Tabus or not taboos? How to use traditional environmental knowledge to support sustainable development of marine resources in Melanesia," *SPC Traditional Marine Resource Management and Knowledge Information Bulletin* vol. 17 (2004):14–35.

Guinea (Foale & Manele 2004).

The types of *sasi* are usually distinguished based on the location, the type of commodity, the institution which performs the ceremony, the closing and opening times, the communal tenure including the influence of the monsoons.²⁰ Based on the location of the resources, whether they are found on land or at sea, *Sasi* is classified into *Land Sasi* and *Marine Sasi*.²¹

Another type of *Sasi* in Raja Ampat is always associated with the type of agriculture or aquaculture commodity that has high economic value and is a major source of income for local communities such as coconuts, trochus, sea cucumbers, and lobsters. Therefore, the naming of *Sasi* is tailored to the type of commodity. In addition, based on the establishment ceremony, *Sasi* can be classified into *Custom Sasi* (also called as *Sasi Adat*) and *Church Sasi* (or also called as *Sasi Gereja*). It is called a *Custom Sasi* when the ceremony being held is a customary ceremony, and *Church Sasi* is done with a church ceremony. These types of *Sasi* are differing only in the prayers.²² It is believed by most people who still practice *Sasi* that the prayers or mantras will protect the sea and the mystical powers will provide food for the marine biota.²³ Until the condition is good, the implementation of *Sasi* would be maintained by village leaders (*kepala kampung*), custom leaders (*kepala adat*), and religious leaders who control the use and the access to marine resources.²⁴ In accordance with *Sasi*, Raja Ampat holds the period of *Sasi* for six months. Based on *Sasi* ritual implementation,²⁵ the *Sasi* ritual is conducted into two stages:

²⁰ K. Monk, Y. de Fretes, G. Reksodiharjo-Lilley, "The ecology of Nusa Tenggara and Maluku," *The ecology of Indonesia Series*, vol. V, EMDI, 1997; Adhuri, note 15.

²¹ Paulus Boli, et. al. "Benefits of *Sasi* for Conservation of Marine Resources in Raja Ampat, Papua," *JMHT Journal*, vol. XX, no. 2 (2014): 131, doi: 10.7226/jtfin.20.2.131.

²² Ibid.

²³ Nikijuluw VPH. 1994. *Sasi* sebagai suatu pengelolaan sumberdaya berdasarkan komunitas (PSBK) di Pulau Saparua, Maluku. *Jurnal Penelitian Perikanan Laut*; Mustaghfirin et al. 2013. *Buku 2 Rencana Pengelolaan Taman Pulau-pulau Kecil dan Daerah (TPPKD) Raja Ampat: Data & Analisis*. Waisai: Pemerintah Daerah Kabupaten Raja Ampat

²⁴ McLeod, et. al., note 5.

²⁵ Suntoko, et. al., note 11.

1. Low ritual context, which is not usually planned in advance and needs no specific reasons; and
2. High ritual context, which occurs at specific times/moments and involving ceremonies.

Other types of *Sasi* that are known in Raja Ampat are based on the effect of the seasonal winds, customary tenure, and the implementation duration. Strong winds for several months in the waters of Raja Ampat do not allow fishermen to catch fish. This condition is referred as *Season Sasi* and the enactment of *Sasi* will end as the windy season ends.²⁶

Based on the customary tenure system, *Sasi* can be qualified into *Clan (family) Sasi* and *Village Sasi*. *Clan Sasi* is applied to land owned by the clan usually in the form of agricultural fields, whereas *village sasi* is implemented on an area which is community/village property, for example, the waters in front of the village, and according to the time of implementation, *Sasi* is divided into *Temporal Sasi* and *Permanent Sasi*. *Temporal Sasi* is implemented for a short period of time (around 3–24 months), while *Permanent Sasi* is implemented in a longer period of time or in an area that does not have any harvesting time, this type of *Sasi* is adopted from the methods of modern conservation, which in other words is a no-take zone.²⁷

The implementation of *Sasi* can be classified into *Open Sasi* and *Closed Sasi* which can be differentiated by the customary or religious ritual or a combination of the two. *Closed Sasi* means closing an area or prohibiting the harvesting of biota from a certain area for a certain length of time, and in contrast, *Open Sasi* is the opportunity to harvest marine resources in an area which was previously closed against resource utilization activities. When it is *Open Sasi*, the occasion is marked with palm leaves which are placed on the beach or by Indonesian bay leaf trees which have had all of their leaves sheared off but the branches and twigs left intact and are planted facing the sea in front of the village and on each end of the village.²⁸

Sasi rules may include the types of marine life or fish that may be

²⁶ Boli, et. al., note 23.

²⁷ Ibid.

²⁸ Ibid.

caught, the type of fishing gear used for harvest, the harvesting time, and the amount that can be harvested.²⁹ Most of the *sasi* areas forbid the harvesting of 2 commodities, sea cucumbers and trochus. The fishing equipment allowed in harvesting in *Sasi* locations are only simple fishing equipment such as fishing poles, fish spears, and traditional diving goggles called *molo glass*. The utilization of fish resources for family consumption and earning cash can only be conducted beyond *Sasi* areas. Catching fish outside of *Sasi* areas must also use environmentally friendly fishing methods.

B. SASI AND ECONOMIC DEVELOPMENT

The degradation of *Sasi*'s implementation happens due to access to the cash economy. It became more eroded on islands that are closest to the large regional urban centers, where a consumer culture was rapidly developing³⁰ and where the concept of *Effective Conservation* was negatively related to access to the cash economy,³¹ and customary management was only presented in communities located far from markets.³² This worsens when there are fewer incentives for commercial fisheries as a result of limited market access and employment opportunities.

Conversely, the positive role of modern economic opportunities such as pearl farming has encouraged the use of destructive fishing technologies to exploit marine resources for external markets. A traditional leader in Fafanlap estimated that outsiders were responsible for only 25% of *Sasi* infringements in the area, while local residents were responsible for the other 75% of these violations. Fafanlap villagers may also use destructive harvesting techniques more frequently, because they lack other income-generating opportunities such as the pearl farm in Tomolol.³³

By knowing that the ecosystem and the resources that have been

²⁹ McLeod, et. al., note 5.

³⁰ Novaczek et. al., note 7.

³¹ Timothy R. McClanahan, Michael J. Marnane, Joshua E. Cinner, William E. Kiene, "A Comparison of Marine Protected Areas and Alternative Approaches to Coral-Reef Management," *Current Biology* vol. 16, no 14, (2006): 1408-1413.

³² Cinner, et. al., note 2.

³³ McLeod, et. al., note 5.

managed by the Sasi system can give good values and services, the community members were expected to be much eager in implementing and promoting the *Sasi* system in their village. The village is expected to be able to start up the (village's) small enterprise(s) by using the money generated from the auction of marine products, which will then stimulate and empower the community members to actively participate in the village economic development process. The economic development process is intended to be linked with the *Sasi* system, which is a good strategy for stimulating the local business, improving community members' livelihood, and at the same time promoting the *Sasi* system. The expected results of the village economic development and community building are job creations in the village; improvement of the community's economic and livelihood situation; and sustainability of the resources that have become the identity of the village. With the amount of activities that may occur, the youth can learn and be involved in the business creation, it will help them to respect and increase willingness to participate in *Sasi* activities as well.³⁴

The benefits of *Sasi* related to economic development, which comes from the sales of the marine commodity, affects several aspects:

1. The construction of public facilities such as the church, village streets, and the boat dock
2. The reduction of management cost of the marine protected areas because the local people participated in monitoring and safeguarding their resources
3. Provides a bonus in the form of an improved nutritional status and health of the local population due to the availability of fish resources. Furthermore, this leads to the improvement of food security in coastal communities

³⁴ Awwaluddin. 2015. The Role of Marine Sasi System, an Indigenous Knowledge in Managing Sustainability of Coastal Resources in Maluku Villages, Indonesia. Doctoral Thesis. Tokyo University of Marine Science and Technology. <http://id.nii.ac.jp/1342/00001198/>

C. SASI IN THE CONTEXT OF MARINE PRESERVATION IN RAJA AMPAT

Efforts to adopt *Sasi* into modern conservation management systems by conserving the marine resources in Raja Ampat started in 2003 through the customary declaration of Tomolol. In 2006, the indigenous people submitted their land to the local government to be managed in a marine conservation system.

The submission is important and shall be conducted because the existence of indigenous people is already regulated under *Hak Ulayat* (indigenous rights) where the implementation of *Hak Ulayat* are valid internally and externally with some limitations according to the national interest's. Specifically relating to *Hak Ulayat Laut* or also known as *Petuanan Laut* in Raja Ampat (or marine indigenous rights), there are two specific things applied which are transferability (is a method how the exploitation rights is being transferred from one party to another party) and equity (is an allocation of rights into a unit of rights holder system) based on the implementation of the living law.³⁵

Then in 2009 the local government and Regional House of Representatives issued Raja Ampat District Regulation Number 27 pertaining to the establishment of the regional network of marine protected areas in Raja Ampat region which covers 6 locations: (1) Ayau-Asia, (2) Kawe, (3) the Dampier Strait, (4) the Gulf of Mayalibit, (5) Islands Kofiau-Boo, (6) and South East Misool.

The adoption of the values of *sasi*, in the effort to develop marine conservation in Raja Ampat, has had a positive impact on the sustainability of fishery resources in Raja Ampat. An important effort has been done in this adaptation process, such as the renewal of the *Sasi* culture for the management of marine resources. It can be seen in the adaptation of elements of modern conservation science into the implementation of *Sasi* in the region.

The changes in the implementation of *Sasi* in Raja Ampat, compared to before the establishment of the regional MPA in Raja Ampat, can be

³⁵ Robert Kurniawan Ruslak Hammar. "Hak Ulayat Laut dalam Perspektif Otonomi Daerah di Kepulauan Kei dan Papua," *Jurnal Mimbar Hukum*. Vol 21, no. 2, (2009).

classified into 3 aspects:

1. the areas managed, in the context of conservation, includes the size of the area, *Sasi* signs, boundary markers, targeted resources, and the size of the harvest;
2. increased number of stakeholders and the formation of a supervisory institution; and
3. the management system is adapted and based on these elements: purpose, length of time, legal basis, and form of sanction

The implementation of *Sasi* is not only applied to indigenous people or to the community but also to the outsiders. The outsiders are also given obligation to not exploit marine resources without having permission from the village leader. Any breach of *Sasi* rule will be sentenced through several types of punishment or fines.³⁶

Penalties for breaking customary regulations are handled typically at the local level and punishments would be determined by the *Kepala Kampong*. When an agreement cannot be reached at the local level, local government officials gets involved (e.g. by the *Kepala Distrik*). If someone is caught breaking the *Sasi*, they must pay a penalty (usually a monetary fine) to the *Kepala Kampong*. Monetary fine is the most common fine for breaking *Sasi* under *adat* law (indigenous law), although other penalties includes written warnings and confiscations of gear, catch, and boats. Several villagers stated that if a transgressor could not afford to pay the fine, the village would confiscate his boat or fishing gear until the debt was cleared, this money is supposed to be used for village improvements, even though at some points the monetary fine might be misused for personal reasons.³⁷

Though the traditional or indigenous approach has benefits in handling and adapting to marine preservation efforts, it cannot be neglected that management of marine resources using a traditional system in general has several weaknesses. For instance, the limited area, the lack of boundaries, and the target resources are only certain species without any harvesting size limit. Through a combination between indigenous or traditional approach and modern conservation

³⁶ Ibid.

³⁷ McLeod et. al., note. 5.

approaches, a much larger area for the implementation of *Sasi* in Raja Ampat is being considered. Prior to the establishment of protected areas, the average size of (temporal) *Sasi* was less than 100 ha, and after the implementation of the conservation area, it exceeded 100 ha. Specifically, for food security and tourism zones or permanent *Sasi* zones, it covers an area of more than 100 ha. For example, the food security and tourism zone of Tapor Tamyam in Kampung Yenbuba covers an area of 2,500 ha.

Sasi in Raja Ampat is not equipped with a resource-overseeing body, which functions to supervise, to determine the timing of *Sasi* and harvest size arrangements, as well as the utilization of sale proceeds. *Sasi* management in Raja Ampat is conducted jointly by all members of the village community.³⁸ With the implementation of the conservation system in Raja Ampat, the *Sasi* which is implemented in this area is now equipped with a community-based supervision system. The structure of the public monitoring group consists of one supervisor coordinator and as many as 4 members from the local community.

A fundamental change that has occurred to the *sasi* management system is the inclusion of this system into the Raja Ampat Regional Regulations. *Sasi* system implementation in Raja Ampat received legal powers through the establishment of Raja Ampat District Regulation Number 27 of 2008. In this regulation, as stated in Chapter I, Article 15, it is declared that in the establishment and management of conservation, elements of local wisdom needs to be considered. Furthermore, in the draft of the 20 Year Park Management Plan of the Small Islands of Raja Ampat, it was suggested that it be divided into 2 zones associated with the *Sasi*. The zones are: (1) the *Sasi* and traditional utilization zone, and (2) the food security and tourism zone. The *Sasi* and traditional utilization zone is a fishing zone allocated for people who still uses traditional tools, with the aim to ensure the sustainability of the livelihoods of traditional fishermen. Whereas the food security and

³⁸ Wahyono, note 19; P. Tuhulele. "Kearifan lokal masyarakat adat Maluku dalam perlindungan dan pengelolaan lingkungan hidup. Kompilasi pemikiran tentang dinamika hukum dalam masyarakat," delivered at 50th Dies Natalis, Pattimura University, 2013). <http://fhukum.unpatti.ac.id/artikel/lingkungan-hidup-pengelolaan-sda-dan-perindungan-hak-hak-adat/269-kearifan-lokal-masyarakat-adat-maluku-dalam-perindungan-dan-pengelolaan-lingkungan-hidup>.

tourism zone is a no-take zone that is reserved for fish and other marine biota breeding, aimed to function as food reserves for the community, and provide economic benefits through marine tourism activities.³⁹

A formal establishment of *sasi* areas is very urgent because in the future, its existence will be eroded by the population growth and increased investment into the region. According to Caillaud *et al.*,⁴⁰ the continuity of traditional management in an area is strongly influenced by development, the influence of religion, education, and other cultures. The success of community-based conservation management is largely determined by strong local leaders stated by Muehlig-Hofman,⁴¹ while according to Cinner *et al.*,⁴² indigenous resource management institutions are not impervious to population growth and economic modernization. Therefore, when the system is to be used as the basis of modern conservation initiatives, it is necessary to filter out the impact of socio-economic transformation.

Sasi system has also adopted modern conservation management concepts by increasing the closing time and shortening the opening time of *Sasi*, and even applying permanent closure to some areas. The closing and opening system approach to conservation is one aspect of *Sasi* management that aims to provide adequate time for the ecosystem to recover itself. The opening-closing system is similar to the temporary closure system in conservation management (Cinner & Aswani 2007).

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³⁹ Mustaghfirin, note 25.

⁴⁰ Caillaud, note 21.

⁴¹ A. Muehlig-Hofmann, "Traditional authority and community leadership: key factors in community-based marine resource management and conservation," *SPC Traditional Marine Resource Management and Knowledge Information Bulletin*, (2007).

⁴² Cinner *et. al.*, note 7.

⁴³ Cinner & Aswani, note 4.

Prior to the establishment of the regional MPA, area closures lasted for 6–12 months while the area would be then opened for over 3 months. After the establishment of conservation in Raja Ampat, the closing time was more than 24 months but the opening time was less than 15 days. In the zoning system implemented in the Raja Ampat Regional MPA, there is a food security and tourism zone. The customary zone in Raja Ampat waters which has been declared as a permanent *Sasi* area is an area which have these characteristics: they have a high diversity of coral species, and they are spawning and nursery grounds for fish. The local community have permanently close these areas. At the research location, there are as many as 4 permanent *sasi*'s which covers 20.77% of the 336,000 ha of Dampier Strait Regional MPA area which includes the Dampier Strait and the Sagawin strait.⁴⁴

The difference between the concepts and practices of indigenous-based management and modern conservation can lead to the failure of the integration of the two systems, but if the difference is understood and respected, the hybrid system has great potential in achieving effective management because: (1) it is highly flexible; (2) it can conserve resources, and (3) it can achieve community goals.⁴⁵ Results of a study conducted by Cohen and Foale⁴⁶ on the adaptation of customary fisheries management with modern marine conservation in the countries in the Pacific region, it was found that indigenous-based management that has adopted modern conservation elements has three characteristics:

1. similar to customary closing;
2. can be managed by local management institutions, and
3. it is agreed upon as a management tool by the government, NGOs, and local communities.

The benefits of *Sasi* related to preservation affects several aspects: 1) the chance for marine biota and resources to live and grow without any interference from people (either responsible or irresponsible); 2) the no disruption condition (possibly) creates a superior seed of marine biota or fish during growth and proliferation processes; 3) the establishment of harmonious relationship between the human and marine environments

⁴⁴ Boli, et. al. note 23.

⁴⁵ Cinner & Aswani, note 4.

⁴⁶ Cohen & Foale, note 14.

(and resources) that are interdependent.

III. CONCLUSION

Sasi, due to the high compliance of the Raja Ampat local population to customary rule, has been practiced from generation to generation and it has had a positive impact on the management of marine resources including maintaining the sustainability of fishery resources, recovering fishery stocks, reducing the exploitation rate, and increasing fishery revenues. The economic development process shall be linked with the *Sasi* system, where this strategy is improving community members' livelihood and at the same time promoting the *Sasi* system which then leads to the creation of more job opportunities, more incentives, and better livelihoods. The implementation of *Sasi* shall be enforced by local authorities to legitimize the institution, and authorities that support *Sasi* must also possess power and legitimacy in the community. The *sasi* management system will be able to survive in the face of social, economic, and cultural changes if the system adopts modern conservation elements such as changing *Temporal Sasi* to *Permanent Sasi*.

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