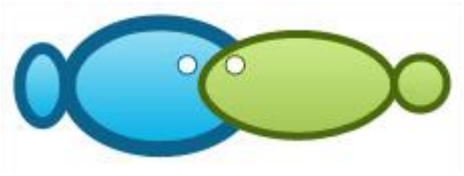

Institutional arrangement of conservation areas for sustainable marine tourism in Gili Matra Water Tourism Park, Indonesia

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Abstract. With more parties involved in the utilization of resources in an area, the issues that arise are more complex. Each party has different interests and the ability to influence the others. Potential conflicts will arise due to significant influences from parties that do not have any legal authority. This condition is often overlooked in the management of conservation areas. Parties that feel that they have a significant impact will dominate the use of resources within the conservation area - impairing legal management agencies that do not have a significant influence in controlling activities within their jurisdiction. The purpose of this study is to map the level of dependence and influence of stakeholders in the Gili Matra conservation area and to offer new institutional models to improve the management of conservation areas by focusing on marine tourism. This study uses a stakeholder mapping analysis to determine the dependence and influence of each stakeholder. The data used in this analysis are data from interviews with stakeholders such as the government, the community, and business actors. The results of the stakeholder mapping analysis showed that two stakeholders have significant influence and have interests among stakeholders. In order to produce an effective and efficient management agency, all stakeholders must be involved in the management of the area. Each party must be given appropriate authority and responsibility based on their respective capacities. Thus, the collaborative institutional model is the optimal alternative model for regional institution management.
Key Words: collaborative management, ecotourism, protected area.

Introduction. Since the conservation area of the Gili Matra Waters Tourism Park was designated as a tourist area, the growth of visiting tourist numbers in the region is increasing. Until 2014, the total visitors amounted to 868148 people, distributed across 3 islands, namely Gili Trawangan Island (315959 people), Gili Meno Island (32959 people), and Gili Air Island (85156 people), with 89% of the tourists being foreign (Tourism office of North Lombok Regency 2014). This condition was followed by the establishment of tourism services such as lodging, restaurants, diving tourism service providers, and other related economic sectors. From an economic aspect, this condition is undoubtedly very beneficial for the community, government, and private sector. However, from the ecological perspective, this threats the sustainability of the region. Likewise, with the socio-cultural aspects of the community, it will significantly affect the flow of migration and the cultural clash of local communities with migrants. The resources in this area, including resources that are open access, are more vulnerable to conflicts between the parties that have an interest.

One of the marine sectors that provide considerable economic value in this conservation area is marine tourism. This sector is the most efficient compared to others, because providers prepare tourist support facilities, whereas the tourism objectives are already provided by nature (Kusumastanto 2003). It is different with man made tourist objectives that require high investment costs, so that it has an impact on the revenue

obtained. Therefore, according to Yulianda (2007), conservation areas are not only beneficial ecologically, but also economically through marine tourism.

A common problem in utilizing open access zones is the large number of parties aiming to benefit from the existence of these zones. Lack of coordination between stakeholders will have an impact on the sustainability of existing resources within the area. While some interests of 2 or more parties can support each other, some are conflicting. These different interests can cause conflicts. More influential stakeholders will dominate the scene. If the economy interests dominate, then the impact on ecological conditions can be negative. However, if the environmental group is dominant, the economic group will be at a loss, since the opportunity to obtain profits from the region is limited.

The management status of the area is under government rule through the Ministry of Maritime Affairs and Fisheries, Indonesia. The management status of this area is the same as the management of the Ecological Station of Guaraqueçaba (ESG), Brazil, which was established in 1982 through a Brazilian presidential decree (Tebet et al 2018). This area began to be designated as a conservation area since February 16, 1993, managed by BKSDA under the Ministry of Forestry of the Republic of Indonesia. On March 15, 2001, this area was handed over to BKKPN management, which is incidentally under the Ministry of Maritime Affairs and Fisheries.

The managing institution must also be strong, as explained in institutional economic theory, where effective and efficient regulatory arrangements depend on the characteristics of production and transactions, the institutional environment, and the organizational environment that supports transactions between producers and industry (Watanabe et al 2012).

The official institution that manages the area has failed to maintain the preservation of resources within the conservation area. The bargaining position of formal institutions is weak compared to service providers (travel agents). Satria et al (2006) show that a customary institution called "awiq-awiq" failed to resolve conflicts over resource use in the Gili Matra conservation area. With more stakeholders arising, the problems become more complex. Therefore, it is necessary to restructure a useful institutional model that can accommodate the interests of each stakeholder. The issues need to be managed as a whole, not individually (Fauzi 2017). Therefore, this study aims to find an effective and efficient model of institutional management of conservation areas, so that the utilization of resources in these areas can be sustainable.

Material and Method

Description of the study sites. The study was conducted from April 2014 to March 2015 at the Water Tourism Park of Gili Matra, North Lombok Regency, West Nusa Tenggara Province, Indonesia. This area includes a conservation area that is used as a scuba diving area. This area is managed by the Ministry of Fisheries and Maritime Affairs of the Republic of Indonesia, with a total area of 2954 ha consisting of 3 small islands, namely Gili Ayer, Gili Meno, and Gili Trawangan. The land area is 665 ha, and the rest is covered by sea (BKKPN 2013). Figure 1 illustrates the research location which consists of 3 small islands integrated in one administrative area of Gili Indah Village. This is a conservation area divided into 5 spaces, namely: core zone, utilization area, sustainable reef fisheries sub zone, rehabilitation sub zone, and sub port zone.

Research methods. The research method in this study was the survey method. The survey method was carried out by interviewing stakeholders with interest in the Gili Matra conservation area, such as tourism service operators, tour guides, diver tourists, local communities, village governments, revenue agencies, tourism services of North Lombok Regency, the Ministry of Maritime Affairs and Fisheries, and others.

Data and sources. The data used in this study were primary and secondary. Primary data was obtained by interviewing the respondents directly, while secondary data was

collected through literature review, such as the results of previous studies and activity reports related to this research.

Figure 1. Research sites.

Analysis methods. The method of analysis in this study is a prospective method. This analysis describes the position of influence, level of importance and role of each party, each quadrant being categorized as follows (Reed et al 2009):
1. Key players: parties that are active and have a high interest and influence in the management of the Gili Matra Conservation area.
2. Context setters: parties that have a strong influence, but low importance (they can be a significant risk and need to be monitored).
3. Subjects, namely stakeholders that have high interests, but little influence. These stakeholders can increase their influence if they form alliances with other parties.
4. Crowds, namely stakeholders that have little interest and little influence on the desired results and are considered for inclusion in decision making.

The prospective analysis is focused on optimizing solutions and providing various choices and objectives for decision-makers and helping to design a series of alternatives, rather than choosing the best option (Bourgeois & Jesus 2004). To get optimal results, the analysis tool used is the stakeholder mapping analysis. This analysis tool uses a matrix to measure and assess the extent of stakeholder dependence on the company (Frooman 1999). In this study, stakeholder mapping analysis is applied in the scope of conservation areas, where there are many interested parties in the resources available. Stakeholder analysis is done by explaining the results obtained in the matrix of interests and the influence of stakeholders on the utilization of Gili Matra for marine tourism activities. The results of the value of the interest and effect indicators are combined to form coordinates and determine the position of the quadrant occupied by the stakeholders.

This analysis also refers to the resource dependence theory (De Bakker et al 2002), highlighting that an organization's proactive strategy to solve environmental problems challenges them to gain access that is not dependent on the resources in their environment.

The next stage is to explore relationships between stakeholders descriptively in an actor-linkage matrix by using keywords that describe the links of the parties, namely: conflict, complementing each other, or cooperating. The relationships that occur are explained qualitatively to obtain a clear picture of the relationships between stakeholders that play a role in the use of conservation areas for marine tourism.

Results and Discussion

Stakeholder mapping. Characteristics of stakeholders in the Gili Matra conservation area can be classified into 3 groups, namely:
1. Stakeholders that have strong influence, but do not have legal authority.
2. Stakeholders that have the legal authority and strong influence.
3. Stakeholders that do not have influence and do not have authority.

Each party carries out its interests, without coordination between stakeholders. Each party does not have a written obligation agreed upon regarding the surrounding environment.

The results of stakeholder mapping show that there were 4 stakeholders that have a strong influence and a low level of dependency on relations between stakeholders. There are 2 stakeholders with strong influence and high dependence, namely diving tourism service providers and diving tourism service provider association Gili Indah Dive Association (GIDA). GIDA is a representation of diving tourism service providers incorporated in the association of Gili Matra. There are 3 stakeholders that have low influence and low dependency, namely the Revenue agency of North Lombok Regency, the Environmental Agency of North Lombok Regency, and the Tourism Agency of North Lombok Regency. The 3 stakeholders are government agencies. A stakeholder with low influence and high dependence is the Eco Trust Foundation. Eco Trust Foundation is a non-profit organization that concentrates on marine conservation activities in Gili Matra. One reason for the low level of influence and high dependence on other stakeholders is that their operational costs come entirely from third party contributions.

Figure 2 illustrates the level of influence and level of dependence of each stakeholder in the Gili Matra conservation area. Stakeholders with high influence and low levels of dependence include: village government, legislative body, regional licensing body, and national watershed conservation office (BKKPN). Stakeholders who have high influence and high dependence include: GIDA and scuba diving agents. Scuba diving has a dependency on the local government, especially related to business licensing.

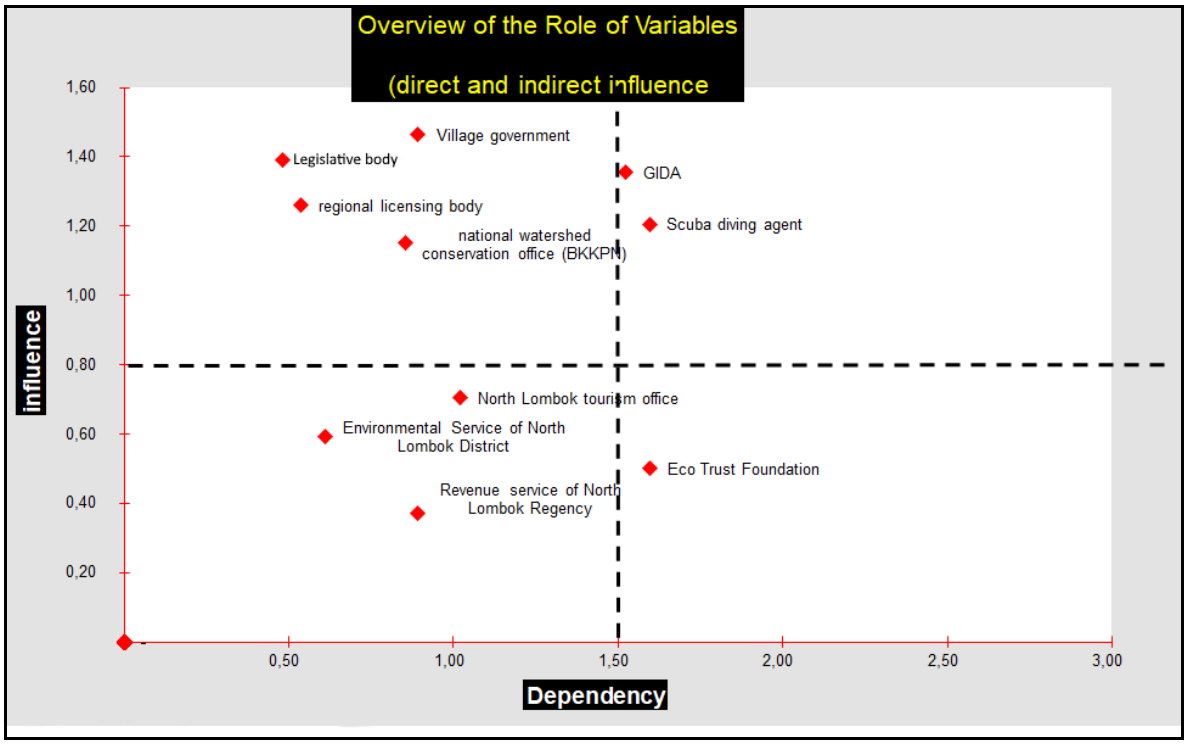

Figure 2. Level of influence and stakeholder dependency.

The description is based on weighted influence/dependence (I/D) values for each actor, calculated from the influence and dependency tables. Interpretation of results includes the position of actors, forms of distribution of actors, and interpretations of direct and indirect results (Bourgeois & Jesus 2004). Variables selected are located in Quadrants I and II. Variables in these quadrants have a significant influence on the system, so that it can function as an entry point for effective planning and management (Bourgeois & Jesus 2004).

Village heads are more dominant than the village government. In general, the village is very influential on the operators of tourism services because, without a recommendation from the village head, tour operators cannot carry out a tourism service business in the area or in the village of Gili Indah. In carrying out its duties as a village head, the village head can revoke any tour operator business license. Thus, dive tourism service operators that do not participate in the area management program may have their business licenses revoked or not renewed.

Referring to the results of the mapping, a conflict may arise if there is no common vision about the management of conservation areas. However, a potent force could occur if each party unites to manage the area for the common interest in the long term. As stated by Teh et al (2018), successful conservation depends on the acceptance, participation, and support of resource stakeholders, which is often difficult to achieve.

Relationship between stakeholders. GIDA has strong influence, but no formal and legal authority. As an institution with strong influence, GIDA must carry out its duties and functions as an institution that influences other stakeholders. GIDA functions as an association that coordinates all dive tourism operators in the Gili Matra conservation area, including the collection of fees for environmental improvements from each dive tourism service provider.

As a community institution, GIDA does not have formal rules that govern all its members. The existence of GIDA can help dive tourism operators improve their bargaining position among stakeholders in the Gili Matra conservation area through the association they form. Individually, the tour operator will not be able to intervene in policies made by the government, especially policies that can harm their business activities. The policy provides significant benefits to the sustainable management of tourism areas. Therefore, members that do not participate in the management of conservation areas can receive social sanctions (in the form of a routine fee of 3.5 USD) from their institutions (GIDA).

Social sanctions can exclude the participation in negotiations with the government, or lack of assistance if they experience difficulties in the field. The EcoTrust Foundation is a social organization formed by tourism service entrepreneurs, hotels, restaurants, dive tourism service providers, and other tourism entrepreneurs that conducts business activities around the Gili Matra conservation area. The main activity is to preserve the existing resources in the conservation area of Gili Matra. One source of operational funding for this institution is from tourist fees collected by dive tourism service providers of 3.3 USD per tourist (since 2012). Table 1 describes the general interests of each stakeholder in the natural resources of the Gili Matra conservation area.

Community involvement in conservation programs is significant because they are the first to feel the negative impact if the area is damaged. Therefore, they must be involved in enjoying the positive impact of the existence of this region. The theory of social change stated that the role of residents in tourism development is closely related (Haddock-Fraser & Hampton 2010). This area is one of the international tourism destinations that has contributed significantly to the increase in the Regional Original Income (PAD) of North Lombok Regency. Natural resources found in the village of Gili Indah, which is a special attraction for foreign tourists and the archipelago, include the blue coral reefs and diverse ornamental fish. In addition, there are also rare species of marine biota such as clams, bahar roots (*Euplexaura* sp.), goat heads (*Cassis cornuta*), triton trumpets (*Charonia tritonis*), leatherbacks (*Dermochelys coriacea*), hawksbill turtles (*Eretmochelys imbricata*), green turtles (*Chelonia mydas*), and many more.

Table 1

Interests of stakeholders in the establishment of the Gili Matra conservation area zoning

Tour operator	*NGOs and community groups*	*Local government*	*Tourism body*	*Marine and Fisheries Ministry*
Maximum profit	Income for daily needs	Brings as many tourists as possible so that the Regional Original Income increases	Brings tourists as much as possible so that the National State Revenue increases (foreign exchange)	Maintaining the sustainability of resources in conservation areas to achieve sustainable development.
Faster return of investment	A healthy and sustainable environment	Political support from all stakeholders	Sustainability of development	Non-Tax State Revenue (Minister of Marine Affairs and Fisheries Regulation No. 75 of 2015).
Tourist satisfaction	Life comfort	Achievement in development	Healthy environment	Healthy environment
	The certainty of the future	Sustainability of development		

Satria et al (2006) shows that the success of "awig-awig" (revived local institutions) implemented in the community base management system is still questionable. "Awig-awig" failed in overcoming conflicts between stakeholders in the allocation of coastal resources in the village of Gili Indah. The issue of utilization rights and management rights between communities is difficult to define in the formulation of custom-based rules. It is not able to absorb the maximum aspirations of the community. This is the weakness of the "awig-awig" initiated by the government. The injustices between the entrepreneurs and the fishing communities are not considered, such as fishing rights in conservation areas being closed and replaced by tourist areas.

The implementation of "awig-awig" in West Lombok Regency was conducted after the destruction of several coral reef areas due to fishing with explosives, potassium cyanide and other destructive fishing methods (Satria 2001). Issues include the destruction of the sea by using muroami nets; the taking of coral for lime and building materials by local residents and other entrepreneurs that can negatively affect coastal and marine ecology; beach tourism transportation and diving activities.

Principal area. Before the National Water Conservation Area Agency (BKKPN) managed the Gili Matra conservation area, BKSDA was an institution that represented the government in managing the area. The BKKPN Gili Matra Satker is a special institution that carries out conservation programs in the Gili Matra Watersports Park. This institution replaces the role of BKSDA, which previously managed the Gili Matra conservation area. Structurally, BKKPN is under the Ministry of Maritime Affairs and Fisheries of the Republic of Indonesia, while BKSDA is under the Ministry of Forestry of the Republic of Indonesia (Ministry of Forestry to the Ministry of Maritime Affairs and Fisheries 2009).

Every actor who carries out activities in the Gili Matra conservation area feels that he has the same rights to the area. The overlapping authority in the management of the Gili Matra conservation area makes conservation goals difficult to achieve. Within the conservation area, each party has its authority supported by official laws and regulations. BKKPN was granted the authority to carry out conservation based on the Regulation of the Minister of Maritime Affairs and Fisheries of the Republic of Indonesia No. 47/Permen-Kp/2016 regarding utilization of water conservation areas. Article 27 stated that BKKPN is a technical implementing unit of the Ministry of Maritime Affairs and Fisheries.

On the other hand, the regional government through the Regional Revenue Service claimed to have rights in the management of the Gili Matra conservation area, because the area is an integral part of the North Lombok Regency. Thus, the government has the right to levy on any businessman carrying out activities within his territory, as stated in article 2 paragraph 2 of the Law of the Republic of Indonesia Number 28 of 2009 concerning regional taxes and regional retribution. Likewise, the North Lombok Regency Tourism Office has the duty to bring as many tourists as possible to all tourist areas in the region, including in the Gili Matra conservation area as one of the dive sites in North Lombok Regency.

Tourism service providers feel entitled to carry out economic activities because they have received permission from the local government of the Ministry of Maritime Affairs and Fisheries based on the Regulation of the Minister of Maritime Affairs and Fisheries of the Republic of Indonesia Np. 47/Permen-Kp/2016. Automatically, service providers have an obligation to tax and levy fees to local governments and to the state treasury, while the local community also feels they have the right to carry out economic activities because they have lived in the area for generations.

Several weaknesses were observed in the implementation of this central government-based management, including: (1) rules that are less internalized in the community, thus being difficult to enforce; (2) transaction costs incurred for implementation and supervision are high, causing weak law enforcement. Weak communication links between the local community and the government are caused by the lack of integration between the area manager and the surrounding community.

In addition, area managers tend to be historically authoritarian centered, which creates more conflicts and differences (Tebet et al 2018). This is indicated by the local people rejecting the zoning plan proposed by the government several times. The government has difficulty in determining zoning due to weak coordination and communication between the government and local communities, especially stakeholders with an interest in conservation areas (BKKPN 2013).

Conflicts of interest. The existence of interests of each different stakeholder raises the potential for conflict between stakeholders. Especially the difference between economic interests and ecological interests. There are competitions between stakeholders in the economic group to obtain the maximum value of economic benefits. According to Fabinyi (2008), large conflicts between stakeholders occur when fighting for their respective interests. Potential conflicts arise from differences in the interests of each stakeholder. The conflicts that have often occurred are conflicts between area managers and area users. Direct beneficiaries of the resources in the area can be individuals, companies (tourism service providers), or community groups with the government. The government, in this case, can be the Ministry of Maritime Affairs and Fisheries through the BKKPN Gili Matra work unit or the local government through the Regional Revenue Body. Sá de Abreu & Ceglia (2018) show that institutional capacity is created through interactions between beneficial institutions and the results of the identification of business opportunities by business actors.

Potential conflicts between service providers and community groups occur when service providers recruit foreign workers to work for them and local workers are ignored. The recruitment of foreign workers is seasonal, usually during the holiday season. Tour service providers recruit foreign workers because local workers are not capable of doing tasks that are usually done by foreign workers, especially in diving tourism. This potential conflict can be latent when the potential is not managed early.

The potential conflict between BKKPN and service providers may occur due to the rules and regulations of BKKPN, that, according to service providers, interfere with tourism activities. One example of conflict that has occurred between service providers and BKKPN is the establishment of zoning conservation areas. Dive tourism service operators are opposing zoning determination because the use of zone restrictions causes the decrease of the number of tourists. However, from the BKKPN point of view, zoning is done to protect the resources that exist in the area from extinction caused by both tourist activity and natural destruction.

The potential conflict that occurs between service providers with the Regional Revenue Service (Dispenda) is due to obligations by Dispenda to levy tourism service entrepreneurs. In this case, the tour service provider disagrees, because the Dispenda had never played a role in providing tourist service facilities. At the same time, the Dispenda only carried out its duties by local taxing and retribution laws.

All potential conflicts are influenced by economic and ecological factors. The influence of political, ethical, ideological, social, and religious factors has a minimal effect on conservation programs. Each stakeholder has its interests and strategies to increase the value of the benefits they obtain. Thus, by the results of the analysis, the interactions

between stakeholders and the relationship of interdependence among stakeholders and the interrelationships of the strategies they use are presented.

In order for the management of conservation areas to be optimal, ideally each stakeholder should be able to carry out their roles and functions according to their respective capacities, and cooperate among stakeholders to achieve the common goal of area sustainability and preservation. According to Hidayat (2005), there are several approaches in fisheries resource management that have been developed, namely centralized, community-based, and collaborative management. Therefore, each of these stakeholders must unite in a common forum for the same interests.

Sustainability of the area. The relationships between stakeholders, the sustainability of the ecosystem of the conservation area, and the economic value of the region have an inseparable unity when considering the management of the area. Well-organized stakeholders will have a positive impact on the conservation of the area. A sustainable conservation area will provide high economic value in the long term. Conversely, the excessive use of conservation areas and stakeholders that are not well organized will have an impact on the economic value in the long term and will be an economic and ecological burden for future generations. Ecological impacts mentioned can be in the form of the fish population decline or even extinction, and the destruction of habitats associated with coral reef ecosystems. The economic impacts are the loss of people's livelihoods and the high recovery costs that will be borne by the next generation.

Adrianto & Matsuda (2002) stated that small islands have distinctive characteristics, namely: few options for economical and environmentally sustainable development; the public service provision is expensive; human resources are scarce; much of the economic development relies on external intervention. In addition to ecological factors, social and institutional factors influence the sustainability of diving tourism activities in the Gili Matra conservation area. The establishment of good social relations and the existence of reciprocal relations between stakeholders in an area is an important factor in the management of the area. The success of the Hemis National Park (HNP) in managing the area cannot be separated from good institutional management, including the application of rules and sanctions properly, as well as an actively working network system (Badola et al 2018). Thus, tourism service providers must engage or collaborate with local governments, consumers, service providers, and other companies as did the industrial symbiosis in the United Kingdom (Sá de Abreu & Ceglia 2018). Therefore, the strong role of the institutional manager of the area is very influential on the preservation of resources in the tourism area. If there is one dominant stakeholder, the use of resources in the area tends to prioritize the strong stakeholder. On the contrary, if several stakeholders are dominant and do not support each other, then there will likely be a conflict of interest between these stakeholders.

The sustainability of marine tourism, especially scuba diving tourism, is largely determined by the stakeholders. Maritime ecotourism is considered a rapidly growing and profitable market for the tourism industry, which is included in the category of nature-based tourism and sustainable tourism (Sakellariadou 2014). In particular, the marine tourism sub-sector is considered to be very important economically because it can make a significant contribution to the country's economy. It is present in a number of locations that are promoted as tourist sites for diving and other types of marine tourism (Dimmock & Musa 2015). This condition is a challenge for Indonesia in managing the islands. The islands are expected to sell and to be able to maintain an area that produces an economic value for future generations. Selfish interests of each stakeholder must be reduced, and mutual understanding of the interests of other parties should be facilitated, to avoid potential conflicts. On the other hand, the low level of stakeholder awareness, local policies, and lack of understanding of environmentally friendly businesses are complex issues in realizing sustainable resource management (Lucrezi & Saayman 2017).

Every activity has an impact on the surrounding environment, both positive and negative (Tilton 2016). Likewise, diving tourism activities will not be separated from the damage to coral reef ecosystems, together with economic impacts resulting from diving tourism activities. Studies conducted on the Great Reef Barrier found that 15% of divers

damaged or broke corals, with the diving fins being the main cause (95%) of all damage (Hammerton 2017). Furthermore, Tratalos & Austin (2001) report that coral reefs are damaged and chafed by ships carrying tourists leaning around the coral reef ecosystem.

The problem of communication gaps between stakeholders in the Gili Matra conservation area, both between managers and beneficiaries and between managers and surrounding communities, is a top priority to be resolved. This relationship is not harmonious due to differences in interests among stakeholders, which is more concerned with personal and group interests. Therefore, community involvement is necessary given the community had already lived around or within a conservation area before the area was established (Santosa & Setyowati 2016). Solihin et al (2008) showed that each stakeholder spent a significant amount on the conservation program. From the results of the cost-benefit analysis, it was determined that the conservation program carried out by the community regime is more efficient than that of the government regime. Thus, if the total costs of each stakeholder are combined into one institution, a large budget will be collected and carried out by many parties, so that the results obtained should be better.

According to Denise (2018), communication is a process of understanding each other and it can be represented by information processes in the form of facts, policies, prospects, rumours, and failures that can be spread within the organization. Communication in organizations is the process of creating and exchanging messages in a network of interdependent relationships to overcome uncertain or ever-changing environments (Muhammad 2004). The definition of Muhammad (2004) for communication contains 7 key concepts, namely process, message, network, interdependence, relationships, environment, and uncertainty.

According to Lucrezi & Saayman (2017), efforts are needed from local governments, scientists, regional governance bodies, community organizations, and the central government to collaborate with dive tourism service providers to improve environmental sustainability. Stakeholders that have a strong influence and are legally formal have strong authority to make decisions. A more entitled stakeholder is expected to act as a coordinator. Besides having great authority, these stakeholders also have high capabilities as coordinators.

Based on the interests of stakeholders, the stakeholders in the Gili Matra conservation area are divided into 3 groups, namely stakeholders in the economic sector, ecological sector, and a combination of the two. If the influence of GIDA would increase, it could potentially become a dominant stakeholder in regulating the use of conservation areas for tourism activities. The main objective of business, in general, is to get a high (maximum) profit, in many cases disregarding the sustainability of the ecosystem and the comfort of the surrounding community. If the economic goals become the main objectives in the utilization of resources, then the ecological and social aspects of community institutions would be ignored. On the contrary, if ecology is the main goal, then the value of economic benefits obtained will not be optimal.

One example of stakeholder involvement in the policy-making process is in the zoning conservation areas previously discussed. The critical point in determining the zoning is the designation of the core. Agents do not accept the core zone desired by the principal because it involves the main dive site. Therefore, GIDA and other community groups must be involved in making policies and become mainstream in the socio-economic and environmental management sectors (Badola et al 2018). The impact of involving all stakeholders that incidentally have different interests has an impact on the slow completion of the policy.

The mechanism of relations between stakeholders can be obtained through a joint institution (co-management). Co-management is a combination of parties from government agencies, private institutions, individual entrepreneurs, community groups, and the community that carries out joint work programs. The joint work program is based on the results of an analysis of stakeholder needs, namely preserving the coral reef ecosystem and setting dive schedules and dive sites of each dive tourism service provider. The BKKPN Gili Indah Work Unit initiated the co-management as a regional principal. The agreed joint work program is synchronized with the duties and functions/institutional rules of each natural tourism stakeholder. Synchronization will

result in the participation of each stakeholder following the tasks and functions/institutional rules they have.

Stakeholder participation will be achieved in the form of implementation of a joint work program by each stakeholder, which is carried out through the stages of organizing, implementing, monitoring, and evaluating. The organizing phase is carried out through the division of tasks, responsibilities, the placement of human resources, and the provision of joint work program funds for stakeholders (Riani 2012).

This co-management model is expected to facilitate the implementation of the regional utilization schedule. The schedule prepared must be agreed upon by all stakeholders, so that all dive sites will not experience over or under capacity. All tourists will be allocated proportionally to each dive site. The coordinator in this model is one of the stakeholders that has a large influence on other stakeholders and can be a liaison between stakeholders, whereas stakeholders that are more dependent on others must support whatever has been agreed with the other stakeholders.

In general, there are 3 stages in creating collaborative management, namely the representation identification stage, the institutional stage, and the collaborative management formulation stage (Warmadewa et al 2013). Ku & Chen (2013) classify the stages of the institutionalization of diving tourism in 4 levels: development, integration, collaboration and implementation. Presently, the institutions that manage conservation areas in Gili Matra are still in the stage of development, leading to the integration level. Thus, to reach the implementation level, it takes time to communicate and share the same perception on the sustainability of the conservation area as a source of livelihood for the stakeholders. This is in line with the results of Thompson (2018), who stated that the weak relationship of unequal actors resulting from limited capacity, power asymmetry, and cultural ideology creates a gap between planning and policy implementation so that it causes ineffective environmental governance.

Policy implication. The Gili Matra conservation area, before being a conservation area, was left without a manager with the status of a stopover island for fishermen. However, due to the abundant natural wealth of the sea and its geographical advantages, it began to be visited by many people, until there was finally a degradation of resources due to overexploitation. Next, this area was managed by the government through the Ministry of Forestry of the Republic of Indonesia. Still, it was considered a failure because it was unable to prevent overexploitation, which resulted in the damage of aquatic ecosystems. As explained earlier, this area was once managed by the community through traditional rules called "awig-awig", but failed (Satria et al 2006). It is currently being managed by the government through BKKPN, but it is prone to conflict between stakeholders.

According to Jaya (2012), the problems in public organizations such as unclear ownership rules (institutional environment) and unclear governance, unclear contracts of authority relations and relationship between principal-agent result in unclear structure. Therefore, the most appropriate solution is to minimize the losses of the harmed party, and reduce the benefits for the beneficiary, so that a middle point can be found between the pros and cons, by a win-win agreement.

In the Gili Matra conservation area, the government and entrepreneurs have the rights and obligations in using the resources available. Moreover, local people have the same rights and obligations because they are very dependent on the existence of resources. If a disaster occurs, it is the local community that experiences the impact firsthand. In some locations such as Maqu County, local customary institutions are often ignored, even though they understand better the characteristics of natural resources and the surrounding environment (Chen & Zhu 2015). Likewise, the service industry sector that utilizes the resources must be able to collaborate with the surrounding community. Lucrezi et al (2017) said that the relationship between the community and the diving tourism industry is bad. The diving tourism industry will not be able to last long if it does not have the support of the surrounding community and all stakeholders related to the management of the concession area.

According to Zallé (2018), the effects of natural resources are dependent on the interaction between them and institutional capital. Therefore, the government has the

authority to regulate the economy, both at the local and national level. With this authority, BKKPN, as the government representative in the conservation area of Gili Matra, has the authority to regulate all stakeholders in it. On the other hand, the regional government, in this case, the Department of Tourism, has the authority to regulate tourism stakeholders in the area, including regional revenue agencies that have economic authority to collect fees and taxes from business actors. Even the village government, in this case, has the authority to recommend businesspeople that are entitled to carry out economic activities in the region. Thus, business actors (from diving tourism in particular) are dealing with many regulators related to their activities.

An integrated reef-based dive tourism management model generally involves the community in it (Wongthong & Harvey 2014). Therefore, to produce an effective and efficient management institution, organizational merging from both institutions formed by the community or entrepreneurs, and the government is needed. Each of these institutions must collaborate and be integrated into a common forum without dissolving the existing institutions. This pattern of merging related institutions has also been carried out by the Korean government at a greater level by revising the regulations of the Ministry of Maritime Affairs and Fishery to accommodate various interests (Kim 2012).

In a smaller scope, Kenting National Park, Taiwan, controls the diving tourism activities (Ku & Chen 2013) without shifting the position of the park office as the official area management agency. Each party contributes according to their ability and capacity, including the issue of managing funding sources. Depondt & Green (2006) said that financing conservation programs should circumvent through increasing user costs. In addition to the potential financing problem of diving tourism user fees, the issue of transparency in the utilization of the budget is very important.

The main elements in the diving tourism system described by Dimmock & Musa (2015) include: the marine environment, diving tourists, diving tourism service providers, and the local community. The marine environment and local communities are considered key elements in the diving tourism system. However, from the results of the analysis in this study, the main elements in the management of diving tourism in the conservation area are GIDA, the BKKPN Gili Matra work unit, and the village government. These 3 stakeholders are considered to have a strong influence on other stakeholders in the Gili Matra, and each stakeholder has its own organizational structure.

Conclusions. Conservation programs will not be optimal if overlapping authority is present in the management of conservation areas. The absence of precise arrangements in the conservation program also affects the imbalance of demand and supply for diving tourism services. Dive sites that experience over-demand cause pressure on the coral reef ecosystems.

The results of the stakeholder mapping analysis in this study show that BKKPN is not the only institution that has a strong influence on other stakeholders, but as a legal manager, has state authority to manage the area. Its existence is not able to improve the management of resources in the area because it is hindered by the policies of the local government and the village government. This is indicated by a decrease in the quality of coral reef ecosystems that continue to decline due to tourism activities. The role of other stakeholders is more dominant in the utilization of resources, and those that benefit economically are local government stakeholders and diving tourism service providers, but they also have concerns for the surrounding environment through their respective programs.

The existence of other stakeholders with strong influence indicates that the management of conservation areas for diving tourism cannot be monopolized by one institution. Each institution must be in an equal position and must work together to produce better results by an efficient and effective institutional management collaborative model as an alternative model to the current multi-stakeholder/user management of the areas. The steps towards collaborative management are: perception equalization to produce an agreement to collaborate; institutionalization; the formulation of joint management.

The restructuring of the institutional model for the management of conservation areas will not only have a positive impact on the economic value of the region but also on the ecological and social environment. Therefore, it is necessary to make a new institutional arrangement by involving other stakeholders who have a strong influence on each other. Each stakeholder has sufficient resources to conduct a conservation program. If each of these foreign stakeholders synergizes with each other and establishes proper communication, it could produce optimal management institutions.

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