

2018

## The Relationship of Marine Tourism, Fishing Activities, and Conservation Efforts on Derawan Island, Indonesia

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THE RELATIONSHIP OF  
MARINE TOURISM, FISHING ACTIVITIES, AND CONSERVATION EFFORTS  
ON DERAWAN ISLAND, INDONESIA

BY  
HEVA HAYUQO YUMI

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF  
MASTER OF ARTS  
IN  
MARINE AFFAIRS

UNIVERSITY OF RHODE ISLAND

2018

MASTER OF ARTS IN MARINE AFFAIRS  
OF  
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2018

## ABSTRACT

Derawan Island in eastern Indonesia exemplifies how the designation of a new development category called a “Tourism Village” might not be optimal for a small island because of some issues which may be correctable. Derawan was historically a fishing village. Located in the Coral Triangle, the island is known for its unique biodiversity and world-class diving, and today the island relies on marine tourism as its primary livelihood. Using a qualitative approach, this paper explores the small island’s problems in trying to accommodate tourism development, fishing activities, and conservation policies in the Coastal Park Derawan area. The island is a case where these aspects co-exist in a small island setting.

Coastal Park Derawan is an aspect which cannot be separated from one another. In 2012, the government designated Derawan, along with other places, as a Tourism Village, to grow the local economy and maintain cultural values. However, many former fishers in Derawan retain the feelings and identities of small-scale fishers as members of the Bajau ethnic group, known in the region as people with strong ties to the ocean.

On the mainland, the Tourism Village program found success. However, on a small island, tourism may involve more trade-offs, constituting environmental and sociocultural externalities. The temptation of tourism has made the locals shift away from their traditional fishing livelihood. The Tourism Village designation is supposed to be followed by comprehensive programs in connected aspects. Rather than designating the island as a “Tourism Village,” as a singular concept, the island could

incorporate fishing and conservation into its identity. If too many locals switch their livelihood from fishing to tourism, it could be construed as a cost of tourism development. Not only would such a shift potentially change the island's identity as a fishing village, it could also threaten the fishing industry on a small island.

A small island is at greater danger from these changes than the mainland because it is geographically isolated and the locals have limited options for a livelihood. Since Indonesia consists of a thousand small islands with tourism and fishing resources, it is essential to understand the relationship of these intertwining problems, and the potential costs and the challenges in marine tourism development on a small island, especially for those located in conservation areas.

## ACKNOWLEDGMENTS

I would like to express my sincere thanks to my major advisor, Prof. Amelia Moore, who has devoted time to advise and guide me during the research process and thesis write-up. I would like to thank to my committee members, Prof. Robert Thompson and Prof. Austin Humphries for all their valuable suggestions. Without their supervision and support, it would not have been possible for me to accomplish this thesis.

I am grateful to USAID PRESTASI for giving a great opportunity to pursue my studies in Marine Affairs Department at the University of Rhode Island.

My thanks and appreciation for all my friends who have supported me, my tutors dr. Agu Suvari and Mrs. Barbara, and Dr. Bambang and Dr. Erwin in Mulawarman University. Also, MAFers, Indonesians in URI, Graduate Villagers, CRCers, Prestasi scholar friends, and all whom I cannot name one by one.

I am thankful for my family in Indonesia for their generous encouragement.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Background

#### *A Brief History of Marine Protected Areas in Indonesia*

With its 81,000 km of coastline and 17,000 islands, Indonesia has an abundance of marine resources that should be exploited sustainably (Alder, 1994). However, Indonesia also faces challenges from the fishing sector, primarily since almost 60% of the population occupies coastal areas where fishing activities exist (Elliott, 2001). Therefore, to be sustainable, coastal areas should have a balance between the goals of natural resources protection and those of economic development (Burroughs, 2011).

As a way to protect coastal and marine resources and to align with the objectives of the International Union for Conservation Nature (IUCN), the Indonesian government initiated the establishment of Marine Protected Areas (MPAs) in 1973, followed by various regulations. The first MPA was in Pulau Seribu (Alder, 1994). At this time, 24 MPAs have been declared, but only three of them have completed a management plan: Kepulauan Seribu (DKI, Jakarta), Karimun Jawa (Central Java), and Teluk Cendrawasih (Irian Jaya).

Table 1. Brief History of the Establishment of MPA (Alder, 1994)

1973	First proposal of a marine park in Indonesia
1976	Proposal for first marine park at Pulau Seribu was accepted
1978	The terms and criteria for marine protected areas were defined and developed
1990	Indonesia Decree 5/1990, the Conservation of Living Natural Resources and Ecosystem Act
1990	Indonesia Decree 32/1990 about management of protected zones
2004	Indonesia Decree 31/2004 about fisheries management
2007	Indonesia Decree 27/2007 about management of coastal area and small island

In 2004, the Indonesian government issued Decree 31/2004 regarding the conservation of ecosystem and fish resources, which was followed by Decree 27/2007 pertaining to the management of coastal areas and small islands. Decree 27/2007 states that small-scale fishers<sup>1</sup> are permitted to take activities in the conservation zones to satisfy their economic and social necessities (Gunawan, 2012).

The IUCN defines the aims of MPAs as long-term ecosystem conservation and preservation of cultural values. Hence, MPAs generally have zoning systems with environmental as well as social considerations. Aligned with IUCN purposes, as of 2013 the Indonesian Ministry of Marine Affairs and Fisheries has established 15.76 million Ha as Marine Protected Areas out of the targeted 20 million Ha with the goals of protecting marine resources and economically benefitting the community (MMAF). Nowadays, however, many MPAs serve for the diving tourism industry to increase local economy. Consequently, the coral reefs are in poor and endangered conditions,

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<sup>1</sup> I use the word *fishers* here instead of *fishermen* as it is more gender-inclusive. Although fishing in Indonesia is typically done by men, women are also involved.

which eventually affects the tourism industry; such was the case in Koh Cang Marine Park, Thailand (Roman, 2006). Moreover, there are various issues with tourism in MPAs. However, in Wakatobi National Park, Sulawesi, the locals of Wakatobi did not perceive tourism as having a significant negative impact. Simpson & Wall (1999, cited in Elliot, 2001) mentioned that the local Wakatobi community may have been unaware of the effects from tourism development on their lifestyle. In Kepulauan Seribu National Park, the first MPA in Indonesia, tourism development led to a conflict of interests. The local community perceived that they did not benefit from tourism in Seribu Park since less than 5% of the islanders worked in tourism industry within the MPA (Fauzi, 2002).

One of the first areas to implement Decree 31/2004 and establish a conservation area was Berau municipality in East Kalimantan Province, Indonesia. Berau established a Regional Marine Conservation Area (Kawasan Konservasi Laut Daerah, or KKLD, in Bahasa). The KKLD is located in a coral triangle with high biodiversity, including more than 500 corals and fish (Wiryanan, 2004; Green, 2005). The reef biodiversity in Berau also includes 507 species of coral and reef fish, which puts Berau as the region with the second highest levels of biodiversity in Indonesia after Raja Ampat (MMAF). Before imposing rules and programs therefore, it is essential to understand the connections between the conservation of marine resources, the impact of tourism on the local economy, and the value of fishing community in Derawan in order to understand the locals' perceptions toward tourism, fishing, and conservation.

### *The Conservation Efforts on Derawan Islands, Berau, Indonesia*

In the early 2000s, Berau was experiencing environmental degradation through destructive fishing practices, mangrove conversion, reef degradation, and illegal, unreported, unregulated (IUU) fishing activities. These issues pushed the local government to take steps to protect and sustain ocean biodiversity (Wiryawan, 2004). Therefore, in 2005, the Head District of Berau issued the municipal decree 31/2005, which aligned with the central government's Decree 31/2004 regarding conservation areas. With the joint financial and organizational support of The Nature Conservancy (TNC) and World Wildlife Fund (WWF), the local Berau government enclosed all 1,222,988 Ha of its marine areas for conservation. The primary purpose was to preserve the coral biodiversity in the areas, and the first collaboration between the government and these NGOs began in 2002 (Gunawan, 2012; Kusumawati, 2014).

At that time, no other districts set aside all of their marine space for conservation as Berau did (Kusumawati, 2014). Berau was willing to protect not only the biodiversity of the species but also the habitat of the species for sustainability. The Berau MPA was named the Regional Marine Conservation Area of Berau (KKLD). The Berau KKLD covered 31 islands and 27 fishing villages that spread out to the north and east of the conservation zone. Of those 31 islands in the KKLD, only four are occupied islands: Derawan, Maratua, Kaniungan Besar, and Balikukup. The KKLD of Berau primarily aimed to preserve the uniqueness of the region around the Derawan Islands, such as Maratua, Kakaban and Sangalaki islands.

However, a change in the Head District of Berau affected the conservation policy in 2010 and the collaboration in managing the Berau MPAs (Kusumawati,

2014). The partnering NGOs and the local government disagreed over whether to keep the 1.2 million Ha of the MPAs or to reduce the area based on social and economic considerations. Although the NGOs persisted in keeping 1.2 million Ha as MPAs, the local government realized that enclosing large amounts of marine space meant sacrificing the local community's interests, particularly fishing activities. Moreover, the Marine and Fisheries Service in Berau believed that the MPA zoning was determined without involving local communities as required by the law (Kusumawati, 2014).

The Berau government also referred to the decentralization law 27/2007 that states that municipalities have only the authority to manage coastal resources up to 4 nautical miles (nm) from the shoreline, while 4-12 nm from the shore is under provincial authority, and 12-200 nm is under the authority of the central government. Based on that regulation, Berau only can control 350,000 Ha, not 1.2 million Ha (Kusumawati, 2014). Moreover, Decree 27/2007 and \*MMAF 17/2008 rules also stated that the conservation areas should be set up into zones; however, the KKLD of Berau blocked out the marine areas completely as conservation areas. Hence, the District Head of Berau decided to end the Memorandum of Understanding (MoU) and the collaboration with the NGOs.

Table 2 The Conservation Efforts in Berau, East Kalimantan Province

<b>Year</b>	<b>Process</b>	<b>Regulation</b>
1979	Identification of sea turtle nesting in Derawan islands.	
1982	Sangalaki island was designed as a Marine Park and Semama	Ministry of Agriculture Decree 604/1982

	as wildlife reserve (now, under the Ministry of Forestry).	
2002	The collaboration between the local government, TNC, and WWF was initiated.	
2004	The management of coastal marine areas and fisheries was defined.	Indonesian Decree 31/2004 about fisheries management
2005	The KKLD of Berau was established.	Berau Municipal Decree 31/2005 about Berau marine conservation areas (KKLD) (1.2 million Ha)
2007	The KKLD was reviewed.	Indonesian Decree 27/2007 about coastal and small island management
		MMAF Decree 17/2008 about coastal and small islands conservation and regulation
		MMAF Decree 30/2010 about conservation management and zonation plans (RZWPP)
2010	The management plan of coastal areas and small islands of Berau was developed.	Berau Municipal Decree 9/2010 about strategic plans for coastal areas and small islands
2013	Coastal Park Derawan was established.	Berau Municipal Decree 516/2013 about coastal and small island conservation areas as Coastal Park Derawan (285,266 Ha)
		Berau Municipal Decree 8/2014 about zoning plans for coastal areas and small islands
		Indonesian Decree 23/2014 about the division of government authority

		MMAF Approval of Coastal Park Derawan 87/2016 (285,266 Ha)
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\*MMAF: Ministry of Marine Affairs and Fisheries

Generally, MPAs around the world have been developed to preserve areas with potential fishing, socioeconomic, and cultural values (White, et al, 2014). However, Van Helden (2004) says that the KKLD Berau tended to focus more on the environmental plan rather than social issues. Since the KKLD designated all the area for conservation, resistance from locals was high. Hence, the 2005 KKLD designation was reviewed to accommodate locals' interests based on Decree 27/2007. After going through several stages, in 2013 the Berau government issued Decree 516/2013, which implemented zoning systems in conservation areas. The name of the KKLD of Berau was changed into Coastal Park Derawan Islands (Taman Pesisir Kepulauan Derawan, or TPKD, in Bahasa). The decree also substantially reduced the conservation areas from 1.2 million Ha to 285,266 Ha. Three years later, the MMAF legitimated Coastal Park Derawan through the MMAF Decree 87/2016.

Historically, the process of establishing marine conservation areas in Berau began in 1979 (Kusumawati, 2014) and ended only in 2013 when the local government issued Decree 516/2013. Therefore, it took some decades to work through the management issues and strategies. However, in 2014, the Indonesian government imposed the new Decree 23/2014 that over-ruled local governmental authority. The municipality of Berau no longer has the authority to manage the 0-4 nm area of shoreline marine spaces and is now only responsible for empowering local fishers. The



provincial government now has the responsibility for managing the 0-12 nm coastal areas (increased from the previous 4-12nm area).

### ***The Development of Tourism in Coastal Park Derawan***

The Derawan islands is a group of six small islands—Panjang, Derawan, Semama, Sangalaki, Kakaban and Maratua—lying 6 to 55 miles off the coast of Berau, East Kalimantan Province. The islands hold reef and marine species biodiversity: Sangalaki is a large turtle nesting site, Kakaban has a non-stinging jellyfish lake and Maratua is an important site for manta rays (Wiryawan, 2014). Small islands are defined as islands that are ecologically separated, geographically limited, and isolated (Bengen, 2004). The Indonesian Decree UU 27/2007 also characterizes a small island based on its size, which is less than or equal to 2,000 km<sup>2</sup>.

Although the Derawan Islands are located inside the MPA, they are becoming popular tourist destinations, attracting people with unique species and sunny, soft, white, sandy beaches. Wiryawan (2013) mentions that the municipality of Berau has incorporated tourism and small-scale fishing into its zoning system of the MPAs. However, when tourism collides with fishing and conservation practices in a small island context, the problems associated with the activities emerge and can lead to conflicting interests.

In the past, Derawan village on Derawan Island was a fishing village where locals relied on the fishing industry. Derawan became well known as a diving site after a National Sport Event was held there in 2008. At that time, the Indonesian government built several homestays and equipped them with standard facilities for

potential homeowners. Since then, Derawan has become a well-known tourist destination, and local people have started building lodging to welcome tourists.

As tourism increased, the Ministry of Tourism in 2012 through Decree 50/2011 regarding National Tourism Master Plan 2010-2025, designated the village of Derawan as a Tourism Village as part of a small island tourism program, which established altogether 50 national tourism destinations, 88 national tourism strategic areas, and 222 national tourism development areas. At the same time, to stimulate economic development, the Ministry of National Development Planning (BAPPENAS) also started focusing on small-island tourism, noting that each small island had resources and distinct cultural characteristics, and moreover, the small islands also contribute to 80-90% for all national fishing production (BAPPENAS).

However, designating a tourism site in a regional, small-island marine conservation area is challenging because the area should not only attract tourists but also satisfy the fishers' need for a sustainable livelihood. Consequently, the establishment of many marine tourism sites in Marine Protected Areas has given rise to various conflicts. Conflicts of interest might happen when the fishers feel that marine tourism takes away their access to fishing areas. For instance, the development of tourism infrastructure along the coast of the Canary Islands restricted fishing activities and damaged the fish habitats (Pascual, 2004). Along Malta's coast, fishers argued that they had been better off before marine conservation programs and the increasing regulation related to tourism (Boissevain, 2004). Frangoudes (2004) also describes the situation in Cap de Creus Natural Park, Spain, where fishing activities are prohibited within 50 meters of the coast, a regulation that has eliminated the right

of the fishing communities to access resources. Brookfield et al. (2005) defined fishing-dependent communities as a population that relies on the fishing industry to for economic and sociocultural survival. Therefore, the development of tourism infrastructure within a fishing community can lead to conflicts over access and the use of space (Aswani et al., 2015).

It is inevitable that marine tourism can lead to benefits and unexpected effects at the same time. The relationship between tourism and fishing could form economic, social, or cultural connections in the community. Yet it may also destroy the fishing lifestyle when the fishers choose or are forced to rely on tourism for their livelihoods. For instance, the development of tourism may advantage communities economically by providing alternative incomes through jobs as diving guides, drivers, and lodging owners. However, it might also deprive local fishers access to marine areas and damage the fishing grounds, as aforementioned. Further, Duim and Lengkeek (2004) state that the economic benefits will increase as tourism grows, but tourism will also lead to increased traffic on the island. Su (2016) also states that tourism can increase employment options and not just disrupt sociocultural values. Nevertheless, some locals' lack of skills and experience may limit them in obtaining alternative income from tourism, such that only a few locals can engage in tourism (Diedrich, 2016).

Marine tourism and fishing activities can be closely intertwined in a small-island setting, particularly in MPAs with existing conservation efforts like Derawan. Until now, it is unclear how the local Derawan community perceives the marine environment and how they regard the quality of life as a Tourism Village. Do fishers consider tourism and the preservation of marine ecosystems important? Could marine

tourism on a small island negatively affect fishing? For instance, pressure from the construction of resorts and increased tourism in the coastal areas may reduce fishing catches, especially of reef fish. Moreover, poor waste management may impact the marine environment, which can eventually affect the income value or social perceptions of fishers and tourists. Therefore, managing the relationship between tourism and fishing through integrated management strategies is very crucial to support a national small island development strategy (Croes, 2006).

As Indonesia has many small islands with fishing-dependent communities, the research to understand the relationship between tourism, fishing, and conservation is crucial because tourism-fueled development may trigger social conflict (Stronza, 2001). For example, are tourists' and the tourist industry's perceptions of those relationships the same as the perceptions of the fishers or of marine conservationists? What kinds of social adaptations to tourism (Berry, 2005; Ward, 2008) are happening on Derawan Island?

Generally, the conflicts among the traditional fishing industry, commercial interests, and tourism development have been a common problem in the MPAs in Indonesia since the 1990s (Alder, 1994) and seem to be appearing in Derawan today. Moreover, the designation of Derawan as a Tourism Village also seems to be unpopular enough that many locals are still hesitant to embrace the designation, even though the program aims to boost the local economy. Moreover, many locals did not fully understand the purposes of the designation. This case could be an example of the constraints of tourism development. Hence, this study also examines what factors shape locals' attitudes and how they perceived any governmental program.

## 1.2 Objectives

This study addresses the following primary research question: What are the dynamics of the relationships among marine tourism, small-scale fishing, and conservation efforts on Derawan Island?

This research also briefly analyzes the designation of Derawan village as a Tourism Village and three previous governmental programs in Derawan, which might affect the locals' views of other programs in Derawan.

The project's finding could offer understanding and evidence of how marine tourism, small-scale fishing, and conservation efforts can be integrated in Derawan. Dietz (2012) mentions that making policy decisions without knowing the local issues, and beliefs and how to integrate these values is impossible as such decisions should address the community's values. Therefore, by examining social perspectives on Derawan Island, we could understand more about the root problems and the expectations of various parties regarding those relationships. Then, these initial insights could help to generate a concept of small-island sustainability on Derawan Island, Berau. This study could contribute information to guide a strategic development tool for future planning and policy on Derawan Island and potentially for other small islands in Indonesia.

## CHAPTER 2

### METHODS

#### Research Approach

This research was conducted over two weeks on Derawan Island, Berau Municipality, East Kalimantan Province, Indonesia in July 2017. The study applied a qualitative approach to explore local perceptions of social problems, using semi-structured interviews to explore and understand the social problems, participants' views, and the social and historical constructions pertaining to the research questions.

The semi-structured interviews gave participants more opportunity to share their thoughts without being interrupted with a following question (Cresswell, 2014; Van Teijlingen, 2014). In a semi-structured approach, questions are not rigidly set and can be guided in a framework by the researcher (Creswell, 2014). This approach also looks at how people perceive and experience events from their own perspectives, which allows a researcher to make connections between different aspects of people's lives (Griffin, 2004). In addition, it can develop an explanation for causal processes and mechanisms, transformed into words to provide a comprehensive view of real life (Maxwell, 2008; Skinner, 2000).

This study also used an interpretive research analysis to understand the problem and the social context constructed from reality and its process (Rowlands, 2005). It examines interviews for what the participants experienced, their views, thoughts, feelings, senses, memories, trust, perception, and attitudes.

This study used secondary data such as a literature review, governmental and institutional documents, and multiple publications, journals, documents, articles, theses, books, technical reports, and Internet sources to support the primary information obtained from the interviews.

### **General Characteristic of the Study Population in Derawan**

Derawan is one of several islands in the Coastal Water Conservation Areas in Coastal Park Derawan Islands, Berau, East Kalimantan Province, Indonesia, covering 42,583.80 Ha (14.92%) of 285,266 Ha (MMAF, Indonesia). The Derawan Islands district has five villages: Pegat, Teluk Semanting, Tanjung Batu, Derawan Island (Derawan village), and Kasai. Derawan village (on Derawan Island) is the main marine tourism destination and has 30 places of accommodation: 20 cottages, six homestays, and four resorts in 2015 (Berau Bureau of Statistics, 2016). The population on Derawan Island is 1,694 people (16.41% of the total population of 10,293 in the Derawan Islands district in 2015).

The predominant ethnic group in Derawan village is Bajau (Berau Bureau of Statistics, 2016). Bajaus were originally a group of people with a strong connection to the sea and traditional fishing practices (Evans, 1951; Nimmo, 1968). They are sea nomads, and they first landed in eastern Indonesia in the early 1900s from the east coast of Borneo and have dispersed across Southeast Asia (Nimmo, 1968). They are skilled in operating and making boats and in traditional fishing methods; they have less interest in agriculture (Nimmo, 1968).

In Indonesia, the Bajau are called Orang Suku Laut (sea people/boat tribe) who engage in maritime and fishing (Chou, 2005). In Berau, Bajaus are commonly fishers; they live along the coast in small communities and use the Bajau and Bahasa languages in daily conversation (Campaign Berau Pride, 2007). Based on 2015 data from the Berau Bureau of Statistics (Berau Bureau of Statistik, 2016), the fishers in Derawan caught 640 tons of fish, using 677 fishing boats. Yields are small since they are small-scale fishers.

In addition to the fishers, the study populations of this research include tourists, tour operators, and conservationists.

### **Sampling Methods and Participants**

This study uses a judgment sample known as a purposive sample, in which the most productive samples are purposely selected to best address the research questions (Marshall, 1996). Robson (2016) stated that one of the general principles of sampling size is if the population does not vary much on a measurement, the researcher can use a smaller sample size, using their judgment to reach the purpose.

Table 3. Sample Plan and Method

Sample Frame	Sample Size	Sample Tool	Sample Method
1. Fishers	4	Interview	Purposive and Snowball Sampling
2. Tourists -Domestic -International	34	Interview	Purposive Sampling
3. Tourist operators -Fishers	15	Interview	Purposive and Snowball Sampling



	-Non-fishers			
4.	Conservationists (Representatives of NGO in Derawan)	10	Interview	Purposive and Snowball Sampling

For the fisher population, this sample comes from several locations in Derawan village, so no major groups of fishers were excluded in the interview process, and the sample of fishers could represent the sample population needed. A fisher was chosen purposively as a respondent based on my contacts in the area. Then, snowball sampling was applied (Lofland, 2006): participants are recruited through an initial participant who knows about other people who demonstrate the desired characteristics for the research. The later respondents then recommend someone else, and the snowball sampling continues until enough respondents have been recruited. Through snowball sampling, a researcher can access a sample population by asking participants to recommend others (Lofland, 2006).

Like the fishers, the tour operators and conservationists were chosen by purposive and snowball sampling. Tour operators could be the fishers or non-fishers; fishers often work as tour operators as an alternative livelihood. Tourists were purposively selected based on whether they were domestic or international. The conservationists were from Wildlife Conservation Society whom I met in Derawan based on local information.

## **Data Processing Procedures**

The general steps to process the data in this study are described below:

- Examine the interviews pertaining to the research questions.
- Transcribe the interviews
- Interpret interviews for the most significant examples.
- Synthesize data from each the participants.
- Compare interview data with the secondary data.
- Apply existing theory to the data.
- Write up data.
- Write conclusion.

## **Reliability and Validity**

Patton (2001) states that validity and reliability are two factors that a researcher should be concerned about while designing a study, analyzing results and judging the quality of the study. Reliability refers to the stability of findings, and validity represents the truthfulness of findings (Skinner, 2000). To ensure reliability, this study examines the interview transcripts to avoid erroneous transcription (Creswell, 2014) and by using re-testing—asking some of the same questions, modifying the sentences, at both the start and the end of the interview to check the consistency of the respondent’s answers. Re-testing can enhance reliability by documenting the analysis process in detail (Mays, 1995). Additionally, this research examines the process and the product of the research for consistency by verifying the

raw data, process notes, and products data all align with one another (Hoepfl, 1997; Campbell, 1996).

Validity in qualitative research is challenging because a study needs to incorporate both rigor and subjectivity into the scientific process (Skinner, 2000). To ensure validity, this study recorded conversations while taking notes during the interviews. Notes were crucial to assure that all questions were answered and in case of a malfunctioning tape recorder (Opdenakker, 2006). Also, respondent validation (member-checking) was used to examine the accuracy of the findings by reconfirming the notes and conclusions with the participants (Maxwell, 2008). It is important to verify the notes with participants to reveal the things that had not been noticed during interviews. Therefore, after an interview, I repeated briefly what they perceived regarding research questions, conclusions, and expectations to assure that the information I extracted was similar to what they had communicated and to accommodate any unanswered questions.

This study also cross-checks the data and the research process with experts familiar with the related issues (Creswell, 2000) on Derawan Island. To cross-check, I asked several questions to examine similar and different perceptions each group. Furthermore, I cross-checked the research findings with several people who were knowledgeable about the condition of Derawan: scholars from Mulawarman University, Provincial Marine and Fisheries Officers, and Berau Marine and Fisheries Officers.

However, biases may exist in the interpretation of findings, due to factors such as background, gender, culture, history or socioeconomic background (Creswell,

2014). If so, the findings collected from a few cases or individuals might not be generalizable to a larger population, but they may be transferable to similar settings in other islands. The findings also may not be extended to wider populations because they are not tested to discover whether they are statistically significant or not (Atieno, 2009). The interview process can also influence the response of the participants and the analysis might be biased from the personal interpretation of the researcher (Collier, 1991).

## CHAPTER 3

### FINDINGS

This research study planned to obtain the perceptions of four groups on Derawan Island: fishers, tour operators, tourists, and conservationists. The semi-structured interviews covered the social dynamics of how these groups perceived the presence of marine tourism in a conservation area in Derawan. It also includes past and recent events and future expectations of each group.

At the outset, I learned that the fisher and tour operator populations overlapped. Some fishers worked in the tourism industry as tourist operators but still went fishing in their spare time. Some of them worked full-time as fishers in the 1960s, but when they owned a homestay or a boat, they no longer relied on fishing as a primary livelihood. I interviewed 19 people, all of whom either were currently fishers or used to be. Four of them were fishers and also homestay owners. Of the remaining 15, six were now homestay owners (two of them had a double occupation as guides), one was a leader of the Derawan Snorkeling Guide Association, one was a speedboat owner and a boat operator for tourists, two were boat operators, two were guides, and three were working professionals (teacher, village health center staff, and security staff). However, most of tour operators I interviewed reported that they sometimes still went fishing. I could not find anyone on Derawan Island working solely as full-time fishers because all interviewed fishers have been involved in the tourism industry. However, since this study was conducted for only approximately two

weeks, the limited time frame could also be a factor, preventing me from investigating further.

Out of the 34 tourists, 21 were domestic and 13 were foreign. The majority of domestic tourists came from East and North Borneo, such as Berau, Samarinda, Balikpapan, Tarakan, and Bulungan. The rest were from Java, Jakarta, Surabaya, Palembang, and Yogya. The foreigners included 2 Australians, 3 Japanese, 1 South Korean, 1 German, 4 Swiss, and 2 Austrian tourists.

The ten conservationists in this study consisted of two scholars, five government officers, two NGO staff members, and one local ex-fisher. The scholars were sociologists in the marine and fisheries field. The three government officers were from provincial governmental agencies: one was in marine coastal surveillance, one was in conservation, and one was in marine spatial planning. The other two conservationists were from Berau Municipality; one was in aquaculture but had experience in establishing the KKLD, and the other worked with capture fishing. The NGO staff members were from the Wildlife Conservation Society and were doing a project in Derawan. The local conservationist was a former fisher who used destructive fishing practices in the past but later volunteered in conservation projects, including trash collection and sea turtle protection. In total, I interviewed 63 people in Derawan.

This chapter presents the results based on each group's perceptions. The discussion section will go further in explaining the results and analyzing the relationships among marine tourism, the fishing industry, and conservation programs and the costs and the challenges of tourism development in Derawan.

## **The Fishers' Perceptions**

Before it was designated as a Tourism Village, Derawan was a fishing village where almost locals worked as fishers. Hence, most locals still perceive themselves to be fishers and concerned about the fishing stocks. Most fishers and ex-fishers are now working as tourist operators, and many also run homestays for additional income.

The choice to shift out of fishing depended on income and job satisfaction. Most fishers felt that they faced uncertainty with fishing as a livelihood due to unstable income and uncertain weather. For example, in good weather they could bring in 220 pounds on a three-day fishing trip; in bad weather they only caught 22 pounds. Therefore, they switched their fishing occupation from fishers to tourist operators. Some fishers felt that they were more personally satisfied as fishers rather than tourist operators. They never thought about any job except fishing since they had more freedom and did not answer to anyone. Others said that they used to work as tour operators but then realized it was not their passion.

Some locals only went fishing using a small boat or a net or just diving. They did not involve their family members in fishing activities for supplemental income. They also perceived they could not compete with more wealthy operators with modern fishing gear.

Although most of them already held double occupations, a new social problem related to fishing was emerging due to lift-net fishing practices. Lift nets are “horizontal netting panels like a pyramid or cone with the opening facing upwards submerged at a certain depth, left for a while, then lifted out of the water” (FAO).

One fisherman explained, “It is not us, the small-scale fishers, who deplete the fishing resources, but the lift-net methods used by wealthy owners. We only harvest fish as needed, but those lift nets are taking all the fish, including the smallest which are just discarded every day.”

In addition to the lift-net issue, the fishers in Derawan felt that conservation efforts had restricted their fishing access. Many fishers and ex-fishers also questioned the need for conservation since they saw themselves as no longer using destructive fishing practices. Basically, the fishers supported the core zones (no-take zone) of the MPA—if they were followed by a good monitoring system. However, they saw the core zones as less effective because they did not think the zones were being well-monitored.

The fishers supported marine tourism in Derawan because they got additional income by renting out their homes, by being a guide, or by selling more fish to restaurants. Another social support for marine tourism was that fishers went fishing away from the resorts or tourist activities such as diving or snorkeling. They did not mind the inconvenience of going further from the coastal areas because they did not want to disturb tourists.

Nevertheless, since the fishers and former fishers had already had long histories with policy interventions, they were less interested in participating in any program meetings. They felt that most meetings had been done without further follow-up or had been held just to impress them. This study also observed three main programs from the past that have remained unpopular enough in Derawan and that might explain the reluctance of local fishers to get more deeply involved in a program.



### *1. The Enclosing of 1.2 Million Ha of Conservation Areas*

The fishers and ex-fishers perceived that the 1.2 million Ha conservation area from 2005 was created without considering their interests. That decision led to resistance from locals who had an interest in the area for its fishing grounds and sea turtle eggs. They were worried that with the implementation of the KKLD they could no longer catch fish and incubate the eggs.

Although the KKLD process ostensibly involved locals, in fact only the local elites were involved, not the grassroots. In Derawan village, the elites included locals with higher socioeconomic status, and locals with political and governmental connections. The grassroots in Derawan typically are ordinary people who associate with their socioeconomic peers. These are the fishers, the tour operators, and others who do little or no political networking with any influence parties. However, they make up a larger portion of the local population in Derawan than the elites.

While some elites agreed to the full area of conservation, the grassroots had different thoughts. They did not see that people attending meetings represented their interests. The grassroots group demonstrated two major responses to the creation of the conservation area: neutral and opposed. Even if opposed, however, they acted ambiguously since it was an official regulation that they needed to comply with but wanted to resist at the same time. Clandestinely, they still applied their own rules as they continued fishing. Law enforcement was still low, and this regulation still has no clear guidelines regarding penalties or punishments. To diminish the tension, the KKLD plan became inactive for several years, until national Decree 27/2007

regarding zoning systems was issued. That decree significantly cut 76% of conservation zones of the KKLD from 1.2 million Ha to only 285,266 Ha.

However, until now, resistance to the creation of the MPA can still be felt on Derawan. The stories and the feeling have also been passed down to the next generations. However, it is difficult to accurately say how many people oppose or support this policy, and what exact factors shaped their attitude still remain unclear.

## **2. *Turtle Egg Buyout Program***

Derawan Island, with its soft, white sandy beaches is an important nesting site for sea turtles. For economic reasons, the turtles became subject to exploitation for their shells, meat, and eggs. Hence, many conservation programs focusing on sea turtles have been launched to support the local economy and also maintain turtle populations.

During the decades 1950-2000, sea turtle populations were managed through a private auction scheme under Berau Decree 30/1953 (Ghifarri, 2008). The decree allowed for certain parties to buy the rights to manage sea turtles and their eggs. However, they had to sustain the turtle population and could not trade the meat and carapaces of turtles.

According to some of the local study participants, the turtle egg buyout program involved local participation in the past. Locals would get compensation if they successfully incubated sea turtle eggs and then released the little turtles (*tukik* in Bahasa) on the beach. Locals saw this program as successful; they said the number of turtles increased in that participatory scheme. However, the buyout program was

discontinued because the government and NGOs were concerned that being raised by humans might lower the probability of survival of the sea turtles in their natural habitat. Moreover, the locals mentioned that the government and NGOs were aware that the program could lead to over-harvesting of sea turtles, potentially decreasing the population.

Based on data from the Berau Fisheries Agency, the number of collected turtle eggs drastically decreased from 2.7 million eggs in 1999 to 1.5 million eggs in 2005 (Ismuranty, 2006). Therefore, since 2005, under Berau's municipal decree 31/2005 regarding regional marine conservation areas (KKLD), all activities related to marine resource extraction, including sea turtle egg harvesting, were prohibited. With support from NGOs such as TNC, WWF, Mitra Pesisir, and Kehati, the local government increased the commitment to protect the sea turtles from extinction (Giffari, 2008).

Nevertheless, the locals viewed the protection of sea turtles as not leading to significant results. They noticed that the number of sea turtles did not increase much over a number of years under the conservation program. Moreover, they did not understand the reason for the egg-harvesting prohibition. By using local knowledge, they claimed, they were able to keep the turtle population more stable. They also stated the turtle conservation programs also imposed very strict penalties for anyone breaking the law, and to avoid punishment they consequently would not take any eggs. As a result, most locals were a bit apathetic of any turtles nesting in the area or of any harassment that potentially happens. Most of them felt that they were no longer responsible for taking care of the turtles, that it was the responsibility of other parties such as government and NGOs.

Although some literature I reviewed focused extensively on the history of sea turtle conservation, this study does not focus on the history but wants to highlight how this program remains in locals' memories and how it affected their perspectives of any tourism, fishing, or conservation programs in their villages.

### **3. *Unresolved Trash Management***

Locals perceived the trash issue as growing in Derawan as a result of Derawan's popularity as a tourism attraction. Not only were more tourists coming, but other people were coming in to look for jobs in tourism industry. As a consequence, the locals had to deal with more trash without any clear solutions.

The locals expected the government to understand the challenge they faced in living on a small island with few options for livelihoods. Under the conservation laws, they were already restricted from catching fish at some locations and from taking the turtle eggs. Then, when tourism promised more benefits and opportunities, the trash problem triggered not only environmental but also societal problems. Derawan in fact has a trash incinerator but it was never used. The local perception was that on a small island the ash from trash incineration would pollute the environment and harm their health. One fisher said, "We are hoping that the trash problem gets solved soon; tourism is bigger and our community cannot deal with trash much longer. We don't need trash cans any more, but a real solution how to move the trash outside" (Fisherman M, 2017).

Derawan tends to be socially unified since most locals used to be fishers, as reported by the local respondents. For instance, although they went fishing separately,

they were likely to congregate together in the ocean when night came, brought together by their intuition and familiarity of the ocean. However, they admitted that when different groups had different interests, unity was difficult to reach, even in the same group. Consent from the leader of one group did not mean that other members would agree. Today, they were less interested in environmental campaigns with less tangible win-win solutions.

Local respondents mentioned that the regulations should consider fishers' interests foremost rather than just impose the law. If rules would not marginalize them, they would not mind obeying the rules for a sustainable island ecosystem. However, many local respondents, including fishers and ex-fishers, saw the conservation management models as rarely engaging locals' interests. They stated that most programs generalized and imposed the same regulations in all regions.

### **Tour Operators' Perceptions**

In the context of this study, the tour operators were all persons working in the tourism industry in Derawan, including as homestay owners, guides, boat operators, restaurant owners, and shop owners. Most of them were former fishers and a few of them currently fished for a living.

The tour operators saw differences in standards regarding sanitation, noise, and congestion between domestic and foreign tourists. They perceived that most foreign tourists held higher standards of sanitation, while domestic tourists felt that sanitation conditions in Derawan were acceptable. Locals involving in the tourism industry have picked up on the cultural differences and preferences and have adjusted to it.

Therefore, when they found foreign tourists staying close to village areas, they kept the areas quieter and cleaner.

Economically, the tour operators felt that money was leaking from the local economy since many tourists visited Derawan through outside travel services and non-local guides. Therefore, in 2015 some locals established the Derawan Snorkeling Guide Association. The organization requires the guides to have diving certification and urged tour operators to conduct pre-dive briefings to the tourists regarding dos (e.g., use life jackets, be cautious while touching reefs) and don'ts (e.g., no use of sunblock while swimming in jellyfish lakes, no bothering sea turtles when nesting). However, some tour operators were a bit reluctant to deliver those messages because they were worried the rules would displease the tourists.

The tour operator respondents supported the tourism industry since it benefits them. However, they were concerned that the increasing amount of trash would lead to environmental and societal problems. Although the incinerator would pollute the water, some of them nevertheless saw the incinerator as a good option. The incinerator supporters stated that incinerator opponents influenced other people and led them to oppose the incinerators. Generally, from observations and interviews, the pro-incinerator group consisted of locals who were officers, conservationists, teachers, administrators, local health officers, and from the younger generations. Most of those against the incinerator were fishers, tourist operators, restaurant owners, and the older generation. However, the number of people opposing was greater than those supporting. Respondents also mentioned that providing trash cans was an incomplete solution. They hoped the government could adopt a trash management practice used

by big resorts: using barges to collect and remove all trash every few days. The government could support a real solution by providing a budget and services such as the free barges and landfill that they expected.

From an environmental perspective, the tour operators recognized that the presence of tourism had shaped their environmental attitude. For example, they understood that continued dumping of trash on land would harm the sustainability of the island. They also mimicked the foreign tourists' behavior of turning off the lights, an action that had impressed the tour operators.

The tour operators stated that they were aware of the benefits of tourism benefits so they educated themselves to be more environmentally conscious. They understood not to bury trash on the island or to dump it in the middle of ocean. Hence, for environmental balance, they treated the trash in several different ways. Some operators brought the trash on their boats when taking tourists to adjacent islands and would then throw out the trash in the middle of ocean. They knew this would anger both domestic and foreign tourists, with the foreigners were more concerned about their inappropriate approach of dumping trash. They stated they preferred to not argue with the tourists. When I asked them about this practice, they explained, "We understand we should not do it, but we have no better option. We cannot burn or bury it on Derawan regularly. We care about the environment that we depend on for tourism now. Therefore, we have sorted our trash based on biodegradable materials before dumping it into sea" (Tourist Operator C).

In 2015, the locals also tried to raise funds for public use for the island by collecting an entrance fee of 50¢ per person. With that money, they were able to build

two public restrooms in front of the island's gate and to pay for beach clean-up. However, according to local people, this method lasted only few months before the local government prohibited it, calling it illegal.

The tour operators welcomed NGOs since they felt that NGOs shared their interests. NGOs often provided them with environmental education. However, they revealed that when one NGO planned to provide training and diving certification for ten people, the project was rejected by the head of village due to personal reasons. Respondents said that this sort of action was common in Derawan; when elites have personal problems with any party, it impacts others. The tour operators hoped that the government would pay more attention to their interests and not only train restaurant owners and fishers but also train them how to be good tour operators.

### **Tourists' Perceptions**

Derawan Island is a central spot where almost all tourists stay and from which they visit other islands. It is the closest island from Tanjung Batu port, only taking 30 minutes to travel to and from. Derawan also offers cheaper transportation than other neighboring islands such Maratua. Besides, there are more restaurants in Derawan than on the other islands. Such amenities make Derawan the most popular place for tourists to stay. The numbers of tourists visiting Berau are significant, and the majority of the tourists have visited Derawan Island (Berau Bureau of Statistik).



### ***Domestic Tourists***

For most domestic tourists interviewed for this study, this was not their first time visiting Derawan but rather their second, third, fourth, or fifth time. Derawan and its adjacent islands offer several different and unique activities, so the tourist participants had come for different reasons. However, most activities were related to swimming, snorkeling, or diving. Many tourists said they loved diving with manta rays at Sangalaki Island. Other tourists said they enjoyed swimming with the non-stinging jellyfish in Kakaban Lake. Others preferred to spend time with whale sharks in the Biduk-biduk area. However, large numbers of tourists from East and North Kalimantan loved Derawan since it was a nice place, easy to reach, and cheap. They did not need to go out of the province to find quiet and pristine areas. Since they lived relatively close by and could come back frequently—some as often as every two weeks or every other month—they usually spent time only in Derawan and enjoyed the view, the calm, and snorkeling.

To head to other islands, the tourists must rent a boat for a day. The tours take them to Maratua first, then to Kakaban, then Sangalaki, and usually run from 8 am to 5 pm. The tour operators stated that they arrive in Derawan around 5 pm to avoid the big waves. However, one day-trip was not enough for many tourists because the hour-long trip between each island took up time exploring each place. Sometimes they were not able to meet the marine creatures they had expected, such as manta rays and sea turtles. Moreover, the times when they do meet those species are memorable, and the tourists were keen to repeat the experience. For these reasons, the tourist respondents had visited Derawan or would visit it again.

Most domestic tourists out of Kalimantan commonly stayed in resorts, although local hostels were cheaper and present the same beautiful view facing the sea. Some respondents mentioned they stayed in the resorts because the travel agencies had arranged the hotels for them. Some said it was because they did not have much information about local lodging. However, some tourists mentioned they preferred staying in a quieter, more luxurious place away from village. Like the domestic visitors, most foreigners also preferred to stay in big resorts for similar reasons. However, during the peak season—typically August-October for foreign tourists and the end of December through January and the big holidays for domestic visitors—all resorts, including local ones, would be fully booked. In these cases, homestays are a choice, but these lodgings are often already full. Tourists who did not book in advance could spend the night in village public areas or in locals' homes.

### ***Foreign Tourists***

Like domestic visitors, many foreign tourists enjoyed their trip to Derawan and would like to return. However, some of them commented on encountering poor reef conditions in some diving spots. They did not know the history of Derawan and the destructive fishing activities in previous years. However, some European tourists stated they would love to stay over in Maratua and enjoy the view while reading books. However, most of them were interested in returning another time to dive with manta rays and whale sharks. They were also amazed with Kakaban Island, not only with the non-stinging jellyfish but with the huge, impressive sea wall reef garden. This interest in the reef was different from that of most domestic visitors who preferred

swimming in the jellyfish lake than in the Kakaban and Sangalaki waters. This difference was understandable because diving in Kakaban and Sangalaki was challenging due to the waves. The tour guides also admitted that they must repeatedly warn tourists of diving too far down. For safety reasons, the Derawan Snorkeling Guide Association strongly encourages tourists to have one guide per five divers so the guide can monitor and assure the safety of divers.

The foreign tourists were more concerned about safety and the quality of service than domestic tourists. They thought that the tour operators needed to standardize their skills and operations, including their knowledge, hospitality, boats, and diving equipment. For example, foreign tourists expected tour operators to have gone through training for driving the boat and hoped that the boat itself would have annual inspections and regular permits. They also recommended that the certification of boat operators and operation permits would be posted on the boat where they could see it and feel safer. Some foreigners indicated that they received a briefing before diving, but only in an Indonesian language (Bahasa), so they strongly recommended that guides be able to offer the information in English or have English materials on the boat. However, many foreigners as well as domestic tourists said they did not get the pre-briefing.

Generally, both domestic and foreign visitors agreed that they would not mind following diving regulations. They understood that the rules were for their safety and the islands' sustainability. Most tourists already were concerned with the trash problem and reef issues and were willing to pay a fee for conservation programs in

Derawan. They were also concerned with the increasing number of shoreline resorts along the coast, that continued building might destroy the environmental balance.

### **Conservationists' Perceptions**

The conservationist scholars that I interviewed saw the conservation area as essential to ensuring the life-cycle of marine life and fishing and to maintaining the iconic wildlife, sea turtles, fish, and reefs in Derawan. However, the conservation area was not supposed to be interpreted as fully protected as it previously was in the KKLD. With the Coastal Park divided into several zones in 2013, they hoped the plan would gain success in implementation.

The conservationist respondents considered it a good idea for marine tourism to support the presence of MPAs, and they agreed a tourism fee could be one alternative to fund conservation efforts. However, since Derawan Beach was still a public good, there was no entrance fee. Regardless, they thought that the government needed to intervene through policy and not just let the community itself find a balance between tourism and conservation. Leaving it to the community might lead to counter-productive actions and unsustainable outcomes since the tourism development could surpass the carrying capacity.

Regarding social aspects, the scholars thought that marine tourism should not substitute for fishing as an occupation but should serve as a complement that provides fishers with an alternative livelihood. In the case of Derawan, currently only a few locals kept working as fishers. Although the conservationist scholars agreed that marine tourism benefitted people, they questioned which parties stood to benefit. They

also mentioned that the social structure in a coastal community like Derawan made it relatively difficult for programs to intervene. A social gap might prevent a program from receiving support. Social conflicts between elites and grassroots commonly occurred in Derawan, particularly when many grassroots saw that the elites received grants but they did not, leaving them feeling marginalized. Many social grants were unequally distributed or misdirected. Some fishers did not get grants for things such as boat engines, fishing gears, or boats while non-fishers obtained free boating equipment but then left it to fall into disrepair. As a result, locals became quite apathetic with the government program and no longer attended public meetings. They also doubted that environment or social programs would benefit them beyond the intended purpose of the program itself.

The scholars said that if the government planned to develop tourism in former fishing villages and conservation areas, all aspects should be considered: not only environmental protection but also the coastal community's interests. Moreover, every program policy in Derawan should involve the grassroots community as primary users. They also encouraged agencies and groups to conduct economic valuation studies and cost-benefit mechanisms to optimize conservational funding through environmental services and tourism growth.

In future, the scholars hoped that all researchers were willing to contribute to policies at the advocacy level and that the government would consider research results such as economic valuation, environmental science, and social studies as input for the decision-making process. Researchers were also expected to report their findings to governmental agencies.

The NGO staff respondents thought that having conservation areas embedded with tourism might negate the potential benefits because Derawan was supposed to be protected but got increasing congestion instead. Although tourism offered economic benefits, the resulting development could weaken the sustainability structures. The trash issue they also mentioned as needing a real solution. They urged the government to improve environmental protection measures to eliminate unexpected outcomes. In addition, they saw a need to incorporate measures addressing environmental behavior and a law enforcement program.

However, some local conservationists thought they should initiate programs to manage the environment on their own without relying on other organizations. They were also willing to rehabilitate the reef around Derawan Island, but since they were prohibited from collecting any fees, they could not do that. Regarding the trash issue, a few locals paid the neighborhood coordinator for collecting trash every month. The coordinator was a pioneer and volunteer of local conservation in Derawan, not only taking on trash issues but also sea turtle protection over many years. He urged his neighbors to not to dump their trash in Derawan or in the ocean. However, these efforts needed strong commitment and sacrifices. He would collect \$1.75 from each of his neighbors to cover fuel, time and efforts, but he also had to spend more of his own money. Nevertheless, he did not mind doing that. Every three days he would come door to door to collect trash. Then, using his personal boat, he would cart the trash out to an adjacent island to dump. He hoped the others would do the same and never burn, dump, or throw the trash in the sea. However, he saw this as only a temporary solution because Derawan did not have a landfill on the adjacent island and this approach could

trigger conflict between islands. Hence, he expected the government could provide a legal landfill for Derawan on an adjacent island. He said, "I know I cannot do it much longer, but I hope we will get a real solution from the government." I asked what other factors shaped his attitude towards environmental issues and led him to volunteer. He stated that in the past he used bombs to catch fish, a method called blast fishing. However, seeing many little fish die and the destruction to the reefs was so disheartening that he never used blast fishing again.

Like the scholars, the government officers I spoke to supported marine tourism in Derawan since it contributed positively to regional development. However, Derawan still had an open-access beach where no entrance fee was allowed. Hence, locals could not get any compensation through fees without consent from the government. Until now, both conservation efforts and local efforts in Derawan have relied only on government funding through National Budget Revenue (APBN) and Regional Budget Revenue (APBD), implemented in a series of annual programs, such as the rehabilitation and management of coral reefs, mangrove programs, fishing grants, and trainings.

Some officers also mentioned that in the past, Derawan was a fishing village where most locals used destructive fishing tactics such as blast fishing. Therefore, the government introduced them to conservation. This concept did not necessarily lead to a pro-environmental change in locals' behavior; they still caught fish in the same ways. Most officers agreed that it was marine tourism that really encouraged locals to act more environmentally and change jobs. The officers also perceived that the tourism and fishing industries were in a harmonious relation. The fishers never

interrupted any tourism activities and went fishing away from diving and snorkeling spots. It was an unspoken understanding between the fishers and the tour operators.

Nevertheless, some conservation efforts experienced resistance from locals. Many illegal activities were still occurring in the conservation areas. On the other hand, the government faced challenges in enforcing monitoring activities due to limited funding and resources. Moreover, the conservation area was too large compared to the number of surveillance staff and facilities. Hence, government officials said that active participation from the community was needed to support a successful monitoring program. The officers also revealed that several training programs and grants had been given to increase local efforts, such as welcoming guests at homestays, seafood processing for restaurant owners, and some skill-based training for tour guides and fishers.

Today, management of coastal areas is under provincial oversight through Decree UU 23/2014. However, as one provincial officer described, there is still uncertainty and no well-defined agreement between municipal and provincial governments about how to manage the coastal areas. Basically, Berau already controlled the zone 0-4 nm as mandated by Decree 32/2008. However, since Decree 23/2014 was issued, the zoning was no longer valid. The officer mentioned that the province should make a new zone from 0-12 nm by considering the previous zoning and synchronizing and updating data. As they said, in zoning systems that were in final stages of being completed, the province would consider the environment and socioeconomic interests.



## CHAPTER 4

### DISCUSSIONS

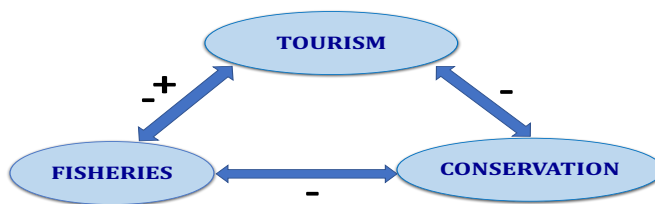
This chapter will discuss the dynamics of the relationship among marine tourism, small-scale fishing, and conservation efforts on Derawan Island. Chapter Four contains three subsections:

1. The Relationship among Marine Tourism, Fishing Activities, and Conservation Efforts on Derawan
2. The Potential Costs of Marine Tourism on Derawan
3. Major Challenges in the Tourism Development on Derawan

#### **The Relationship among Marine Tourism, Fishing Activities, and Conservation Efforts on Derawan**

This subsection consists of the analysis of the social perceptions of fishers, tour operators, tourists, and conservationists regarding the relationship among marine tourism, fishing activities, and conservation efforts on Derawan.

Figure 1. The relationship among Marine Tourism, Fishing Activities, and Conservation Efforts on Derawan



Marine tourism is not an issue for locals, including the fishers, but rather is appreciated on Derawan. Locals perceive that tourism has been good for the local economy. They do not think that marine tourism has negative aspects or restricts their access to fishing. Rather, conservation is often blamed for every fishing restriction, which is not necessarily true. The purpose of conservation basically is driven by tourism, as a way to maintain the beauty and resources for tourism. However, the negative perception of conservation might be related to past experiences that persist in locals' memories. The locals often question the purpose of the conservation policy of the government or any other organizations.

Coastal Park Derawan aims to protect fishing resources, reefs, and marine species (dugong, whale sharks, manta ray, napoleon, non-stinging jellyfish) while simultaneously recognizing the right of local people (MMAF Decree 87/2016). However, although the MPA intends to involve fishing communities, it has problems in implementing those plans (Glaser, 2010). In Coastal Park Derawan, the government faces operational challenges due to the lack of funding. The weak monitoring system also impedes the MPA in performing effectively. On the other hand, the fishers

indicated that the MPA has not yet been effectively enforced. The information related to open/closed zones and times of fishing still remained unclear for local fishers. The contentious relationship will continue if neither party is able to find the precise formula for balancing conservation efforts with fishing industry and tourism growth. Fox (2014) highlights that a good management system is essential to achieve conservation of biodiversity and local benefits.

Furthermore, although MPAs have been proven to have a positive socioeconomic and political impact on local people, their ability to provide tangible benefits has been questioned (Bennet and Dearden, 2013; McClanahan, 1999; Roe, 2008). Stonich (2003) mentions that MPAs can destroy local well-being by increasing the risk of a loss of livelihoods. Local people also are skeptical that the goals of an MPA would benefit them and not the government or other institutions (Kurniawan, 2016). McClanahan (1999) states that conservation efforts can gain more success if they prioritize locals' interests more rather than focus only on national interests.

Generally, fishers oppose the presence of Marine Protected Areas because they worry that the areas will result in declining fishing catches (Suman et al., 1999; Frangoudes, 2004). In Derawan, since fishing is no longer the main livelihood—rather, tourism is—the MPAs should have received support from locals. However, because of the negative perceptions of locals that conservation pays attention only to biodiversity and marginalizes local interests, locals might ignore the positive things conceived in MPAs. In other words, the fishers support MPAs when it relates to conservation for the tourism industry and at the same time resist them when it relates to the fishing industry. This negative view may also emerge from the history of sea

turtle conservation. That incentive scheme remained in locals' memories and affected how they perceived more recent conservation efforts. Therefore, it would be better to not mix monetary values and social values in a community since the sense of money would ruin the social connection with nature (Ariely, 2009). Moreover, incentives can weaken community and social attitudes, and people then value a conservation program for its monetary worth only (Maio et al., 2006).

Marine tourism, fishing industries, and conservation efforts are one package in Derawan, and they could not be enforced separately. The relationship is a circle in which each affects one another. However, often they compete with one another. Regardless, tourism could be a way for locals to start utilizing the environmental services. Derawan Island would be more sustainable if conservation programs could support the presence of fishing activities and if the existence of marine tourism could contribute financially to the conservation efforts. The fishing industry can view the conservation efforts as increasing marine fishing stock and the resources for sustainable island tourism. Vogt (2016) and Hidayah (2016) mention that collaborative, integrated, and comprehensive planning in small-island tourism development can ensure local well-being. Biophysical and socioeconomic information is crucial to have before applying the sustainable concepts of a small island (Teh, 2007)

Until recently, the marine tourism industry has not been able to support conservation efforts in Derawan, tending rather to increase environmental problems. Coastal Park Derawan does not have the finances to perform effectively because it relies only upon a governmental budget, like other MPAs around the world

(McCalnahan, 1999; Clifton, 2004; Baral, 2008; Bennet and Dearden, 2013).

Similarly, with limited funding, it appears that conservation programs have difficulty in sustainably maintaining the MPA. Consequently, more and more environmental problems are being borne by the locals, such as the increasing trash and congestion.

Vail (2000) states that tourism should be managed with regards to congestion in order to maintain locals' quality of life. The locals on Derawan have become more dependent on tourism, which unexpectedly causes environmental degradation. If such negative effects continue for a long time, it potentially could trigger another conflict between tourism and fisheries among the islanders.

### **The Potential Costs of Marine Tourism on a Small Island**

This study found three major potential costs of the presence of marine tourism on Derawan Island: diminishing social identity, increasing environmental issues, and greater risk of local economic leakage.

Today, Derawan might be no longer considered as fishing village as the fishing industry has significantly declined. The temptation of the benefits of tourism has led to the degradation of traditional practices on the small island. Nordstorm (2004) mentions that development of the tourism industry can lead to socioeconomic disadvantages if locals lose their traditional activities on the beach. Cheong (2003) says the Korean government invested in the tourism industry in a fishing village without changing the sociocultural practices. Under this scheme, the fishers would take tourists out for fishing and diving and provide accommodation and restaurant services. However, the locals still are not ready to carry out this program due to a lack

of skills in tourism industry (Cheong, 2003; Chen, 2010). Chen (2010) describes how the Taiwan government diversified fishing into tourism in the early 1990s when fishing stocks declined. Under the law, fishers are allowed to take tourists to observe marine life, enjoy village culture, or experience fishing and diving.

The presence of marine tourism in Derawan should not necessarily alter the islanders' livelihood. The label of Tourism Village is supposed to increase the local economy while maintaining the island's identity by bringing together fishing and tourism. If only a few locals work as fishers, who will do the fishing? However, from 2014 to 2016, fishing activities still played an important role in Berau municipality, contributing on average 10.76% of regional revenue, the second highest source of revenue after coal mining (61.66%) (BPS Berau, 2016). Therefore, the case described in this study should not be ignored, particularly in the context of a small island. If too many locals left fishing, the social impacts could be a net loss from tourism development. As tourism grows, the island needs more fish products, and the locals might not be able to meet the need, which could threaten the food security and food sovereignty in Derawan. Further, outsiders or private companies may lead in the future and dominate the fishing business on a small island if local people stop fishing.

Although tourism is essential for development, its negative impacts might outweigh its economic contribution, particularly on a small island (Seetanah, 2011; Wilkinson, 1980). In Derawan, almost all respondents agreed that marine tourism could benefit them economically. However, In Kuta Bali, Indonesia, tourism not only changed the locals' dependency on fishing but also increased pollution and congestion (Hussey, 1989). Moreover, marine tourism can also constitute externalities when other

people indirectly suffer the cost of tourism without receiving compensation (Schubert, 2010). As more tourists come to Derawan, more resorts are built toward the sea, damaging the coral reefs. Increasing numbers of divers also may put more pressure on the reef habitat. Keulartz (2004) mentions that 82% of reefs in Indonesia are at risk due to human activities. Also, the construction from tourism development can lead to beach erosion and increase the need for waste disposal (McElroy, 2002; Clifton, 2004).

On the top of this, the trash as non-point source of pollution becomes more problematic in Derawan. The trash not only disturbs tourists' view but also has a negative impact on health (Gregory, 1999). Furthermore, the pollution from trash is a chronic stressor to reefs in Indonesia (Cesar, 1996). The reefs will not recover naturally from that threat until the stressor from trash pollution is removed (Edinger, 1998). Cesar (1996) also mentions that Indonesia overall has already lost 40% of fishing resources; assuming a 10% rate of loss over 25 years, the lost yield is valued at \$30 billion. However, trash management is challenging on a small island, considering the vulnerability of space, economy, and the culture. Basically, waste disposal can be done through incineration or by dumping in landfill (Bai, 2002). An incinerator was installed in Derawan but never operated because most locals opposed using the incinerator due to health concerns. As of now, Derawan does not have landfill; most locals just burn or bury their trash. Sometimes, they sort out biodegradable trash and dispose of it in the middle of the ocean when bringing tourists around the islands. Although the ash from incineration does have an environmental impact, incineration

has less of an impact and is cheaper than landfilling, but the choice depends on the community (Mendes, 2004; Chen, 2005; Rabl, 2007 Morselli, 2008).

Rapid tourism development can degrade coastal areas and negatively affect coral reefs, which eventually could reduce the satisfaction of tourists in Derawan. A study in Koh Cang Marine Park, Thailand, demonstrates that coral reef conditions affect tourists' enjoyment (Roman, 2007). Hence, the environmental carrying capacity and its management should be made a priority in order to maintain community relationships because environmental issues may lead to social conflicts (Wilkinson, 1980; Teh, 2007).

In general, restricting diving only to experienced divers can maintain coral reef health, although there is no guarantee that experienced divers will make less contact with reefs than beginner divers. In fact, many experienced divers, dive masters, and instructors touch reefs almost as often as inexperienced divers, whether intentionally or accidentally (Hammerton, 2015). Hence, Hammerton suggests that guides give pre-briefings and in-water interventions to reduce the frequency of contact with the reefs. However, in Derawan, most tour operators might feel hesitant to give pre-briefings due to their concern of disturbing tourists. Reef degradation is not only from diving activities but also from boat anchors, as can be seen in Bonaire Marine Park, in the Caribbean (Thur, 2010), and Gili Trawangan, Indonesia (Hampthon, 2015). Therefore, efforts to conserve reefs should also include education in how to minimize the impacts of tourism in all aspects.

Tourism has increased since Berau became well-known for its diving sites. In 2003, there were about 1,000 to 1,300 foreign visitors to the region (Wiryanawan, 2008)



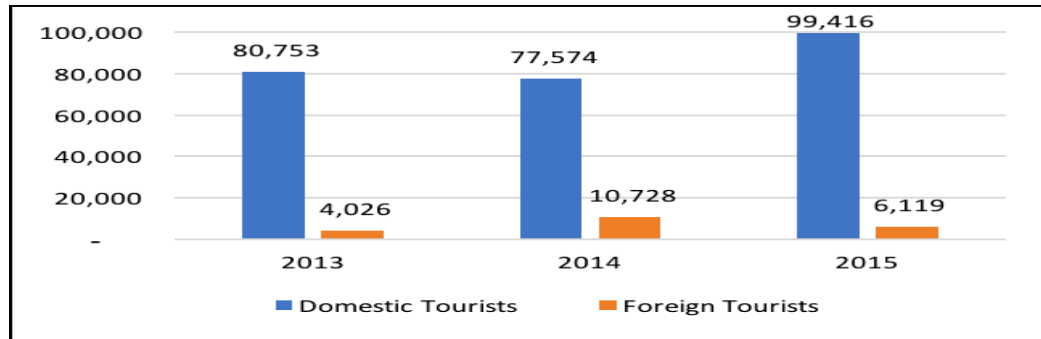
and 7,500 domestic tourists visited Maratua, Kakaban, and Sangalaki islands (MMAF Indonesia). In 2013, there were 80,753 domestic visitors and 4,026 from abroad (Berau Bureau of Statistics, 2013). The number of tourists has increased significantly in ten years.

According to tourism data, it appears that the number of tourists has gone both up and down (Berau Bureau Statistics). Figure 2 describes the number of domestic and foreign tourists over three years in Berau<sup>2</sup> (2013-2015) (Berau Bureau of Statistics). Although it represents the total number of tourists coming to Berau which is not all tourists come to Derawan islands, most of them would visit Derawan (Berau Bureau of Statistics, 2016). Domestic visitor numbers were higher than those of international visitors on Derawan Island. However, the number of foreign tourists dropped by 42.96% in 2015 while the domestic visitor numbers increased a little bit. The causes for this phenomenon remains unclear, but the perceptions of foreign visitors of the environmental conditions (e.g., trash, less healthy reefs), compared to those of domestic visitors, might contribute to the decline. The lack of standard facilities or human resources in tourism services could also be factors for declining numbers of foreign tourists. Or the decline might not correlate with these factors but could be related to discrepancies in costs. The travel and time costs significantly increase with international distance. However, more precisely identifying the reasons will need further and deeper study.

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<sup>2</sup> The data only covers three years (2013-2015) since I was not able to find the earlier online data from the website.

Figure 2. The number of domestic and foreign tourists in 2013-2015 in Derawan and its adjacent areas.



Tourism also could lead to economic leakages since most goods to support the tourism industry must be imported from outside, and locals are less able to compete with large companies; similar scenarios have been observed in studies in Komodo National Park (KNP), Indonesia (Walpole, 2000) and Taquile Island, Peru (Mitchel, 2001). Tourists' preference to stay in non-local lodging could also have an impact; in the KNP study, 89% of tourists stayed in non-local accommodations (Walpole, 2000).

Tourists' preference for staying in the big resorts stems from a lack of information on how to access local cottages. Here, the economic leakage is worsening because non-local travel agencies often arrange the accommodation for tourists, including employing non-local guides. This situation used to trigger conflict between local and non-local tourism workers and pushed some locals to establish the Derawan Snorkeling Guide Association. This is a positive local action for small island tourism to protect local interests. However, the lack of the locals' skills in tourism may negatively influence their ability to meet tourists' expectations. To improve the local tourism economy, the government could provide training for locals to improve language, communication, and hospitality skills (Jayawardena, 2003).

Supposedly, marine tourism was established in Derawan in MPAs to protect reef biodiversity and generate local revenue (Wiryawan, 2004). However, since Derawan Island is a public good and is open to the public, tourism resources are not allocated efficiently. In Derawan, funding to preserve the ecosystem health does not come from tourism fees, such as an entrance fee, or taxes imposed on tourists; meanwhile the local people are burdened with local taxes and environmental problems.

Derawan is still categorized as a public good, which means that anyone can enjoy the beach at no cost (Mankiw, 2007). However, this could lead to open-access externalities: the more tourists who visit, the more crowded the beach, eventually diminishing the beach's aesthetic value. Additionally, local people must bear the costs of tourism activities that affect their quality of life. There is perhaps a concern that a user fee would reduce the number of tourists, but user fees can function to run conservation management (Green, 2005). A study in Bonaire National Marine Park in the Caribbean also revealed that, on average, 90.5% of both divers and non-divers are willing to pay a diving fee and would pay more for conservation efforts if it will lead to the sustainable outcomes for reef conditions (Uyara, 2010).

The fact that tourism benefits the community is undeniable to a certain degree. Tourism is viewed as an additional value to diversify the local economy (Jeanfany, 2014; Vail, 2000). However, Croes (2006) mentions that although tourism is essential to an economy, there is skepticism that tourism could increase jobs and reduce poverty on a small island. Small island tourism often results in lower earnings due to locals' insufficient knowledge of the tourism market (Jayawardena, 2003). Most programs

and research focus more on the health of the ecosystem and pay little attention to the relationship between tourism and economic performance (Shareef, 2005). Unlike other places in conservation areas which have applied user fees, Derawan Island is still struggling to overcome the lack of conservation funding. The most significant costs might be borne by the local community due to environmental degradation, non-optimal benefits, and various potential conflicts.

### **Major Challenges in Tourism Development on Derawan**

Since 2009, the Ministry of Tourism has carried out a National Program of Tourism Community Empowerment (Program Nasional Pemberdayaan Masyarakat Mandiri Pariwisata, or PNPM, in Bahasa). By establishing Tourism Villages, the program's aim has been to empower local communities to be more aware of tourism values and how to utilize them (Ministry of Tourism).

In 2009, 569 Tourism Villages were established and increased to 960 in 2012 and then 2000 by 2014. To be a Tourism Village, the locale should meet some criteria, such as tourism resources, accessibility, and tourism activities. This program also seeks to promote the local economy and culture by engaging the local community. It gained much success especially on the mainlands. In 2012, ten Tourism Villages in Central Java, Yogyakarta, and West Sumatra obtained awards from the Ministry of Tourism Indonesia because of their success (PikiranRakyat). The Tourism Village program appears successful in accelerating local economies and improving villages' infrastructure, including bridges, village roads, and water channels. Panglipuran

(Bali), Nglanggeran (Jogya), and Dieng Kulon (Banjarnegara) were recognized for their best practices as Tourism Villages in 2017 (Bumdes.id).

A Tourism Village could be an approach to hasten development and improve the prosperity of a community through community-based tourism. In addition, it could strengthen the traditional and cultural values of the community. However, the designation should be adjusted to align with local values and cannot be generalized, especially in the context of a small island. Berno (2003) states that sustainability tourism should consider the social, psychological, and cultural aspects of local communities.

Before 2008, Derawan was a fishing village where almost all the locals had some occupation in the fishing sector. Most of them worked as fishers using traditional fishing equipment or harpoons or just fished by hand (Giffari, 2008). The islanders relied only on fishing activities as their main livelihood. However, in 2008, tourism started booming in Derawan when the National Sport Event (Pekan Olahraga Nasional, or PON, in Bahasa) was held on the island. Many locals began to sell their fishing vessels and switched to working in the tourism industry as guides and boat operators. Others began to run culinary businesses, homestays, bike rentals, or accessory shops.

As a positive way to support marine tourism development in Derawan, the Indonesian Ministry of Marine Tourism designated Derawan as Tourism Village in 2012. However, this program appears to be not too popular in Derawan. At one point, some locals in Derawan were a bit reluctant to have their village called a Tourism Village, which might be rooted in several factors:

1. The locals have experienced the effects of many policies, and being a Tourism Village means more interventions.
2. They already had a strong cultural history as a fishing village. Although most of the fishers have converted their basic livelihood to tourism, they proudly keep their identity as fishers.
3. Some of them perceive no significant development or benefits after the designation.
4. Some of them do not even know that their island has been designated a Tourism Village.

The locals experience with the KKLD program was a top-down approach, with no clear operational concepts, no clear zoning systems, and limited community studies. The previous KKLD policy in Derawan was at low level of participation, only giving the impression that the decision-makers had involved public participation (Giffari, 2008). Conversely, on nearby Maratua, local participation was at a partnership level at which the locals were engaged in the planning, management, and decision processes (Arnstein, 1969, cited in Giffary, 2008). Derawan is smaller than Maratua (13.74 km<sup>2</sup> compared to 384.36 km<sup>2</sup>) and less populous (1,636 people compared to 3,402 people in Maratua in 2014) (Ministry of Marine Affairs and Fisheries). However, the same policy resulted in different outcomes on these adjacent islands.

To date, some locals perceived pseudo-participation as still occurring in programs where they felt their needs were not really addressed. Therefore, even when

local grassroots have been invited to join meetings, they are less interested in attending. The lack of trust in government bodies and the tension between the elites and grassroots in Derawan also impede the success of policies. In Texel, Netherlands, mistrust of the role of the local government eventually triggered conflicts between the government and other community interests (Van Der Duim, 2004). Similarly, it is challenging to implement programs in Derawan due to the potential apathy of the local community. Many Derawan locals felt that much of the skills training and grant and aid money was misdirected to people in unrelated occupations. Every grant should instead be distributed in an open and fair manner in which it is clear who is receiving the benefits (Glaser, 2010).

Berkes (1991) highlights that local participation is essential to promoting ecological, socioeconomic, and cultural sustainability. However, “instituting local-level controls will require reversing centuries-old trends and overcoming distrust built up over the years” (Berkes, 1991, p.24). Arstein (1969) defined an eight-rung ladder of participation: manipulation, informing, consultation, placation, partnership, delegated power, and citizen control. Although the local community has higher level of participation than previously in the KKLK, the participation might be still at Arstein’s level of consultation. Many discussions were held to accommodate local interests but did not guarantee that local opinions would be incorporated into decision making; rather, authorities only wanted to know the locals’ attitude toward a program.

Bass (1995) defined six levels of participation in policy making: listening only, listening and giving information, being consulted, analysis setting, reaching consensus, and decision-making. Based on Bass’s levels, the government has applied

the third level, consulting the community, through a series of meetings, discussions, and working groups related to various development programs, including tourism, in Derawan. However, this stage is inadequate to encourage local participation. The island needs higher levels of participation, ideally at the level of reaching consensus, which puts local representatives in committees, advisory boards, regional round tables, and conflict mediation.

Derawan needs more than the Tourism Village designation since tourism is a service business. One of the parameters of success in tourism is how many tourists return to Derawan. Some tourists from areas near Derawan said that they often visited Derawan because the location was close to their home. Most of them were from East and North Kalimantan areas, which did not demand a huge travel budget. However, the domestic tourists from areas outside of East and North Kalimantan said that they loved going to islands nearby Derawan for diving. Sangalaki and Kakaban were their favorite places since those were still pristine. However, maintaining the same numbers of international tourists is more challenging due to the bigger travel expenses of the tourists. Some foreigners said that they loved swimming with whale sharks, manta rays or non-stinging jellyfish, and they might come next time. Some of them also were willing to stay in Maratua and enjoy the beautiful beaches. Regardless, since Derawan is the home port for tourists to stay, tourism policies should be managed in comprehensive and collaborative ways with the locals.

Hampton (2015) suggests that before planning tourism development on a small island, policy makers should consider the level of islander control since it can determine the effectiveness of a tourism program. On Taquile Island, Peru, the higher



levels of local involvement in the decision-making process on tourism development brought greater socioeconomic benefits to the community (Mitchell, 2001). Hence, the essential point in tourism development is to integrate local participation at every stage of the process from program planning and decision making to implementation and evaluation. However, in practice, these processes have never been simple. Shipley (2012) states that discrepancies between a government and a community regarding participatory processes might inhibit the successful implementation of a program; governmental agencies often consider it to be time-consuming, expensive and complicated to involve a community in every stage of policy making. Further, the society may also have negative perceptions of the program and its implementation.

Although Tourism Villages model is considered successful in many places, especially in the mainland locations, this research found that the development of tourism could be more challenging in a small island setting. Separated geographically from the mainland makes a small island more vulnerable due to the limited options for a livelihood and the lack of trash management system. As a result, locals on a small island might be more resistant to any policies that they perceive do not too address their interests. In this case, social support is crucial for optimizing a tourism program. On a small island like Derawan where other aspects also co-exist, programs should engage locals and incorporate the connectivity and the presence of marine tourism, fishing activities, and conservation. Lauber and Knuth (1997) mention that communities consider a program decision to be acceptable when the process has incorporated them fairly throughout the procedure and its outcome.

Even though every program has good intentions and expects positive outcomes, success hinges on the acceptance, participation, and support from the community. Understanding these phenomena in any small island would be beneficial before starting tourism program planning.

## CHAPTER 5

### RECOMMENDATIONS

Derawan Island is blessed by an abundance of water resources. The locals do not have any problems getting fresh water on the island, unlike its adjacent islands, as they revealed. The islanders also feel grateful that they can enjoy 24 hours of electricity provided by the National Electricity Company. The government gave support for tourism growth in Derawan by providing full electricity, while in Tg.Batu, the capital of Derawan Islands, which is a part of Berau mainland, the electricity is only available from night to morning.

However, from the findings and discussions, there might be some issues that could be fixed to optimize tourism development and community cohesion on Derawan Island. Some recommendations from this study are described below:

#### **1. Environmental: Carrying capacity assessment**

Marine tourism sells views, so having conservation areas would support maintaining those views. However, tourism development on a small island leads to congestion in the coastal areas, which may cause environmental problems. Until now, no data has been collected about the environmental carrying capacity and tourism capacity in Derawan. Therefore, many people continue to invest in and build resorts seaward.

There are 79 resorts, cottages, hostels, and homestays, consisting of 543 rooms (BPS Berau, 2016). An environmental assessment should be conducted to identify a suitable and sustainable level at which to build resorts toward the sea to avoid environmental degradation. If environmental deterioration happens, it will take time to reverse the damage, and Derawan may lose visitors. Additionally, a study about Derawan's tourism capacity is also essential. It is not solely related to how many tourists can be attracted, but the capacity of an area to absorb tourists (O'Reilly, 1986). With the numbers in Figure 2, in 2015 there were a total of 105,525 visitors to Berau (BPS Berau, 2015). Although this data covered all tourists coming to Berau, it was recognized that most tourists spent time in the Derawan Islands (BPS Berau, 2016). Although it was only 20-50% of the total number tourists visited Derawan, the 105,525 visitors far exceeded the local population in Derawan, which was only 1,694 people.

Furthermore, the maximum sustainable number of divers at each site needs to be calculated. Although tourism provides many economic benefits, healthy ecological levels should be considered. From an economic standpoint, it needs to be determined whether Derawan has reached a saturation point or could potentially develop still further. In addition, most tourists come to Derawan to travel around to nearby islands, so it is crucial to also study the optimal numbers of divers that can be permitted annually at other islands. Sangalaki and Kakaban are unoccupied islands but they could face deterioration if there is too much diving congestion.

As the number of divers increases, it is also important to protect the reef ecosystem by excluding non-licensed divers and determining the maximum number of

divers per year. Until now, the diving license policy in Indonesia only concerns divers' security without giving particular attention to coastal impacts. Today, the central government is on track to finish a law that divides the divers based on their qualifications. Hence, it is essential for the local government of Berau to determine which sites are suitable for which kinds of divers and the maximum number of divers permitted on Derawan Island. Setting quotas and licenses to control diving activities is important for balancing tourism growth and for environmental protection.

According to Hargreaves (2011), the carrying capacity of a diving site varies from 4,000 to 15,000 divers per site per year, but the suitable maximum diver is 5,000. Zakai (2002) proposes a diving carrying capacity of 5,000-6,000 divers. A study in the Cayman Islands states that the island with more than 350,000 visitors every year can sustain 10,000-15,000 divers without any serious damage (Tratalos, 2001). However, a study on Derawan needs an exact evaluation with a bound assessment, dynamic settings, and adjustment of the standards based on conditions. The government should estimate precisely how many quotas will be set to avoid setting too many or too few and where suitable diving locations are.

Restricting the numbers of divers can maintain coral health, although there is no guarantee that experienced divers will make less contact with the reefs than the beginner divers (Hammerton, 2015). Most divers may be reluctant to have intervention in their diving experiences; therefore, the manager of Coastal Park Derawan and diving tour operators should cooperate to deliver reminders for divers to properly protect ecosystem health.

## **2. Social: Local Empowerment**

Empowering the local community needs to increase in many aspects because mass tourism is related to social sustainability on a small island like Derawan. If local business cannot compete with non-local business, tensions will arise and social conflicts would occur. Most locals admitted that they needed more support than only having Derawan designated as a Tourism Village.

The tourism market is already available in Derawan; the government only needs to guide it. From a business standpoint, the government could use a collaborative approach by providing knowledge and skills until local business people can work well with the consumers. They need vocational training conducted by the government to upgrade their skills to run their businesses.

Aligned with the Tourism Village program, homestays play a role in cultural tourism. Hence, factors such as hospitality and safety should be a priority. The large resorts have little trouble in training staff and providing good facilities. However, local business might not be able to meet these standards. Although most homestays also have good facilities and are far cheaper, homestay owners lack the skills to put information onto the Internet. The government could accommodate local need by providing free websites to help them advertise their lodging. Then, some locals can be trained and appointed to operate the websites. Such a system would work efficiently if the locals are already very willing.

Moreover, diving guides should be trained in the skills to provide pre-briefings for tourists. Regarding these diving rules, there needs to be a Code of Conduct written

in English and Bahasa and posted on the island and on the boat so that every tourist understands the rules.

### **3. Economy**

The externalities of marine tourism mean that people not directly connected to the tourism industry can suffer the costs of tourism activities without receiving the benefits and compensation. Therefore, government intervention is needed through standard-setting, regulation, or incentives to address the externalities. Imposing such rules could lead to quicker economic benefits, to overcoming environmental problems such as waste management, and to funding conservation efforts. Moreover, it can support the development of Tourism Villages. Derawan needs an act that provides consistent funding from and for Derawan. The island will be more sustainable if conservation programs are able to support the presence of fishing activities and if the existence of marine tourism could fund the conservation efforts.

Incentive-based policy through taxes could apply taxes on tourists to maintain the Tourism Village. Roman (2007) states that the majority of tourists indicated that they are willing to pay to enter areas with higher natural abundance and diversity.

#### ***Tourist Tax***

The government could implement a tourist tax by imposing taxes on non-residents. Mak (2006) states that there are two appropriate taxes for tourists: entry taxes (e.g., in Chile and Bulgaria) that tourists pay when they come into a country and

exit taxes (e.g., in the Caribbean, Middle East, and North Africa), which they pay when they leave.

This approach can be adopted on Derawan Island: once tourists arrive at the local airport, regardless their destination, each tourist would pay an entry tax. However, there are some challenges in implementing such a tax since Derawan Island is a small island with limited infrastructure. There is only one airport in the Berau district, and only a small percentage of travelers are tourists heading to Derawan. Consequently, it is almost impossible to identify the tourists to Derawan unless they reveal their destination. However, this program may run well in Maratua, Derawan's neighboring island, where an airport was just established.

#### ***Entrance Fee (User Fee) and Deposit-Refund (D/R) System***

An entrance fee scheme would require all tourists to pay a user fee when they enter the beach. However, for the tourists who want to experience diving, there would be an additional cost of a deposit refund (D/R) to fund conservation. In this type of payment scheme, the tourists who plan to dive must put down a deposit at the entry gate when paying the user fee. They will then receive a voucher to be handed to the diving operator if they go on a dive. However, they can receive a refund if they can prove that they did not go diving by returning the D/R coupon.

In Gili Trawangan, Lombok, Indonesia, all divers are required to show their diving licenses and pay \$5 for coral reef preservation. Furthermore, to maintain coral health, they are permitted to dive for only 45 minutes (Gerbang Wisata). However,



these rules seem not to have reduced the number of tourists or divers because the healthy coral attracts them.

The user fee and D/R systems have some advantages that can apply to Derawan. First, the revenue would flow directly to the community and the environment because it is collected in Derawan. Second, the visitors consider it fair to pay a tourist fee when they go on the beach. Third, monitoring and enforcement of this system (user fee and D/R system) are easier because of the connectivity between the administration systems and tourism activities in Derawan. On top of that, the government should conduct an initial investigation into tourists' willingness to pay (WTP) for environmental taxes.

#### **4. Waste Management**

Waste disposal can be managed by incineration or dumping in landfill (Bai, 2002). However, these methods had been tried without success in Derawan. Local perceptions were that since Derawan is a small island, any trash management system that results in leftover waste, such as ashes from an incinerator, may pollute their island. Although incinerators could resolve the problem and would be cheaper than a landfill, they are only a temporary solution. Having a landfill is more expensive but it offers a longer-term solution (Chen, 2005). A large budget is needed to overcome trash problems. The government could provide a specific boat to carry out the trash and to legalize a landfill equipped with incinerators.

## CHAPTER 6

### CONCLUSIONS

Marine tourism benefits the local community on Derawan but also constitutes externalities when local people perceive that they must shoulder negative environmental impacts without compensation. Tourism also affects fishers, who have to go fishing further out. Moreover, the presence of marine tourism is not supposed to change the islanders' identities from fishers with strong ties to the ocean to tour operators. The lure of tourism makes locals leave their traditional practices and livelihood.

Coastal Park Derawan is a concept and these elements should not be viewed separately. Although Derawan is only a small island and not very populated, its history and experiences prove that it is challenging to promote "Tourism Village" programs. The marine tourism industry, small-scale fishing, and conservation efforts are pushing and pulling one another. It is inevitable that conservation programs will probably restrict fishing access in some degree, but the aim is for the island's economic sustainability. Generally, the fishers would support conservation efforts if they are followed by good monitoring and enforcement systems.

Derawan Beach should have an independent funding scheme for maintaining the beauty and resources of the island. Most tourists indicated that they would be willing to pay an entrance fee for conservation efforts. Other schemes might be appropriate as well for supporting Derawan. For successful small island tourism

development, the government needs to pay attention to local culture and to consider the impacts of any policy. Moreover, collaboration is also needed among local, provincial, and central governments to support marine tourism because the purpose of tourism is for sustainable development, less degradation of natural resources, and more options for livelihood. Although under Indonesian Decree 23/2104 the municipal government no longer has authority in coastal management, assistance from municipal governments is still necessary for monitoring any illegal activity and reporting it to provincial authorities.

To conclude, understanding the physical characteristics of Derawan island is essential, but unveiling the social dynamics affecting the existence of the locals is also important. Tourism development programs should therefore incorporate and reinforce the presence of small-scale fishing and conservation activities.

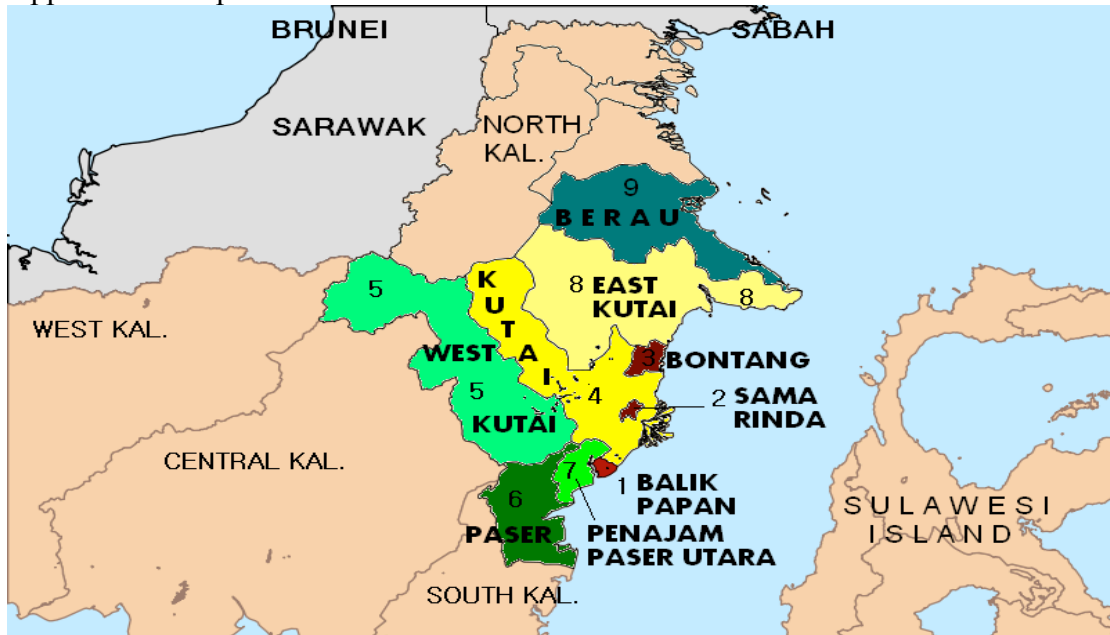
## APPENDICES

Appendix 1. Map of Indonesia



<http://smartraveller.gov.au/Countries/asia/south-east/Pages/indonesia.aspx>

Appendix 2. Map of East Kalimantan Province



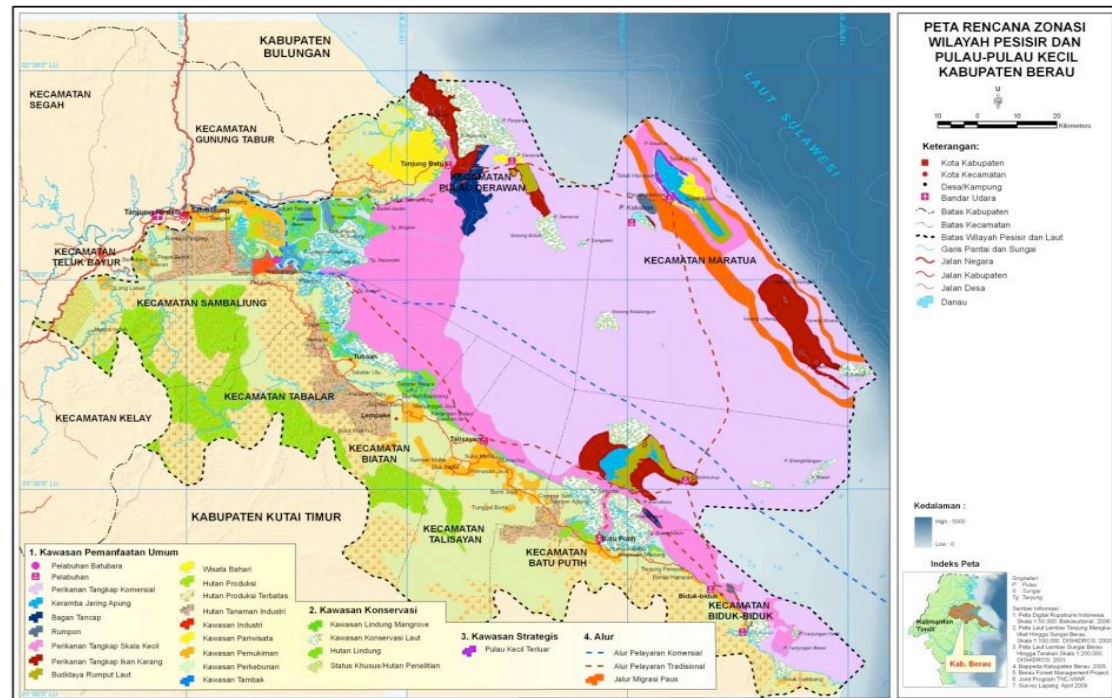
<https://indonesianstudiesbsj.wordpress.com/2016/01/14/east-kalimantan/>

Appendix 3 Map of Berau Municipal, East Kalimantan Province



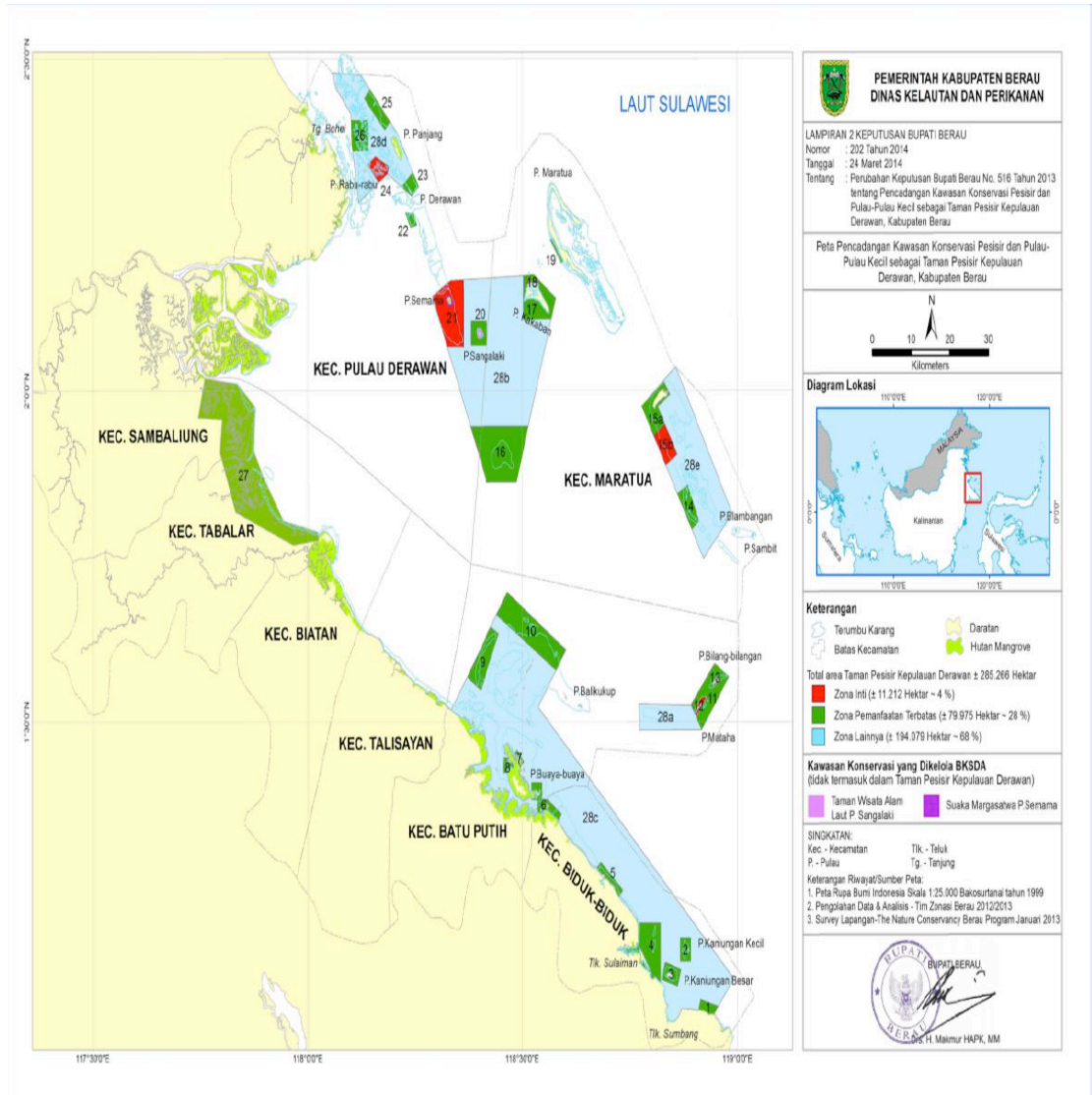
<http://peta-kota.blogspot.com/2017/02/peta-kabupaten-berau.html>

Appendix 4. Zoning Plan Map of Coastal and Small Island Areas based on Berau Government Decree 8/2014



Source: Berau Bureau Statistics, 2016

## Appendix 5 Map of Coastal and Small Islands Conservation Reserve in Coastal Park Derawan Islands



Source: Berau Bureau Statistics, 2016

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