

EFFICACY OF COMMUNITY-BASED MANAGEMENT SYSTEM TO PRESERVE THE ACCESS OF SMALL-
SCALE FISHERMEN TO COASTAL MARINE AREA

BY

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ABSTRACT

In this thesis, I analyze the effectiveness of community-based management (CBM), as a participatory governance system, for securing the access to fishery resources and coastal land of small-scale indigenous communities, whose livelihoods have been previously threatened by market-led and government-supported dispossessions, known as ocean grabbing. From CBM experiences in Coron Island in the Philippines, Gili Indah in Indonesia and Patos Lagoon in Brazil, I found that CBM is a powerful tool to put forward legislative pressure for placing pro-community norms and institutions and, to create public awareness on environmental degradation and fishermen marginalization. However, without the support from government authorities or NGOs, the lack of education and competition for resources among fishermen prevent the creation of a comprehensive system for conflict resolution and community administration over resources.

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CHAPTER 1

INTRODUCTION

In fishery, it is generally recognized that Hardin's Tragedy of the Common (1968) arises from the lack of property rights in marine resources. During mid-20th century, the impressive evolution of fishery technologies allowed bigger catches in an open access condition of the oceans, although the lack of a proper body of laws regulating the exploitation. Due to a centralized top-down approach in fishery management, overcapacity has quickly caused the depletion of fish stocks, loss of biodiversity and exclusion of small-scale fishermen from the policy-making (Pomeroy et al. 2007). Furthermore, the Tragedy of the Commons is understood also as a community¹ failure: in racing for resources, coastal small-scale communities abandon social and moral norms of equality and reciprocity to seek selfish profits, causing an overall socioeconomic impoverishment (Jentoft: 2000, Benè: 2003).

However, since the 1970s, marine resource restoration has become an imperative in the international scenario. Conservationists have promoted a new management paradigm: "from sea sharing to sea sparing" (Wolff: 2015), meaning the enclosure of important marine sites from any harvesting activity in order to protect and restore biodiversity. At the same time, the growing global demand for seafood has pressured the commercial fishery sector, which found in property rights a profitable mean to allocate resources (Ibid). Moreover, the recreational and tourism industries, urban infrastructures and industrial sites claimed for more coastal areas utilization. However, the voice of small-scale fishers have scarcely been taken into account, decreasing their control over natural resources and threatening their livelihoods (Franco et al: 2014). Low-quality governance in coastal management policies, resulting in the worsening of human security and socio-economic wealth of small-scale fishermen, is known as 'ocean grabbing'. According to Bennet et al. (2015, p. 62):

Ocean grabbing refers to dispossession or appropriation of use, control or access to ocean space or resources from prior resource users, rights holders or inhabitants. [...] Ocean grabbing can be perpetrated by public institutions or private interests.

A common denominator in ocean grabbing is the exclusion of small-scale fisheries from resource and market access. The main mechanisms driving ocean grabbing are: loss of harvesting rights due to changes in regulations, (i.e. The Right-Based Fishery, see Del Valle et al. 2006); non-recognition of local customary laws which previously granted the physical access (i.e. centralization regime in Indonesia under the New Order, see Satria & Matsuda: 2004), and finally (even if less coercive) the pollution, destruction and depletion of the marine ecosystem (Franco et al:2014).

1 In this paper, the term community refers to indigenous villages where economic activities such as fishery or husbandry absorb the majority of labor, mainly practiced at a subsistence level and only partially for commercial networks.

The need for a long-term sustainable management of fishery, as well as for the legitimization of indigenous community rights and knowledge, led to the formulation of new approaches: participatory governance is by far the most effective. It is constituted by a decentralized and cross-levels structure, where collaboration and involvement among stakeholders induce mutual respect between governors and governed, while its style is marked by a consensus-seeking negotiation (Gray: 2005). In particular, as a form of participatory governance, Community-based Management (henceforth CBM) is considered an empowering tool for the establishment of local organizations and enforcing regulations. It improves the participation of small-scale fishermen in policy-making, bringing benefits and integration into the economic system. However, a bad implementation of CBM can lead to chaos in fishery regulations, illegal activities and stratification of the community (Pomeroy: 1995; Pomeroy et al: 1997; Dey and Kanagaratnam: 2007).

The purpose of this study is to analyze the efficacy of the CBM system in developing countries, where yields maximization and centralized management has generally persisted since the 1950s (see Andrew et al 2007). Through a multiple case study, the research answers the question: **to what extent is CBM effective in preserving resource access to small-scale fishermen in coastal areas affected by ocean grabbing phenomena?** The analyzed experience are small-scale fishermen communities in Coron Island (Philippines), Gili Indah (Northwest Lombok, Indonesia), and in the estuary of Patos Lagoon (Southern Brazil). By deconstructing each case, I find CBM to be a meaningful tool for increasing political inclusion of fishers through the formation of representative organizations and unions. While on one side education and communities commitment in collaborating with NGOs or academic bodies are extremely helpful during CBM implementation, on the other side, I demonstrate the primary importance of government proactivity for conflict resolution and law enforcement, without which CBM is doomed to remain just a nice concept.

CHAPTER 2

COMMUNITY-BASED MANAGEMENT INSTITUTION

2.1 Community-based Fisheries Management for reducing ocean grabbing and securing community access.

As I introduced in the previous chapter, the aim for the long-term sustainability of the resource has developed many initiatives. However, sometimes these alternatives have undervalued the impacts on site-located indigenous communities, causing dispossession of land and resources. In fact, ocean grabbing occurs through

fisheries governance, trade and investment policies, [...] no-take conservation areas, ecotourism and energy policies, financial speculations and the expanding operations in the global food and fish industry, including large-scale aquaculture [...] (Franco et al:2014, 4).

Key drivers of ocean grabbing are financial investment for recreational use of coastal and marine areas, establishment of Marine Protected Areas (as no-take enclosures), and efficiency of the food supply chain, which prioritizes the privatization of fish stocks or land through the allocation of property rights (Franco et al: 2014; Wolff:2015). However, although environmental degradation justifies the restrictions on local resources (Benjaminsen & Bryceson:2012), it is relevant to notice that the literature has not confirmed a positive correlation between privatization of fisheries and resource restoration (Carothers & Chambers: 2017). Another factor is the openness of resource-rich countries (i.e. Southeast Asian countries) to foreign capitals and to foreign concepts of environmental management, in many cases leading to a re-allocation of common property to private actors by government policies (Doerr:2016).

In opposition to the predatory allocation of resources, policy-makers looked for the adoption of a different management system as a meso level governance including the direct users of the resources. The term Community-based Management of Natural Resources (henceforth CBNRM) defines a type of governance of common pool resources. It has been re-considered as an alternative to the unsuccessful state-driven and market-led approach in natural resource management (Armitage: 2005, Jentoft et al:1998). The central idea is that

communities, defined by their tight spatial boundaries of jurisdiction and responsibilities, by their distinct and integrated social structure and common interests, can manage their natural resources in an efficient, equitable, and sustainable way (Blaikie: 2006).

CBNRM involves the maintenance of wildlife, fisheries, forestry and coastal areas. It has a pro-poor and food security approach, it promotes the implementation of indigenous knowledge for the efficient and sustainable use of the common resource, it resolves conflicts over open access and

bad allocation of property rights, and lastly, it empowers the community through an active participation in policy-making (Ibid). The fundamental principles regulating CBNRM are well defined territorial boundaries; limitation of harvesting practices; collective choice agreements; monitoring; graduated sanctions; conflict resolution mechanisms; minimum recognition of rights; nested enterprises (Cox et al.:2010). Such institutions have already demonstrated to work efficiently when it comes to fisheries management both in developed countries², and in countries with a century tradition of small-scale fishery³.

Connecting sustainability and empowerment of small-scale communities has been observed through the implementation of the above described participatory governance, which category includes the Community-based Management of fisheries (CBM). This is an informal-based, decentralized and collective decision-making institution, re-including small stakeholders in the management process, in an equal dialogue that allows the collaboration among civil society, market and government structures. The two pillars for the success of this participatory governance system are legitimacy of stakeholders through their involvement in decision-making, and consensus-seeking negotiation (Gray:2005; Pomeroy:2011).

Finally, the application of CBM for fisheries is a powerful tool since, working on different levels, it secures the community access to the resource by:

- empowering local communities to exercise control over resources and institutions on which they depend;
- regulating economic opportunities on the principle of equity (fair access to fishers and group members who respect harvesting regulation);
- empowering local communities through the implementation of the customary law and traditional indigenous knowledge;
- promoting the inclusion of other community members other than fishermen: women, youth, and coastal workers are equal stakeholders in the sustainable use of resources (Graham et al: 2006).

2.2 Profile of the cases.

2.2.1. The ancestral domain of Tagbanwa community in Coron Island, Palawan, Philippines.

² Japan and Canada are two brilliant examples of how CBM can collaborate with the commercial sector for an efficient use of the resources (see respectively Yamamoto:1995, Capistrano & Charles: 2012).

³ Micronesia and Philippines represent two successful cases of CBM restoration after a centralized management of fisheries (see respectively Johannes:2002 and Pomeroy et al: 1997).

Coron Island (Fig. 1) is a part of the Calamianes Island Group located in northern Palawan province, considered the last ecological frontier of the country. In its total land area of 7700 ha, Coron Island hosts multiple ecosystems such as mangroves, tropical forests, coral reefs, lakes and lagoons, with a variety of marine and wildlife species (Sampang: 2007) .

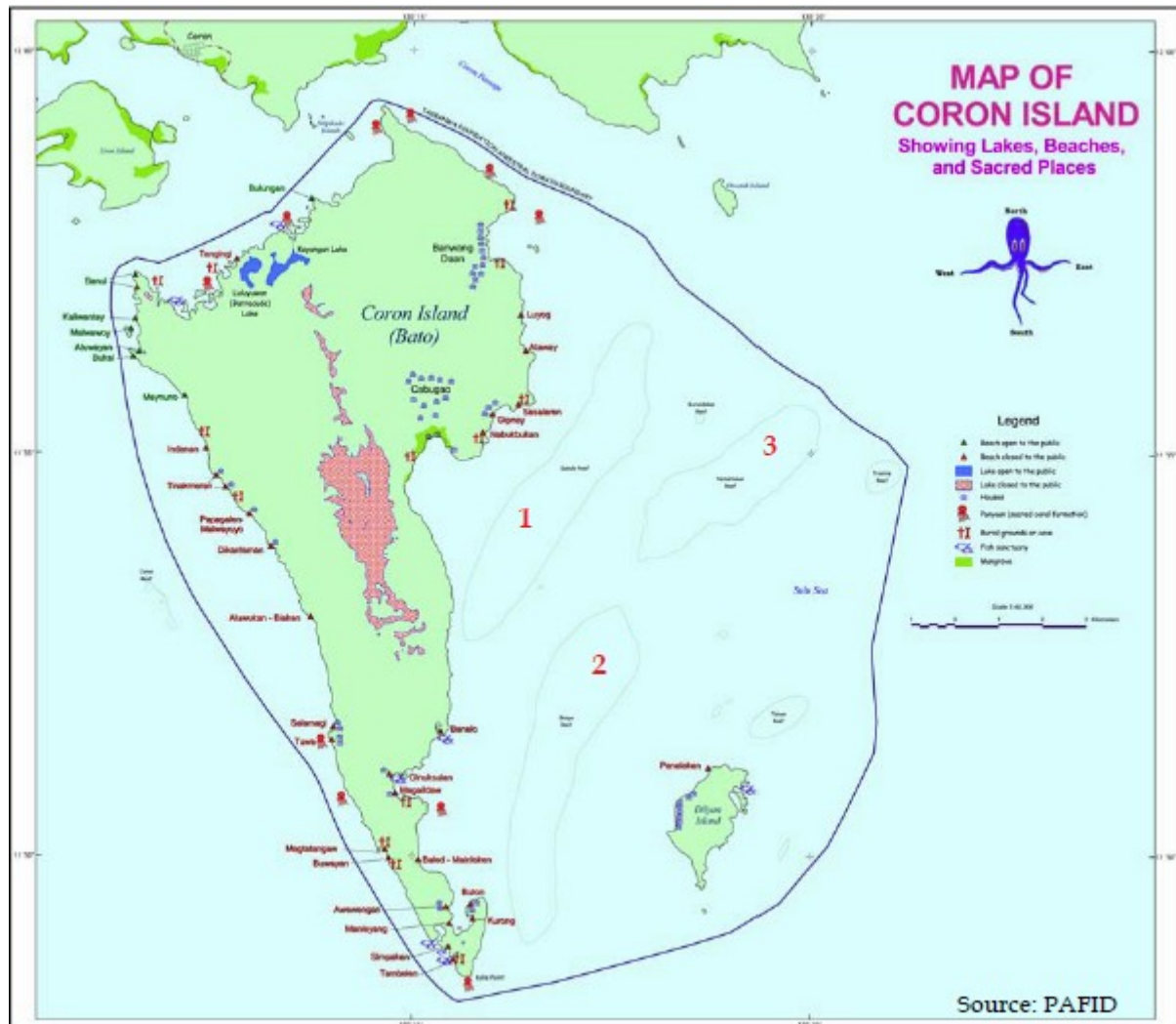


Figure 1. Map of ancestral domain of the Calamian Tagbanwas showing traditional fishing grounds. Source: Sampang, 2007, p. 21

The municipality of Coron is the homeland of the ethnic group Calamian Tagbanwa (or Tagbanua): they are described as having a semi-nomadic lifestyle, depending on sea resources, or on shift cultivation in the near riverbanks and valleys. Data from the municipality show that the most common occupations are fishery, agriculture, community and social services. The majority of the households fishes for subsistence, while just a few families are engaged in small-scale commercial trade of fishery products (Sampang: 2007). The indigenous autonomous ability to manage coastal resources was first threatened during the Spanish occupation, when the introduction of the Regalian Doctrine dictated that all lands of public domain belong to the State, unless they were officially

recognized to be private property. Converting the native land, this legal procedure dispossessed the indigenous population of their own traditionally possessed land. Later, it was reinforced by the Maura Law in 1894, which required all landowners to prove their property through a tax payment. If this was not possible, the land would be reverted to the government. However, it was only during the 1970s that the government acted as a coercive sequester of many clan-caves, due to the inability of the Tagbanwa to afford the annual tax; lands were auctioned off to tourist resorts or developers. Furthermore, in the mid-80s, Tagbanwas were threatened by migrants from the neighboring provinces such as the Visayas, who occupied their area, aggravating the declining fish catches due to unregulated fishing activities (Capistrano & Charles: 2012; Sampang:2007; Capistrano: 2010). Finally, from the early 1990s, the touristic sector and developers started to pressure Tagbanwas to leave their island (Fabinyi: 2010).

The Tagbanwa's belief in the spirits dwelled in nature has prevented the uncontrolled exploitation of the resource; they have elaborated specific sacred and conservation areas, fish sanctuaries, and food taboos. Fishing-related activities involve the rest of the community: women and children take care of reef gleaning, crabs, sea urchins, sea shells, and seaweed collection. The absence of electricity in the island and the share culture of catches have prevented the community from social stratification or economic development of the small fishing sector. Despite the subsistence condition, the Tagbanwas were able to resist the Spanish and American colonial structures and the influence of migrant Filipino culture (Sampang: 2007).

3.2.2. Customary law *Awig-awig* in Gili Indah, West Lombok, Indonesia.

Gili Indah refers to insular villages in the northwest of Lombok, composed of three small islands: Gili Air, Gili Meno and Gili Trawangan (Fig. 2). These are under the jurisdiction of the West Lombok Regency (Kabupaten Lombok Barat), in the province of Nusa Tenggara Barat. Gili Indah are surrounded by coral reefs, reef fish and seaweed (Satria et al: 2006).



Figure 2. Map of the trio Gili Indah, West Lombok. Source: Satria & Adhuri (2010)

With a population of roughly 3000 people, the most common local occupations are husbandry and small-scale fishery, with many holding both activities. Touristic flows began in the late 1970s and 1980s, with scuba diving and snorkeling activities, to which local people responded developing small-scale marine tourism facilities. This caused vertical mobility and stratification of the community since the elite fishers were attracted by the opportunity of becoming tourism entrepreneurs. Tourism gave also a new importance to the coral reef conservation, limiting harvesting sites and techniques. The reduction of fishery grounds is not the only problem that has been affecting the livelihoods of small-scale fishermen: indeed, the prevalent issue has been the deterioration of the coral reef. Some of the causes are destructive fishing practices (in particular the muroami-netting⁴), the anchoring of tourist boats, coral mining, snorkeling and diving (Satria et al: 2004, Satria et al.: 2006). Many different stakeholders causes conflicts over an equal management of the common resource: on one side, the main interest of fishers is to be able to practice traditional fishery (even if it endangers the coral reef), while, on the other side, tourist entrepreneurs (henceforth TEs) are interested in conserving the coral reef (Satria et al: 2004). The two parts found a first agreement expressed in the customary law called Awig-Awig, formally signed by both groups of stakeholders in 1998-1999.

⁴ Fishing technique using an encircling net with pounding devices. The pounding devices are lowered into the areas, smashing the coral into small fragments in order to scare fishes out of their coral refuges, with obvious destructive effects. Introduced by the Japanese during the occupation, the practice widely spreaded.

Two different ethnicities are present in the islands: three-quarters of the population are Buginese, originally from South Sulawesi, while the Sasak are native to the islands but previously inhabiting the mainland of Lombok (Satria et al: 2006; Satria et al: 2004). Due to the relatively late settlement of the Gili Indah region, it has been observed that the customary rules for resource management (called Awig-Awig) are less rooted than in other areas, such as North Lombok. Awig-Awig works primarily on boundaries definition and allocation of each area to a specific economic group. It defines also the authorities in charge of monitoring and sanctioning, coordinating close villages (Satria & Adhuri: 2010).

2.2.3. Commercial depletion of fish stocks in Patos Lagoon estuary, Southern Brazil.

Small-scale fishery communities have existed in Patos Lagoon since the end of the 19th century. With its 300 km of length and 40 km in width, Patos Lagoon in Southern Brazil is considered one of the biggest choked lagoons in the world (Fig. 3). The coastal plain, which delimits the lacustrine area, is constituted by a wide sand strip of almost 40.000 km², site of an important biodiversity among temperate climates. Then, it surrounds two remarkable Conservation Areas, the Taim Ecological Reserve and Lagoa do Peixe National Park, both included in the UNESCO Biosphere Reserves Network (Kalikoski et al:2002; Tagliani et al:2003).

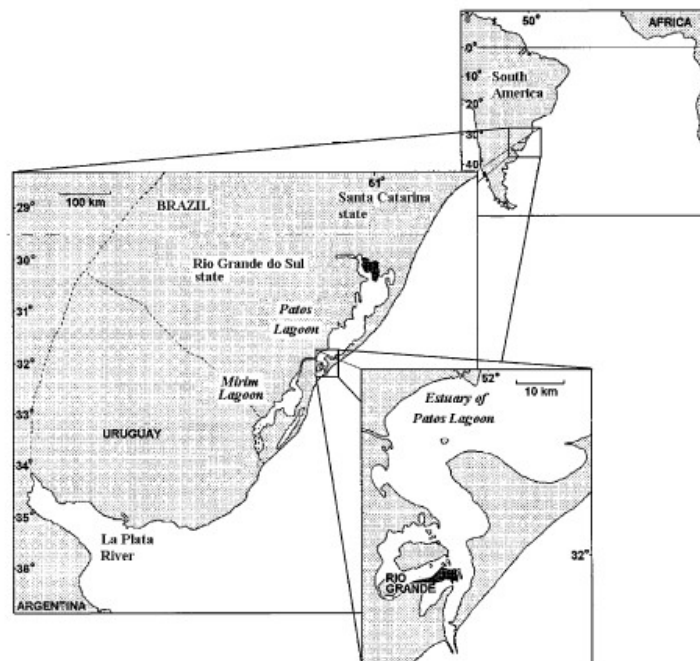


Figure 3. Patos Lagoon estuary, Southern Brazil. Source: Kalikoski et al (2002)

For more than a century small-scale fishermen in the estuarine region caught mainly crustacean and teleosts, and more in general, they provided fish and shellfish products to be

exported to the main Brazilian markets in the north or to other countries such as Uruguay. Data confirms that artisanal fishery in the estuary of Patos Lagoon prospered up to the early 1980s, with a sharp decline in fish stocks in the following years. It accounted for over 80% of the total catches in Southern Brazil in 1966. It involved about 5000 fishermen in the 1990s, while at the beginning of the 21st century this number was reduced to 3500. Until the beginning of industrial exploitation of the common resource, the small-scale fishery was a quite productive economic activity (Kalikoski et al:2002, D'Incao & Reis:2002). In general, the history of Patos Lagoon and the Brazilian coastal management has seen the depletion of the resources led by state incentives, through the improvement of commercial fishery and absence of property rights. Industrial fishery vessels started to sail the estuary grounds during the 1950s. Loose regulations on resource extraction by the Federal Fisheries Agency and the increasing prices for seafood (especially shrimps) caused overcapacity and an unregulated access. In a second moment, fishing was further limited by the prioritization of port and navigation activities on land utilization. Then, in order to protect the resource, the Environmental Agency for fisheries management (IBAMA) prohibited the fishing of important species inside 3-miles zone from the coast. In response to this initiatives, small-scale fishermen have tried to intensify coastal fishing, disrupting the fishing calendars and further depleting the resource (Reis & D'Incao: 2000).

Regarding the pre-existing traditional methods of fisheries management, the communities had secured their access to the resource through the definition of fishing territories, periods and technologies based on micro-environment or on informal and formal rules. These are formed through experience and represented durable and legitimated methods to control space and resources (Kalikoski et al: 2002; Reis & D'Incao:2000).

CHAPTER 3

METHODOLOGY

3.1 Methods

I investigate the level of effectiveness of CBM of fisheries in small-scale indigenous communities in developing countries through case studies. In general, the entire project has been structured through 6 main steps as shown in Figure 4.

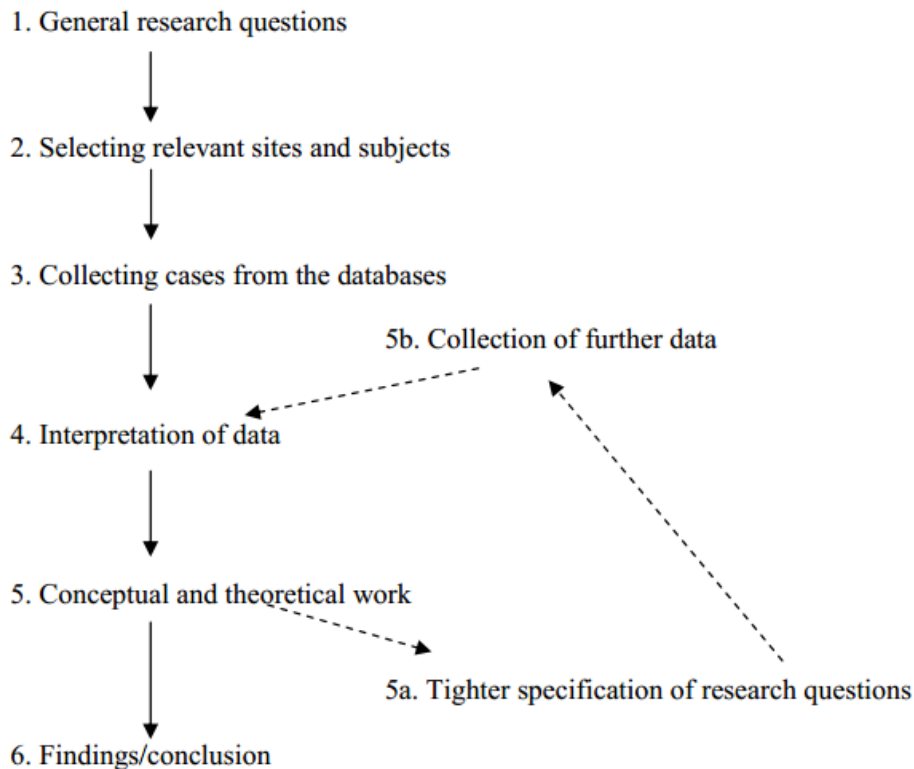


Figure 4. Steps of the research project. Source: Tu, V. S. (2007)

I think that multiple case studies are the best way to analyze the effectiveness of the general framework here referred as CBM into the three selected experiences. Since the customized application of CBM model depends on cultural and socioeconomic conditions in these countries, the results differ in quality of governance. The unit of analysis is not only restricted to the application of the CBM project, but it is extended to the previous management of fishery and to the consequences on coastal resources sustainability and livelihood of the indigenous communities. I made use of available reports with qualitative and quantitative data from the secondary literature, collected through literature research in the main online databases (Google Scholar, Leiden University Catalogue).

3.1.1 Determinants of CBM success

A successful implementation of participatory governance requires the presence or creation of a supporting legal frame, the presence of a homogeneous community, the use of the traditional indigenous knowledge (ITK) and community pro-activity in participating at the negotiation activities. Specifically:

- Supporting legal frame. A legal framework is referred as "a broad system of rules that governs and regulates decision making, agreements, laws" (The Translegal Dictionary). In this research, it is considered as the body of laws already existing or created on purpose for the decentralization of resource management on behalf of the community. It is intended also as norms regulating the access or delimiting the common property of the small-scale fishermen. Jurisdiction over property rights, decision-making power, local responsibility and authorities, rules enforcement and accountability formalize the fishers legitimacy over resources. A clear definition of roles and rights helps in resolving arisen conflicts between stakeholders and external actors. Without legal rights, users cannot enforce the local management rules (Pomeroy: 2011). The planning of regulations come both from central and local authorities inputs, as well as from civil society pressures (Pollnac et al: 2001). In particular, the role of government is crucial for conflict resolution: the recognition of the CBM legitimacy provides the fishers with a fundamental tool valid also at a supra-community level (Pomeroy et al:2001).
- Presence of a homogeneous community. A community is intended as a social group possessing shared beliefs, a stable membership, the expectation of continuing interaction and a pattern of relations that are direct and multiplex (Young:1995, in Jentoft: 2000, p 58). Fishers communities usually share kinship system, ethnicity, religion and fishing gear tradition; the historical and cultural evolution of those communities are bound to that geographical site where economic activities take place. Especially for fisher groups, being locally-bound is particularly important in the process of reclaiming the traditional grounds, maybe the first and most important step in a CBM project. Then, cultural and socioeconomic homogeneity has been already observed as a factor improving participatory governance (Pollnac et al: 2001). In fact, when occupation and cultural characteristic are shared, it is easier to reach a consensus, to cooperate with external agencies, to legitimize the local leader as the driver of the group (Ibid). Successful management cases of small-scale fisheries in Vietnam, Thailand and Indonesia have seen a high level of socioeconomic and cultural homogeneity (Pomeroy et al: 2001).
- ITK implementation. One of the most used definitions of ITK is:

a cumulative body of knowledge and beliefs, handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment (Berkes: 1993, in Mulrennan:2013, p. 92).

ITK belongs to the entire community and connects cultural values, customary laws with spiritual beliefs. ITK can be compatible with western science: its formation depends on the accumulation of observations about ecological changes and on an adaptive approach. ITK contributes to the biodiversity conservation through the recognition of endangered species or sacred areas for fish reproduction. Therefore, it is already a reality that the collaboration between the two methods of knowledge leads to the improvement of management initiatives (Deepananda et al: 2015). Indigenous knowledge regulates the fishery practices by signaling temporary restriction; exploiting resources in a flexible and rotational pattern, depending on the ecological feedback; securing the enforcement of rules based on local knowledge. It is opposed to the quantitative method of commercial fisheries since it works with ecosystem feedbacks and it is not directed to reach a yield target (Berkes et al:2000).

- Community pro-activity. It means the ability of the users (fishermen and marine resources related workers) to speak with one voice, to gain a position that is relevant to the discussion of fishery policies. In fact, the more users are able to gather and to cooperate in an institution such as a fishery association, the more difficult is for the government to ignore their requests (Jentoft & McCay: 1996). Empowerment of the community comes from the individual commitment to balance internal power relations inside the community. In a second moment then, communities want to gain more autonomy and recognition from higher institutions. In most cases, there is a lack of tools for self-empowerment, due to extreme poverty, socioeconomic constraints, and geographical remoteness (Pomeroy et al:2001). Community pro-activity is demonstrated also in the commitment to collaborate with external agents, such as NGOs, academic or scientific research institutions, and so on. The positive results from this cooperation are community access to information, direct users participation, and the development of self-initiatives (Ibid).

3.1.2 Effectiveness Measurement

I apply three conditions as evidence for assessing the general level of CBM effectiveness:

- Reversal in regulation toward small-scale fishermen interests. In other words, has CBM secured a reversal of policies towards the legal recognition of fishermen property and management rights over coastal resources? Examples of regulations supporting small-scale fishermen are: indigenous rights over the ancestral domain, common property rights limited to the community members, democratic and collective consensus as a decision-making tool,

and free prior consent of local community before any developmental project or changing in resource management. Such laws have to be aligned with property rights norms and fishery policies contents at all jurisdictional levels. In opposition, discrepancies with the contents of existing laws cause the weakening of the community legitimacy, decreasing the level of empowerment.

- Empowerment of users through the establishment of local fishery organizations. If property laws secure the exclusive allocation of the resources, the formation of fishery organizations represents probably the most important mean to include small-scale users in the political process of management. Fishery groups collect their strength from the commitment of each individual member in participating, getting informed, and collaborating with external associations. Improving their importance in the decision-making process, they secure that the communities' priorities are addressed in the implementation of new policies;
- Creation of effective measures for the resolution of conflicts. The three cases portrait different types of dispossession, which concern conflicts for coastal resources, land property rights, and illegal activities. However, with the application of the participatory governance model, small-scale fishermen are supposed to gain both the political power to establish and enforce their own rules and to accept the involvement of the government as a mediator for enforcement. Since conflicts over a common property are far from being easily manageable, a successful CBM must consider the creation of resolving institutions, in order to protect and renovate the sovereignty of the community.

For each case study, I give a score from 1 (=Very Weak) to 5 (=Very Strong), depending on the level of improvement in the above three conditions after the application of CBM (Table 1).

1	2	3	4	5
Very Weak	Weak	Modest	Strong	Very Strong

Table 1. Efficacy score rank.

This method allows me to easily identify the level of success for each CBM case study. In conclusion:

- The higher the score is, the better the CBM has tackled issues deriving from ocean grabbing practices. Indeed, high scores mean that the four success determinants of CBM, which I used to deconstruct each case, have really represented fundamental conditions to decrease the negative consequences of ocean grabbing. Therefore, CBM is effective in securing fishers' rights and autonomy to manage coastal resources.
- On the contrary, low scores mean two things: first, that for that particular CBM experience the same factors do not correspond to a similar improvement of fishers community livelihood. Secondly, that the CBM has not been able to strengthen all or some of the four

conditions, due to continuing or rising conflicts with extra-community actors. The latter hypothesis lead to the conclusion that, in that specific case, CBM is not preserving fishers' access to coastal resources, and that a different approach (such as co-management) could bring better results.

3.2 Cases selection and data collection

In selecting the case studies, I applied the following criteria:

- The case has to be located in a small-scale fishermen community in a developing country;
- The case has to concern the development of a CBM model on coastal and fishery resources;
- The community involved has faced a condition of dispossession of coastal areas and fishery resources access, caused by government policies or by powerful stakeholders' (both fishery industry and touristic sector) interests, prior to the application of CBM;
- The case has to involve recognized threats to the livelihood of the small-scale fishermen indigenous community involved into the CBM project, in terms of food security and economic activities.

If taken together, the case studies in Coron Island (Philippines), Gili Indah (Indonesia), and Patos Lagoon (Brazil) are comparable for a number of reasons:

- The trends in fisheries management can be comparable: the three cases show the gradual passage from a centralized system to some forms of decentralization. All of them show concerns about environmental degradation and decreasing of fish stocks. Both due to government initiatives or pressures from the excluded communities, the need for long-term sustainability of the resource led to a gradual reversal of regulation.
- In all the geographical sites taken into account, pro-market regulations have led to the marginalization of small-scale fishermen and to unresolved conflicts over resources. The indigenous communities are damaged by some dispossession practices, although at different levels. It is possible to summarize them into conflicts over land and resources with tourism sector (even backed by government authorities), conflicts over resources with the industrial and commercial fishery, and conflicts with external users (migrants), and fishers belonging to the community (disapproval of fisheries rules).
- As developing countries, they show a severe lack of infrastructure, lack of law enforcement, and different levels of conflicts at provincial, regional or national levels. The enforcement and conflict resolution system can be worsened by corruption and political networks between

governmental and commercial fisheries elite. Both the two Southeast Asian countries and Brazil are well-known for high levels of corruption and social inequality.

- The involved communities represented one of the poorest section of the society: common features are lack of information, subsistence economy, and geographic remoteness. Moreover, the traditional fishing methods and gears do not allow the community to gain a large surplus for diversification towards small entrepreneurship initiatives such as small commercial fisheries. Without supporting rights over resources, the subsistence condition perpetrates the severe unbalance of the community in terms of resource accessibility with the large-scale sector.

CHAPTER 4

FINDINGS AND DISCUSSION

4.1 Research Findings

4.1.1 Executive findings

Overall, I found CBM to be an effective management model for reducing ocean grabbing dispossession of land and resources, for two main arguments. These are:

- CBM has demonstrated to improve local awareness and information about fisheries and ecosystem management. This is visible in the inclusion of the whole community in a new dialogue on indigenous authority over coastal areas, as well as in the reevaluation of local knowledge.
- Under the development of the CBM model, community members are empowered by learning how they can pressure the central government in order to gain alternative management systems.

Regarding the preservation of fishers' access, the case of CBM in Coron Island, which has worked successfully in each of the four determinants, has given the best results. Here, the small-scale fishers gained an almost total autonomy on resource access, even if the threat of conflicts with other sectors is not entirely resolved. On the other side, the CBM implemented in Gili Indah and Patos Lagoon did not preserve fishers rights in a similar way. In the two cases, CBM institutions are weakened by rising conflicts and by the negligible support by higher authorities. The latter situation occurs: when the central or municipal governments are interested in a different development of the region; when the community lacks sustainment in law enforcement against illegal activities or other conflicts (industrial fishing, migration flow). In conclusion, in presence of such obstacles CBM, should be anticipated by intermediate types of participatory governance, which could perform better.

4.1.2 Reversal in regulation towards small-scale fishermen community

	Coron Island (PH)	Gili Indah (IN)	Patos Lagoon (BR)
Pro-community reversal of regulation	4	3	2

Table 2. Final score for pro-community reversal in regulation.

As observed, the creation of pro-community regulations follows a gradual pattern depending on the accountability of local organizations. The passage from centralized to decentralized fisheries management has been both supported and undermined at the same time by governmental agencies.

The support comes from the necessity for a new management paradigm due to the overexploitation of resources, while the slow decentralization is due to both a lack of trust in the community’s abilities or to arising conflicts (i.e. with tourism). I found that in the case of Coron Island, CBM has effectively empowered the community, who pushed the local government for the recognition of indigenous rights over coastal resources. Indeed, besides the constitutional definition of indigenous territory rights, as site-bounded communities, they became officially in charge of managing, exploiting and using the claimed areas. Furthermore, their consensus is required before the implementation of any external action involving the Tagbanwa domain. For these reasons, I gave them the score of 4, meaning a strong level of pro-community regulations guaranteed by the CBM model. On the opposite side, I gave the score of 2 to the fishermen of Patos Lagoon. Although the Forum of Patos Lagoon⁵ promoted the first steps towards the empowerment of local communities, the government has not responded with regulations addressing their main concerns. The new rules represented a good starting point, as they created awareness and law enforcement inside the communities, determining the practices and boundaries of artisanal fishery. However, the main conflict with industrial fishery has not been addressed by any governmental prescription. For what concerns the CBM of coral reef in Gili Indah, the situation is a little bit more complicated. The establishment of Awig-Awig induced a reversal of regulation towards indigenous communities (i.e. delimitation of specific area ruled as a common property), supported by the decentralization act for local autonomy. However, due to the growing importance of the TEs group decision-making power, the voice of small-scale fishermen has been overpassed. Moreover, the governmental initiative of developing Gili Indah as a touristic conservation park, as well as critiques against the muroami-netting, are in contrast with the improvement of small-scale fishers’ livelihoods. Since the mentioned conflicts have been resolved only partially, due to continuous pressure by the tourism sector, the pro-fishermen regulation adopted with CBM lacks efficiency. To Awig-awig of Gili Indah, I gave the score of 3.

4.1.2 Empowerment of users through the establishment of local fishery organizations

	Coron Island (PH)	Gili Indah (IN)	Patos Lagoon (BR)
Community empowerment through fishery organizations	5	2	2

Table 3. Final score for community empowerment through fishery organization.

⁵ Organization funded in 1996 with the support of IBAMA governmental agency for improving the management of regional small-scale fisheries in the region through a community-based model (Reis & D’Incao: 2000).

In all the three case studies, CBM implementation is accompanied by training and workshops offered by academic or research institutions. They are preceded by preliminary meetings at the village level to collect information about the real needs of the community to form a good action strategy. However, CBM becomes effective in a long-term perspective only when able to create durable organizations managed in first place by local fishers, who replace the external agents such as NGOs at the leadership of the established association (Afifi: 2011). I found out that CBM does not work efficiently when the purpose of fisheries organizations is not internalized by the community. The CBM of Coron Island again represents the best case of community empowerment through the complexity of its representation organisms. Since the formation of the Tagbanua Foundation and later the Saragpunta Federation⁶, the indigenous people have been able to reorganize their structure in order to carry on an equal dialogue with the concerning authorities. The facts of gathering the communities into one instrument adapted to the existing legal frame legitimized their pressures for rights. Moreover, is the community itself who elects the outspoken leader of the Foundation: even prior to the CBM, the executive role of the leader was already part of the traditional structure of the village. The authority that this figure exercises helped the community members to accept the various changes. Indeed, participation is said to be the most important successful feature pervading the Tagbanuas' struggle (Mayo-Anda et al: 2006). This CBM shows a strong self-organization and management power; a bottom-up pressure for rights approval; a community-based monitoring and managing of the activities occurring inside the domain (fishing, tourism visits). On the other side, Awig-Awig of Gili Indah shows a complicated process of promotion and internalization of fishery organizations in the village structure. The fact could be unexpected since the historical compatibility of the customary law with the cultural system. However, the perception that Awig-Awig is more pro-tourism interests than fishermen livelihood caused less legitimacy of law enforcement among them. Tourism Entrepreneurs (TEs) took the lead for monitoring activities, providing funds and transport means, and including the local authorities such as the police, instead of relying on community's members. Therefore, the strength of indigenous organizations is negligible due to fishers' marginalization in coral reef management. This is demonstrated by the fact that they are generally represented by LMNLU (Fishers Council of Northern Lombok), whose scope comprehends the whole region of North Lombok. In other words, the initial high level of participation and enthusiasm towards the external collaboration was not corresponded by an appropriate changing in institutions on behalf of the community. For what concerns Patos Lagoon, the foundation of fisheries groups or Colonies was promoted by the federal government since the 1950s (Kalikoski et al: 2010). However, prior to the Forum, the Colonies were a mere bureaucratic mean for filtering the instructions coming from the

⁶ Two community organizations promoters of the dialogue on indigenous rights. The Federation comprehends seven Calamian Tagbanua associations from Coron Island villages (Mayo-Anda et al: 2006).

central government to fishers (Ibid). Even after the application of the participatory governance, the voice of fishermen organizations is still weak. This is due to the unfamiliarity of fishermen with the new developmental model, and to a history of marginalization affecting the community commitment towards changes. In fact, although a good level of community involvement into activities and researches proposed by the Forum, small-scale fishers in Patos Lagoon do not feel law enforcement as their own responsibility. Moreover, the loose regulations for resource use by the industrial vessels and the lack of a conflict resolution mechanism perpetrate the weak status of the community.

4.1.3 Creation of effective measures or political organisms for the resolution of conflicts.

	Coron Island (PH)	Gili Indah (IN)	Patos Lagoon (BR)
Mechanism for the resolution of conflicts	4	3	1

Table 4. Final score for conflicts resolution.

In none of the considered cases, I found an impartial method of conflicts resolution between the indigenous community and external actors, such as other economic sectors and the government. The attractiveness of the natural heritage of Coron Island and Gili Indah for tourism or the commercial profitability of Patos Lagoon biodiversity make these territories extremely contested. According to the analysis, more than once the direct government itself has interfered with the decentralization process through new local or national policies. Therefore, its role as a mediator loses legitimacy in communities' eyes. Then, even inside each community, the traditional hierarchical structure cannot always guarantee the resolution of disputes originated among users. One of the reasons is the lack of internalization of the new CBM structures inside the community society. Indeed, when fishers do not perceive themselves as the direct beneficiaries of the CBM, they justify their non-compliance with the established law. Starting with the least scored case, the Forum of Patos Lagoon has created a partial framework for the regulation of artisanal fishery. However, this set of regulations does not comprehend limitations also for the industrial sector, whose activities reach the same exploited areas. Moreover, until the national constitution guarantees the open access condition of fisheries, the local ownership of resources will always be contested. In the first place, outsiders, who traditionally have drawn resources from the common pool, reclaim their extraction rights. The governmental agencies manage the situation inefficiently, since the low human resources in law enforcement (Kalikoski et al: 2002). Therefore, it fails to act as a peacemaker in the case of conflicts. For what concerns the CBM of coral reef in Gili Indah, I found that a partial resolution of infra-community conflicts was achieved. Indeed, a compensation system was established for sanctioning

each violation (Satria et al:2006). The release of the new Awig-Awig in 2003 confirmed the creation of an alternative method for regulating disputes concerning allowed or prohibited fishing zones. However, two supra-community conflicts still occur: the central government and the municipality compete for the management authority over Gili Indah, while the environmental and fisheries agencies compete for the total prohibition or allowance of muroami-netting (Satria et al: 2004). For these reasons, I gave the score of 3 to the CBM of Gili Indah. The Tagbanuas, on the other side, have secured the least possibility of conflict over resources, but they are not immune from it. Although the community is provided with the legal means to avoid conflicts on the ancestral domain (such as the free prior informed consent), external pressures from developers backed by the local government are getting stronger. Coron Island and the surroundings are destinations of new touristic facilities and financial aids for coastal land development, while internal resources, such as forestry, are in the sights of mining and pulpwood sectors. The biggest threat could come from the municipal authority itself, which seems extremely enthusiast about the tourism alternative. In conclusion, the three cases are not supported by an effective strategy to tackle emerging conflicts yet.

4.2 Determinants of CBM success

For each factor, I provided a short section concerning the findings before the in-depth analysis.

4.2.1 Supporting legal frame

Among the three cases, I found the CBM of Coron Island in the Philippines to be the best legitimized participatory governance by current laws. Here, the state provided a reinforcement of property rights of indigenous people on ancestral domains, while the evolution of fisheries management towards CBM was pushed both by decentralization policies and pressure from the civil society. The CBM of Coron Island is supported by the most comprehensive legal framework, while the other two cases have some constraints on their property rights. Gili Indah CBM ability to preserve fishers' access rights over fishing grounds is hindered by a multi-level conflict. First, between fishermen and tourist business over resources, and then between local and central government on fisheries management authority. This situation has led to the weakening of Awig-Awig, the customary law governing Gili Indah. Finally, the fishermen communities in Patos Lagoon are struggling for stronger regulations over resources allocation through a partial representation in the Forum. The commitment of the central government to decentralize fisheries management is unclear. The efforts of the Forum of Patos Lagoon in empowering local communities are held back by the ongoing formal open access of fisheries.

The creation of a legal framework to legitimize the management rights of the indigenous communities in some cases benefits from the compatibility with some of the existent policies, such as in the CBM of Coron Island and Gili Indah. However, this is not the case of Patos Lagoon, where the Brazilian constitution still recognizes the open access condition for fisheries management. In particular, the Tagbanua of Coron Island were able to take advantage of the already existent framework supporting the indigenous property, which is not found in the other cases. First, the National Philippine Constitution of 1987 mentioned the grant of indigenous people's rights on the traditional domain. Later, two political organisms were created to ensure the participation of indigenous communities in resource management: the National Integrated Protected Area System (NIPAS) and the Environmental Critical Areas Networks (ECAN). Both of them work for the recognition of tribal ancestral areas and for the inclusion of community members into the decision-making (Capistrano: 2010, Dalabajan: 2001). After the seizure of coastal areas and caves by the municipality in the 1970s, the declaration of Coron Island as a Natural Reserve in 1967 stated the government interest in developing the island as a tourist area and a marine reserve. However, the Tagbanua were able to temporarily regain the property of the surrounding forests and caves applying for the Community Forest Stewardship Agreement (CFSA) at the governmental Department of Environment and Natural Resources (DENR), in 1985. In order to do so, they gathered in the Tagbanua Foundation of Coron Island (TFCI), a community organization. In fact, five years later all the caves were returned to the Tagbanua as part of the Stewardship Agreement, which allowed them to manage the area and the involved resources for 25 years. However, for reclaiming also the coastal and fishing grounds they had to wait for the issuing of the Certificate of Ancestral Domain Claims (CADC, in 1996). According to the DENR instructions, the CADC is a tenurial instrument granting indigenous communities the management and protection rights over land and resources, including coastal and submerged areas as well (Capistrano: 2010). At this point, the Tagbanuas proceeded with the physical delimitation of their domain, in order to record the property in the register of deeds. They collaborated with supporting NGOs, mixing modern technology with local knowledge (the GIS system was used, meaning a participatory Geographic Information System). The Tagbanua efforts on codifying their traditional and customary laws, belief and practices were rewarded by the delivering of the CADC (1998), followed by the formulation of an Ancestral Domain Management Plan for the claim territories. Besides rights concerning land, the Philippines government in 1997 ratified the Indigenous People's Rights Act (IPRA). This law formally recognized the indigenous rights of ownership over land and water bodies, traditional resource management practices and the obligation to gain the community prior consent for developmental plans affecting the ancestral area. An apparently smooth triumph hides some difficulties for the indigenous community: among these, documents for meetings

with governmental agencies were first not issued in the local language; then, the Protected Areas Management Board did not involve local representatives. Moreover, the approval of the CADC was challenged by the municipal government, since the negative effect on local fishing industry, and due to the scarce faith in the indigenous ability of self-management (Dalabajan:2001). Then, the obtained Certificate of Ancestral Domain Title (CADT) was at first never recorded in the Register of the Deeds, delaying its final recognition to six years after the official release of the CADC (Capistrano:2010). Conflicts arose also with the mining industry: in fact, even after the passage of IPRA, mining concessions (issued by DENR) given prior to that date were not asked to gain the prior informed consent by the indigenous community (Capistrano: 2010, Capistrano & Charles: 2012). For what concern the growing touristic sector, financial funds for developmental projects, resorts and for the protection of conservation areas attract marginalized fishers, who lack alternative employment opportunities. Therefore, this situation has created pressures regarding the development of indigenous areas (Fabinyi: 2010). Indeed,

[f]rom the early '90s, the pressure on Tagbanwas to leave their island and give way to tourist resort owners and developers began to intensify (PAFID:2000, in Fabinyi:2010, p. 423).

In the Philippines, the Tagbanua were the first indigenous people to obtain property rights at a constitutional level (Capistrano & Charles: 2012). In the cases of Indonesia and Brazil, the collaboration between local and higher authorities has not led to a likewise recognition of indigenous people over a claimed domain.

For what concern CBM in Gili Indah, the revitalization of indigenous practices for coastal management has seen the customary law Awig-Awig at the core of the entire project. As an institution spread in Northwest Lombok, Awig-Awig is meant to regulate the reef fishing management as a Common Pool Resource. In Gili Indah, its promulgation was helped by the COREMAP (Coral Reef Rehabilitation and Management Program) and the Bureau for Regional Developmental Planning (Satria et al: 2004). The Awig-Awig sets a number of rules for environmental protection and sustainable activities, which were maintained by CBM users. It includes a well-defined boundary marked with buoys or floating balls, which ends at 100 m from the coastline and comprehends the coral reef areas. Moreover, it regulates methods and seasons of fishing as well as prohibited activities, depending on the coral reef condition. Usually, building consensus is part of the process for decision-making at village meetings, forerun by public hearings to collect people's opinions and requests. Monitoring its good implementation is left to the local force groups. In the case of violation, Awig-Awig regulates the type of sanction based on the damage, from monetary fines to the suspension of the activity or confiscation of the boat: further control comes from the local police and the KSDA (Agency for the Conservation of Natural Resources) (Ibid). In this case, support from higher

institutions for reef conservation can be explained with the government interest in developing Gili Indah as a Marine Natural Tourism Park (since 1993) (Satria et al:2006). However, interactions among CBM stakeholders since the establishment of Awig-Awig highlighted two major conflicts related to resource ownership: first, a conflict between fishers and TEs, and between fishers and central government (Satria et al:2004). The first issue derived from the modification of the Awig-Awig in 1999 with a new Awig-Awig released in 2001, which restricted the allowed zones for muroami-netting, still largely practiced among fishers. But even before it, the adoption of Awig-Awig by the TEs affected the livelihood of small-scale fishermen. The gradual growing (economic) importance of TEs in decision-making on resource management is felt by fishermen as a marginalization of their own interests. The exclusion of small actors continued with the top-down approach of state initiatives such as transforming Gili Indah in a Tourism Park and a Water Natural Conservation Area (as Forestry Ministry policies). The consequence of these projects is the establishment of protected areas as new state property right, where muroami or other reef fishing practices are prohibited. Some of the newly created conservation areas overlap with community-managed zones. In other words, Gili Indah seems governed by a "fake" CBM, since the collision of many stakeholders hinders an active participatory work by fishermen communities (Satria et al:2004).

The decentralization of fishery management reached different forms among developing countries. Pre-existing ethnic groups with solid fishing traditions as the Tagbanwa could strengthen the community demands for the appropriation of resource rights. However, for what concerns fishers of Patos Lagoon estuary, they are extremely weakened by almost 30 years of top-down management. The condition of advanced depletion of the Lagoon ecosystem led the state agency IBAMA to create the Forum of Patos Lagoon, the first initiative towards a CBM system, in 1996. The establishment was guided by IBAMA's Rio Grande Research Unit and, at a household level, by the Fishing Catholic Body organization. The project looked at the success of previous CBM projects in the close Mirin and Mangueira Lagoons. The Forum encouraged the 21 institutions (representing fishermen groups, unions, religious movements, universities, government, etc) attending the meetings to propose and to plan the recovery of the Lagoon environment (Reis & D'Incao: 2000). The first official regulation of the Forum was published in 1998, after almost three years of fishery regulation review, on fishermen demand. The main innovations were:

1. Four months of closed season, in which licensed fishermen could be eligible for unemployment benefit from the government;
2. Limitation of restriction areas to local fishermen activity;
3. Limitation of fishing capacity through a fixed allowed number of nets per fishermen;
4. Limitation of size for the most important species.

Although the new legislation was discussed with the local fishermen, they found it to further undermine their economic activities, not recognizing that overcapacity and illegal fishing are partly due to their own small-scale practices (Ibid). Moreover, the outside fishermen, that once exploited the estuarine resources, complained about the discrepancy between the new access limitation and the open access condition offered by the National Constitution. Indeed, despite the different property rights regimes regulating coastal ecosystems, fisheries are formally considered as an open access resource by the Brazilian Constitution (D'Incao & Reis:2002). Then, lack of infrastructure and scarce monitoring planning represented major obstacles to the decentralization of management on behalf of local institutions represented in the Forum. In the past, the centralized system plus corruption cases involving the commercial industry made the enforcement of coastal laws weak and ineffective, hindering the importance of feedbacks from environmental resources and users accountability (Kalikoski et al:2002). Finally, another issue concerning the efficiency of the new-born Forum is the institutional scale and variety. Although one of the priorities of the Forum is the empowerment and the political inclusion of small-scale communities, the presence of religious movements, industrial fishery unions and port authorities actually limit the voice the local fishermen (Ibid).

4.2.2 Community homogeneity

The CBM of Coron Island demonstrates the highest level of community homogeneity. The Calamian Tagbanwa ethnicity inhabiting Coron Island is clearly separated by other mainland ethnic groups. The group is small in size, divided into villages relying on a leader, unified by a shared culture and religious practices, identifying its connection with the coastal land through historical accounts. I have found a slightly different condition also in Gili Indah, where both fishermen and tourism entrepreneurs have the same occupational background, they belong to the same ethnicities (the majority Buginese and Sasak), and they are bounded by kin relationship. However, since the vertical movement leading to the stratification of the communities started since the 1980s with the development of tourism facilities, now the community is divided by different economic interests. The surroundings of Patos Lagoon have seen the formation of Fishermen Colonies during the second World War, while the presence of artisanal fisheries goes back to the 19th century. Besides sharing fish catches, information and being bounded by kin ties, the literature does not refer to a common ethnicity, culture or religious practice, while it confirms a weak cohesion, leadership and self-organization skills. In this case, the prioritization of commercial fishing led to the division and competition between users.

When it comes to claiming ownership and management rights over resources and land, the Calamianes Tagbanua from Coron Island authenticated their long traditions through historical

accounts. They showed the resistance of the communities to previous colonial structure, both Spanish and American, and to the inflow of lowland Filipino culture (Capistrano:2010). Even if their internal cohesion was threatened by land conflicts with the local authorities, the Tagbanwas were able to push themselves in order to protect their ancestral land and human rights. Discipline in observing customary laws and the massive effort in catching up with the governmental system requirements contributed to the empowerment of the community members (Sampang:2007, Mayo-Anda et al:2006). The Calamianes Tagbanwas differ from the mainland Tagbanwas for dependency on fishing, edible bird nests collection, group-oriented fishing practices, sharing culture of the surplus and specific food taboos related to geographical areas or season: all these practices gave rise to a unique sense of identity among seafarers Tagbanwas, as the protectors of a milestone environmental site (Mayo-Anda et al:2006). However, in the last two decades, migrants and tourism development are challenging the community. Since 2004, increasing touristic flows, building and renovating of infrastructure pressured the ancestral land of Tagbanwas, who felt marginalized from the developmental dialogue. The increasing arrival of migrant (especially Visayas) brought also illegal fishing practices endangering the coral reef and local economic opportunities. Towards these facts, Calamian Tagbanwas struggle in asking to the local municipality cooperation for the enforcement of the law, due to their low capacity of human resources and technology. On the other side, tourism is an attractive alternative for increasing household incomes, and it becomes more attractive in a condition of declining marine resource. In this sense, stratification of the Tagbanwas communities cannot be considered an issue yet, but it could become another issue challenging the cohesion of the indigenous people (Fabinyi:2010; Mayo-Anda et al:2006). Moreover, the diminishing number of households on Coron Island is due also to emigration to the mainland for job seeking or education of the youngest (Sampang:2007).

Comparing to this picture, Gili Indah communities are less homogeneous and contain ethnicities coming from both mainland Lombok and from South Sulawesi: the main groups are Sasaks, Buginese, Javanese, Mandarese and Makassarnese. In particular, indigenous communities from Lombok and fishers from South Sulawesi claim to be the first settlers of the three little islands since the end of the 19th century. Anyway, Hidayat (2006) argued that despite the variety of ethnicities, the local communities were able to bound and adapt the customary law awig-awig (spread in Northwest Lombok as a form of indigenous knowledge, revitalized after the fall of Suharto) for their needs. Familiar relationships helped the resolution of infra-communities conflict, through meetings among village leaders and marriages. On the other side, this system undermined the enforcement of local rules: due to the kin ties, sanction liability could be easily avoided (Hidayat: 2006). Overall, while Gili Air and Gili Meno remained dependent on fisheries, the bigger Gili

Trawangan has become the most visited island, for its ability to create enough touristic facilities. Indeed, the previous elite fishers were able to take advantage of tourism since the 1980s (Hidayat:2006; Afifi:2011). This initial community stratification continued with a further separation: fishers are divided between muroami-net supporters and who condemn this destructive method. Among the last group we find pro-TEs, who prioritize the protection of coral reef as the main fuel for attracting tourists: among supporters of muroami-net there are fishers who argue about the historical continuity of the practice (even if it was introduced during the Japanese occupation) and about its formal recognition by the authorities. This internal conflict influenced negatively the legitimacy of CBM fishery regulations; indeed Satria et al. (2006) argued that internal disparities created by the CBM of coral reef have increased inequalities in Gili Indah society (Satria et al:2006).

For what concerns small-scale fisheries in Patos Lagoon estuary, the selected literature indeed does not mention settlement origins, ethnic composition or hierarchical structure of the communities. The lack of detailed information mirrors the idea of a scattered and disorganized human capital. Moreover, depending on my research, even the structure of the single fishermen village is not clear. However, small-scale fisheries both for domestic and commercial purposes accounted for the 80% of the total landing for the State of Rio Grande do Sul in 1966, decreasing in the next decades as the conflicts with industrial vessels and the depletion of resources intensified (Kalikoski et al:2002; Reis & D'Incao:2000). The reduction of catches and the traditional top-down approach of fishery management have been the main causes leading to the fragmentation and weakening of the communities. Management norms were complied neither by fishermen nor by external users, who, facing conflicts with commercial fisheries, opted for expanding fishing routes and for anticipating the fishing season. Finally, it seems that the FPL does not empower or unify the communities: indeed, there are no specifications for fishers organization or group, or requirements for village leaders, perpetrating the situation of indefiniteness (Reis &D'Incao:2000).

4.2.3 ITK implementation.

The small-scale fishermen communities who have been able to better implement the body of indigenous traditional knowledge (ITK) in the development of CBM are located in Philippines and Indonesia. The Tagbanua show a rich and dense tradition of traditional fisheries techniques, sustainability knowledge as period restriction, size and fishing gears, using the collected historical knowledge for delimiting property boundaries. On the other side, I found controversial the implementation of ITK in Gili Indah. The customary law Awig-Awig is per se a collection of local knowledge: however, when adopted by the whole range of stakeholders of the coral reef, it has been manipulated against the fishermen group. Then, muroami-netting, which is still legally practiced even

if highly dangerous for the preservation of coral reef, is included as well in the traditional practices. This shows a lack of observation and information among small-scale fishermen about conservation, weakening their voice. In Patos Lagoon, competition for resources with the industrial sector undermined the implementation of ITK, leading to a gradual loss of knowledge. However, the collaboration with scientists after the establishment of the Forum shows that fishermen groups indeed had developed fishing pattern depending on ecosystem changes, seasons and delimitation of nurture areas.

In the literature referred to the Calamian Tagbanua communities, there is strong evidence of a rooted awareness on nature conservation and sustainable activities. They are said to believe in the spirits embedded in nature, which is considered as the mother of life and for this reason must be respected (Sampang: 2007). The livelihood of the village and their economic activities are integrated with practices related to conservation of the biodiversity, by establishing sacred protected areas for the regeneration of fishes, or by using simple gear methods such as hook-and-line. These methods could not guarantee a sufficient surplus in order to develop commercial fishery or an expanding population. (Capistrano: 2010). Fish species are classified by specific terms in the local languages, fixed in the traditional knowledge through observations. The role of village leaders is fundamental in establishing these rules as they represented the customary law, institutionalizing also sanction and corporal punishments (Mayo-Anda et al: 2006; Mangahas: 2010). The collected information has been implemented in the collaboration with research units for data collection on existing biodiversity and fishing management and practices (see Sampang: 2007). However, ITK was particularly fundamental for the delimitation of community boundaries, in order to apply for the previously mentioned CADC. During the process of map drawing, fishermen could proof their legitimacy on the claimed areas demonstrating a detailed knowledge of the existing fishing practices and resources. Their idea and initial map drawings were integrated with the GIS technology by external associations: the corrected maps would have become the legal basis for facing further challenges. On the other side, Awig-Awig, as a complex set of cultural practices for coral reef conservation, is one of the most spread customary laws in North and West Lombok. However, there are proofs of different complexity level between Awig-Awig of Gili Indah and other locations. Some scholars argued that due to the recent settlement of the three little islands the local rules are less rooted in the community, comparing to other previous indigenous knowledge systems, for example sawen or sasi (Satria & Matsuda: 2004; Satria & Adhuri: 2010). Anyway, with the establishment of Awig-Awig in 1998/99 in Gili Indah, the conservation practices, as well as fishing grounds definition and allocation, were all codified in a legal document. In this case, the detailed regulations of the new CBM followed the footprints of oral knowledge collected through observations and passed down from generation to generation (Satria &

Matsuda: 2004). For this reason, among the three case studies, the CBM of coral reef in Gili Indah shows the best level of initial implementation of indigenous traditional knowledge. In a second moment, however, the TEs, gaining more influence in the coral reef conservation, pressured for the prioritization of fishing grounds restriction and for the prohibition of muroami-net, aligning their vision with the policy of municipal authorities. Dealing with a total opposite system of fisheries management, the traditional knowledge of artisanal fishermen in Patos Lagoon has never been recognized until the establishment of the Forum. However, the literature confirms the existence, since the 19th century, of small-scale fisheries patterns defining fishing grounds, regeneration areas, working groups bounded by kin relations or friendship. Moreover, fishermen collected important information about the seasonal movements of fish stocks, codified in the fish calendar. They adapted the fishing technologies to fish species and specific periods of the calendar (Kalikoski et al: 2002; Kalikoski et al:2010). The first regulation issued by the Forum in 1998 was the result of almost three years of collaboration between fishermen and scientific institutions. One of the most pro-fishermen achievement was the re-definition of the fishing calendar, based on real-time data about fish species population. Secondly, thanks to the geographical knowledge of local fishermen, they delimited the artisanal fishery operation zones, which without clear boundaries are affected by illegal fishing from outsiders or industrial vessels. The strategy implemented tried to combine the two types of knowledge into a common knowledge base, that could provide the better solution to fishermen demand after reaching the consensus of both parts (Reis & D’Incao: 2002). Although from this picture the indigenous knowledge in Patos Lagoon could seem quite developed, its past exclusion from the management system led to its weakening. Then, due to the moving of fishers looking for economic opportunities, part of the knowledge inherited by communities members have left the lagoon with them forever.

4.2.4 Community pro-activity.

From the analysis of the commitment of communities’ members in overcoming their situation of exclusion from fisheries management, we can divide the cases into two opposite scenarios. On one side, the Calamian Tagbanwas show an extreme pro-activity in forming their own associations and applying for property recognition, even through the collaboration with external organizations. They were assisted by sympathetic actors who could provide with the essential training about legal terms and fisheries norms. On the other side, fishermen in the Patos Lagoon seem struggling to adapt to the new decentralized paradigm: they rely on governmental agencies for monitoring and enforcement, but they have not become promoters of the change. The long imposition of a top-down approach left a deep mark, hard to reverse. However, Fishermen Colonies

gave proof of their commitment through a modest participation at workshops and researches for implementing new regulations. I would say that the Gili Indah experience lays in the middle of these two opposite situations. The diffused awareness towards the reef ecosystem and the restriction initiatives proposed by the communities (mostly by TEs) emerges in the participation of small-scale fishermen in initial meetings and training. However, the newly established institutions are perceived as low and ineffective since fishers non-compliance. New changes are not yet internalized by the community, in a way that Awig-Awig is not enforced by the direct users of the CBM.

Looking first at the latter case, CBM implementation in Gili Indah was planned and directed by the University of Mataram in collaboration with the Regional Government of West Lombok Regency based on socio-economic surveys completed by a Developmental Planning Board. The communities were previously informed and consulted through several meetings. The initial activities included several English and diving courses, seaweed cultivation training, with high rates of community participation. In fact, they satisfied the need of communities members, who took advantage from the teachings in order to improve their condition. Other steps were the creation of a resource management groups, divided in conservation, beach watch and welfare division. The implementation included also the formation of a coral reef management plan based on Awig-Awig, with a system of boards in each village to spread awareness. The fulfilment of all these projects was made possible due to the participation of NGOs, and local private business (Afifi:2011). Moreover, to monitor the observance of Awig-Awig, the Gili Indah Youth Task Force was established in 2000. The system had immediately good results for what concerns the prohibition of blast fishing (Satria & Matsuda: 2004). In particular, in Gili Trawangan (where most of the tourism facilities are located), the monitoring force was backed by Eco-trust, an organization aiming to raise funds. From 2002, each village developed its own monitoring task force, financially supported by the respective TEs operating in the area. Two main factors decreased the legitimacy of the monitoring force from fishermen's perspective: the lack of coordination among enforcement bodies (leading to a deterioration of the Youth Task Force group), and monthly wages to the force members, although in the CBM model monitoring should be a common responsibility (Satria et al:2006). Then, the literature does not provide a clear image of fishermen organization in Gili Indah, in relation to higher institutions. Their demands are represented by the LMNLU, a kind of fishers association whose scope comprehends the whole Northern Lombok region. Marginalization of Gili Indah fishers continues also inside this network, since Gili Indah fishers are accused to be often blast fishing practitioners (Ibid). Although the initial promising involvement of fishermen and community members in general, the newly established institutions faced acceptance problems. The increasing importance of TEs in the CBM, the inadequate resources to improve facilities, and the renovated formality of Awig-Awig as a new

government tool, have contributed to decreasing the legitimacy level of Awig-Awig itself among fishers (Afifi:2011). Therefore, scarce obedience and poor enforcement capacity caused a low level of pro-activity of fishermen in trying to regain their property rights over Gili Indah fishing grounds.

Analysing the evolution of Patos Lagoon small-scale fisheries after the establishment of the Forum, it is possible to find some of the same patterns of the CBM application in Gili Indah. First of all, the Forum of Patos Lagoon was highly supported by IBAMA Rio Grande Research Unit, a governmental research body, on the model of previous successful CBM in the region. It included also the Fishing Catholic Body, local religious movements developing activities with fishers' families. The first initiative of the Forum was reviewing the existing fishery regulation. For the first three years, fishermen collaborated with researchers in order to collect data on fishing gears, catch size, capacity effort limit, closed season and composition of fish stocks, making available local knowledge and facilities for expeditions (Reis & D'Incao:2000). Then, after the release of the first official regulation, fishers' complains and inaccuracy mistakes led again fishers' community to collaborate for recollection of data in order to elaborate a more effective strategy (see the case of the fishing calendar, Kalikoski et al: 2004). However, the initial enthusiasm towards the benefits originated by the Forum started to diminish soon. Since the new regulations did not bring an immediate improvement in profit terms, a growing sense of dissatisfaction was felt among fishermen, due to low education and lack of a long-term vision. On the other side, the Forum itself does not pressure small-scale fishermen to self-organize monitoring activities of the surroundings. In 1997 the State Environmental Police (PATRAM) was established as a law enforcement tool; this is another hint that enforcement is still expected to follow a top-down approach, with the exclusion of the direct users. Few pressures for more autonomy by indigenous communities comes also from the long tradition of centralized management. Some scholars argue that fishermen do not consider themselves integrated into the system leading to the coastal resources degradation: they accuse in the first place the intensive fishing sector and inefficient regulations as responsible of the existing situation (Reis & D'Incao:2000). In addition, there are some important constraints to fishermen representation at the Forum meetings: meetings are often held during working hours, in one of the IBAMA offices in urban centres, difficult to be reached by most of the community. This means the participation of a limited number of communities members, included the fishery organization leaders, who mostly are politicians or commercial middlemen without an occupational background similar to the people they represent (Kalikoski: 2004, Kalikoski et al: 2010). Finally, the lack of a common vision and low empowerment perception by small-scale fishermen hinder their self-organizing skills and commitment to create better facilities for resource management.

As mentioned at the beginning of this section, the performances of Gili Indah and Patos Lagoon fishermen in reclaiming their space in decision-making are totally different from the Calamian Tagbanua's struggle. Probably the most evident difference lies in the strength of the community organizations: in the Tagbanua society, the loyalty toward an outspoken leader follows the structure of the village. The Tagbanua Foundation of Coron Island (TFCI, 1985) founded in order to apply to a resource stewardship, showed a clear "manifesto" of intentions. Among the latter, there are respect and recognition of customary laws; the revival of Calamian tradition; reduction of illegal fishing; decreasing the number of migrants in the island (Mayo-Anda et al: 2006). To reach the stated aims, the community needed external aid, due to the spread poverty condition and the lack of information or facilities. These latter were provided by national and international NGOs: Conservation International supported the communities for what concerns biological resource assessment, while the Environmental Legal Assistant Centre provided training on property rights. Furthermore, the Philippines Association for Intercultural Development gave high support for maps drawing, making available advanced technology (GIS system) (Capistrano: 2010; Mayo-Anda et al:2006). Later, the TFCI decided to merge in the Saragpunta, a federation of several communities associations of the various Calamian Tagbanua villages, gaining more allies and more democratic power (Mayo-Anda et al: 2006). With the acceptance of the Certificate of Ancestral Domain Claim and Title, the Tagbanua had the rights to resist further government initiatives touching their own territory. Moreover, they pressured the publishing authority to have the legal documents written in the local language. With a total autonomy over the domain, the community is engaged in the collection of tourists' fees, in the control of tourists' number allowed to visit the areas, and in the monitoring of surrounding waters from illegal activities (Capistrano:2010). In conclusion, it is possible to identify the successful features of Tagbanua communities' involvement during the establishment of CBM. These are: a strong community organization, based on the sense of solidarity and support among tribal villagers, and the collaboration with sympathetic groups (Dalabajan:2001). Then, the Tagbanua showed a high sense of community empowerment derived from the members' participation in local organization; there is a strong seeking of a bottom-up approach, which has at the core the communities association demands and pressures for legal rights (Mayo-Anda et al:2006).

4.3 Discussion.

The three case studies are different portraits of the results of CBM application in small-scale fishermen communities. Indigenous fishermen are affected by the negative effect of ocean grabbing, such as resource conflicts with the industrial fishery or tourism sector, yet their responses to it led to incredibly different performances. A first look at the analyzed data highlights how the historical

continuity of dispossession and marginalization have a strong influence on fishermen involvement as well as on the speed of the decentralization process in the present. If the Tagbanua were able to overcome this issue working on indigenous rights, while Indonesia saw a revitalization of customary regimes after the fall of Suharto, the situation in Patos Lagoon seem paralyzed by old management patterns. Indeed, the decentralized control seems to be better legitimized if there is a compatibility with pre-existing coastal or fisheries policies. Both Philippines and Indonesia are well-known for long tradition of indigenous people governing small-scale fisheries, even prior to the adoption of a centralized system (Pomeroy: 1995). This can explain why decentralization policies and the revitalization of participatory governance were more accepted. Brazil fisheries, and in particular the wealthy Patos Lagoon estuary, has never been object of government policies towards the empowerment of small-scale fishermen (Reis & D'Incao: 2000). Observing the four main determinants of CBM success, I found that a supporting legal frame is not enough for securing fishermen access rights. This could seem a contradiction, but it is possible to understand more observing the case of Gili Indah. Due to the internal conflicts between fishermen and TEs, the customary law once regulating the fishing activities has turned into a restricting policy, benefiting the promoters of no-take areas and enclosures. Even in Patos Lagoon, the new regulation issued by the Forum is not enforceable without the appropriate modifications also in the industrial sector activities, or in the constitutional open access. On the other side, if the legal changes are pushed by a unified civil society as in the case of Coron Island, the CBM has more probabilities to be efficient for small-scale fishermen interests. This suggests that the community commitment for a reversal of regulation is not enough, but the decentralization must be promoted in first place by the government, as in the case of the indigenous rights act or the ancestral domain claim by the Philippines. Then, from the analysis it emerges that the community homogeneity cannot always guarantee a better implementation of CBM. As the case of Gili Indah demonstrates, even though different stakeholders inside the community possess the same ethnic or occupational background, the participatory governance is fragile, while infra-community conflicts persist. On the other side, Tagbanua used their own ethnic uniqueness as a pillar of their struggle, something not possible to achieve in the weakened condition of small-scale fisheries in Patos Lagoon. Community homogeneity is connected to the use of traditional knowledge, as a proof of the indigenous legacy towards resource management. While fishers in Patos Lagoon are skeptical towards the new regulations imposed in collaboration with scientific researchers, in Coron Island the display of environmental knowledge improved directly the livelihood of the Tagbanuas by delimiting their own domain. Curiously, although the formalization of Awig-Awig followed the cultural norms developed in Gili Indah, and more in general in Northwestern Lombok, the tight grip by the TEs on the law terms restricted fishers operational zones. Nevertheless, a good improvement on awareness towards coral reef health was achieved (Afifi: 2011). By the same

token, less management opportunities to fishers mean less inclusion in decision-making and low commitment among fishers in complying with the rules. However, this brings also to more vulnerability in front of external threats, since the community is not unified under an integrated management plan. Besides the positive response in all the three sites to initial meetings, workshops and training sessions in order to learn the essential information of the new governance system, pro-activity performances differ extremely. Community commitment lacks whenever the new established institutions are not internalized into the social structures (as in the case of Gili Indah), or when they reflect the continuity with a top-down approach (as in Patos Lagoon). As the exception, apparently, fisheries organizations in Coron Islands worked thanks to the real commitment of the whole community in taking the reins of the resource management in the first place. In conclusion, CBM hides many difficulties for the involved community, and many are the wrong steps on the path towards a full decentralization. In the analyzed cases, CBM has been surely effective when it comes with: the consideration of community's values and the rising of awareness on conservation practices and relative importance of local knowledge. Then, in some cases better than others, CBM has secured a reversal in regulation towards small-scale fishermen, depending on the government willingness to share the management responsibilities and to continue the decentralization process generally started in the 1990s. The level of opportunities and management power given to the community are proportionate to the response of fishers, in constituting representative organization to fit in the developmental dialogue with higher institution. Something that CBM seems not able to resolve is the establishment of conflict resolution mechanisms, which can be considered fair and equal for all the involved stakeholders. The prevention of conflicts seems to be a good alternative, as in the case of the Tagbanuas, whose domain is legally recorded as a common property under defined boundaries. However, for the other two cases, the major conflicts derive from infra-government disputes over the allocation of resources, in which indigenous communities' voice are not considered.

CHAPTER 5

CONCLUSION

Ocean grabbing has threatened the small-scale fishers communities belonging to Coron Island, Gili Indah and Patos Lagoon in various ways. Yet, in all the three cases, the dispossession practices are comparable due to their similarities with the ocean grabbing model commonly accepted. Indigenous communities are harmed by confused fisheries policies and poor resource governance, corresponding to a worsening in their socioeconomic wealth and food security (Bennet et al:2015). The traditional management for the Calamian Tagbanua of Coron Island was reduced by the coercive seizure of land, by migrants' illegal fishing and by tourism pressures (Capistrano: 2010; Fabinyi: 2010). For Gili Indah fishers tourism development and coral reef degradation are the principal threats to their livelihood, based on reef fishery (Satria et al: 2006). Finally, Patos Lagoon communities have been extremely marginalized by the prioritization of large-scale commercial fisheries and by the depletion of marine resources (Kalikoski et al:2002). However, a Community-based Management model of coastal resource was adopted in the three sites to contrast the exclusion of fishers. Indeed, through its human rights approach and users participation in decision-making, this type of decentralized governance is supposed to develop an efficient and sustainable management of the resource (Blaikie:2006; Graham et al:2006). Although the application of CBM is customized depending on the prior socioeconomic features of the concerned community, the preservation of fishers access rights reaches different efficiency scores. It emerges that regulations are reversed towards small-scale fishers when the decentralization is sufficiently promoted by higher authorities. Then, pressures from a cohesive community fasten the process, since the civil society gives proof to be a solid recipient for further policies. Moving forward, I found that the representative organizations for fishers participation, created by CBM, have a modest impact on community empowerment. This occurs first when local people are not able to take over external agents or the government at the leadership of the new-born organisms. Secondly, it occurs when the users do not understand their primary importance in the resource-management and are not committed to comply with the rules. Finally, CBM does not guarantee a one-way method to avoid or resolve arisen conflicts, which are still threatening the small-scale fishermen property. I affirm that external support and internal commitment constitutes the successful aspects of CBM. Causes such as poverty and illiteracy are major constraints to the self-development of the analyzed communities: that is why the CBM efficacy is still highly dependent on the governance quality of local authorities. Further research should consider on better addressing the shortcomings of the CBM implementation for what concerns the internalization process in the local indigenous institutions.

APPENDIX

1. Case studies data table.

	Supportive Legal Frame
Coron Island (PH)	<ul style="list-style-type: none"> • (1987) Philippine Constitution guaranteed the rights of Indigenous People on ancestral domain, as the legal owner of traditional land (Capistrano:2010; Dalabajan:2001) • Inclusion in decision-making process: in 1992, the National Integrated Protected Area System (NIPAS) ensured the participation of IP in protected area management and decision making. Then, the Environmental Critical Areas Networks (ECAN) identified and recognized the tribal ancestral zones (Capistrano:2010) • (1985) Forests stewardship for the Tagbanua (Community Forest Stewardship Agreement) • (1993) Department of Environment and Natural Resources issued the Certificate of Ancestral Domain Claim which recognizes the preferential rights of indigenous community to extract, exploit, manage and protect ancestral territory.(Capistrano:2010, Dalabajan:2001) • (1996) DENR issued Ancestral Domain Management Plan required for IP planning fundamental rights and practices of IP domain (approved in 1998 including island and surrounding sea) (Capistrano:2010, Dalabajan: 2001) • (1997) Indigenous People Rights Act: comprehensive system for protecting IP rights. 3 basic rights (1) established NCIP as government agency to formulate policies (Capistrano: 2010) (2)it describes IP ownership as private and communal, which cannot be disposed or sold (3) Free Prior Indigenous Consent (Mayo-Anda et al: 2006) (Capistrano&Charles: 2012)
Gili Indah (IN)	<ul style="list-style-type: none"> • Awig-awig established in 1999 (before they were initiatives taken by local people to overcome destructive fishing) already part of fishermen livelihood: establishment of protected, buffer and exploit zones, prohibited practices and authorized appropriation act (Satria &Adhuri: 2010) • Compatibility with traditional Awig-Awig. Aspects of awig-awig: 1 defined boundaries (physical marks but poor communication), 2 congruence between appropriation and provision rules (3 zones), 3 collective-choice arrangements, 4 monitoring (Youth Task Force, Eco-trust, sub-village group), 5 sanctions (support by police and KSDA), 6 conflict-resolution mechanism, 7 minimal recognition to organize, 8 nested enterprise (Satria et al: 2006) • Law for restriction of marine biota collection and pearl culture (Satria et al 2006) • (1999) Local autonomy Law supporting local decentralization (Satria et al: 2004) • Lombok Barat Regency Government signed the Awig-awig of Gili Indah recognizing the importance of devolution of coastal management to local comm (Satria &Matsuda:2004); Supported by bureau for regional develop planning→ formulation of legal text for awig-awig (Satria et al: 2004) • Compatibility with formal laws: fisheries law 1985, fine and confinement; environmental law 1997 (Satria &Matsuda:2004; Satria et al:2006)
Patos	<ul style="list-style-type: none"> • Legal frame formed by regulation of 1998 by Forum of Patos Lagoon agreed

Lagoon (BR)	<p>with fishermen (closed season, access restriction, reduction of capacity, allowed size and gear methods) (Reis & D’Incao: 2000); restriction as boundaries and access restriction through local-based licences to fishermen as first activity (Kalikoski et al:2002)</p> <ul style="list-style-type: none"> • IBAMA as enforcement agency part of FPL(reis &Incao: 2000) • FLP as democratization of knowledge and inclusion of fishermen population (Reis & D’Incao: 2002)
	Community homogeneity
Coron Island (PH)	<ul style="list-style-type: none"> • resistance to colonization, unchanged own customs, traditions, link with ancestors’ culture, they claim the sovereignty through customs and traditions and indigenous socio-political institutions (Capistrano: 2010) • mostly subsistence fisheries, with small commercial activity; deep share cultures (Capistrano: 2010) • due to depletion their condition is of extreme poverty without means to fight back (Dalabajan: 2001) • one ethnicity Calamian, while multi-ethnicity due to mass movement of migrants (Dalabajan: 2001) • small communities with clear structure: trust in outspoken leader of the village (Mayo-Anda et al:2006)
Gili Indah (IN)	<ul style="list-style-type: none"> • Comm divided in anti- and pro- muroami fishing, in other words Tourism Entrepreneurs (TES) and fishermen; in fact stratification of community since vertical mobility among elite fishermen who became Tes (Satria et al:2006) • Multi-ethnicity: 75% are Bunginese (South Suwalesi), other Sasak (Lombok mainland), but same settlement period, the bounded by kin relations among villages. However, fishers and TEs shares same previous occupational status and ethnic background (Satria et al. 2006) • new Awig-Awig reduced fishing grounds, polarization of the community between fishermen and Tes (whose profit from the coral reef) (Satria et al:2006)
Patos Lagoon (BR)	<ul style="list-style-type: none"> • Artisanal fishery existed since 19th century, mainly for crustaceans and teleosts, shrimps; mostly for commercial fishery in main markets in North Brazil; in PL small-scale fisheries involves 3500 fish now (from 5000) (Reis & D’Incao: 2000). • Due to top-down approach, No self-enforcement of local rules before FPL (Reis & D’Incao: 2000). • Presence of different fishermen communities around the municipalities of PL; most of them exclusive fishermen with traditional stownets, other as a second living coming from more developed areas (Kalikoski et al:2010) • Due to stock depletion, weakened communities looked for livelihood alternatives and moved in other places→ disruption of the community (Kalikoski et al:2010) • Friendship and kinship bound community members to overcome difficulties, there is a share culture of monitoring and fishing gears and information (Kalikoski et al:2010) • Some municipalities have better ties than others: in general, no social cohesion, weak self organization, weak leadership → less power in exploitation resources (Kalikoski et al:2010)

	<ul style="list-style-type: none"> • Dependency on middlemen for commercial fisheries→ less autonomy (Kalikoski et al:2010) • 4 main fishery colonies around PL= professional organizations of fishermen recognized by the Federal Government (Kalikoski et al 2004) (since WWII)
	Indigenous Traditional Knowledge
Coron Island (PH)	<ul style="list-style-type: none"> • Belief in nature spirits, conservation related practices; sacred protected area; avoiding of species for health or regeneration period, part of an oral tradition, use of traditional fishing gears (Capistrano: 2010) • local language for fish species, plants and sacred area names, large range of byproducts used in the everyday life (Mayo-Anda et al:2006) • passage of laws by the elders (cutting trees ecc) sanction and corporal punishment (Mangahas:2010) • ITK implementation for drawing maps for CADC through GIS (Capistrano: 2010)
Gili Indah (IN)	<ul style="list-style-type: none"> • Awig-awig is part of the cultural system of Lombok fisheries, to protect the environment from destructive fishing practices, blast and bombing, protect traditional fisheries and keep traditional culture related to it; however Awig-Awig of Gili Indah is less rooted and complex than other localities in North Lombok due also to the recent settlement of the islands (Satria & Matsuda:2004)
Patos Lagoon (BR)	<ul style="list-style-type: none"> • Previous artisanal fishery patterns by areas, kin working group, clearly defined seasonal pattern and fish calendar (Kalikoski et al:2002) • Previous definition of fishing grounds, technologies and periods by fishermen through artisanal trawling, ex for pink shrimps and mullets (Kalikoski et al:2002) • Fishing calendar one of the most important and detailed tool to resource management adapted through climate change and years and regulation of exploitation (Kalikoski et al:2010) • New regulation of FPL were decided depending on comm demands and integrating fish knowledge with scientific one. Redefinition of fishing calendar was effective with mullet and shrimps (Reis & D’Incao: 2002)
	Community Pro-activity
Coron Island (PH)	<ul style="list-style-type: none"> • (1985) Tagbanua Foundation→ apply to CFSA with DENR for a forest stewardship (25 years) (Capistrano: 2010) • Philippines association for Intercultural Development (NGO) collaboration of maps drawing (GIS + ITK) (Capistrano: 2010) (Mayo-Anda et al:2006) • collaboration and support from Conservation International for biological resource assessment, Environmental Legal Assistant Centre for training on rights (Capistrano: 2010) • Resistance to government to policies promoted without prior community consent; pressure for document written in local language; pressure for finalizing the Tagbanua domain in the register of deeds, collection of tourism fees and control of tourists’ access (Capistrano: 2010) • Strong community organization; solidarity and support among tribal villagers, collaboration with sympathetic groups, NGOs, civil society (Dalabajan: 2001) • High sense of community power: bottom up approach; the community first

	<p>applied for legal recognition guided by the leader (Mayo-Anda et al:2006)</p> <ul style="list-style-type: none"> • Collecting tourists fee and controlling entrance number; the money are used for maintenance of boats or for paying volunteers (Mayo-Anda et al:2006) • Clear scope and aims of Tagbanua Foundation as a statute (Mayo-anda et al:2006) • Formation of the Saragpunta, a federation of several communities associations of the various Tagbanua barangays (Mayo-anda et al:2006) • Community participation as the most important feature of Tagbanwa struggle→ legalized with FPCI (Mayo-Anda et al:2006)
Gili Indah (IN)	<ul style="list-style-type: none"> • Most fishers not aware of the Awig-awig boundaries since written in formal indonesian (Satria et al. 2006) • low participation in public hearing and consensus building in territorial representation (Satria et al: 2006) • Lack of coordination of monitoring activities (Youth, Eco-trust, sub-village) security task force paid as an improperty→ illegitimate by fishers, who prefer police as is not a legal organization (Satria et al. 2006). • No pressure for translating awig-awig in local language (product of the formal organizations) (Satria et al 2006) • University of Mataram and regional government of West Lombok Regency planned the CBM, since no existing management group they founded one each island for coral reef management (monitoring and cleaning tasks); good participation in training and workshops (Afifi:2011) • Strong participation of NGO, university, private local business (Afifi:2011) • problem in accepting the local institutions formed with CBM, if not rooted they lack legitimacy; awig-awig zoning system have poor enforcement due to misunderstanding with local authorities role; but also due to poor knowledge of the law→ break the rules without feeling guilty (Afifi:2011) • Establishment of new organization due to non-resident of Gili Indah (other reason of non compliance by residents (Afifi:2011) • LMNLU (or Fishery Council of Northern Lombok) is a fishermen organization representing all awig-awig fishermen in North Lombok, so it involve also Gili Indah, (Satria & Matsuda:2004) • non-enforceability of zoning system due to conflict between tourism and fishery (Satria & Matsuda:2004) • Prohibition of destructive fishery was successful (Satria & Matsuda:2004)
Patos Lagoon (BR)	<ul style="list-style-type: none"> • FPL born for participatory governance: supported by IBAMA Rio Grande Research Unit on model of previous successful CBM. Inclusion of Fishing Catholic Body. FLP has piramid structure (21 institutions of fishermen, Ngos, religious movements, industrial sector, universities and municipals, then General assembly and Directive Board (Reis & D’Incao: 2000) • First regulation in 1998 after 3 years of consultations with users through surveys. → resistance by fishermen due to lack of education and short-term profit seeking individual behavior (Reis & D’Incao: 2000) → Users not perceive the CBM as a whole system (comm, NGO, govern, univ, private)(Reis & D’Incao: 2000) • Participation in workshop and partially acceptance of new legislation, illiterate, low cultural level (new licences) (Reis & D’Incao: 2000) • Values of community and contribution taken into account for the 1st time (Reis & D’Incao: 2000) • After the 1st regulation, feedback by fish comm, then recollection of data

	<p>through collaboration for new strategy (Reis & D’Incao: 2002)</p> <ul style="list-style-type: none"> • One third of the fishermen participated at least in 1 meeting, good perception of Forum efforts, but far meeting point and time-money consuming, in fishing hours→ not helping the participation level (Kalikoski et al:2010) • Forum at first supported by Fisheries Pastoral And fisheries Colonies, then IBAMA and Ngos ecc ecc (Kalikoski et al :2004) • Collaboration in new calendar and use of ITK (Kalikoski et al :2004) • Although some priorities have been addressed, no new regulation for industrial sector and enforcement for their illegal activities (Kalikoski et al : 2004) → Little help by external institutions (in particular government) (Kalikoski et al:2010) • Constraint: most fish organization leaders are middlemen or politicians (Kalikoski et al :2004)
	Existing Conflicts after the application of CBM
Coron Island (PH)	<ul style="list-style-type: none"> • Overlapping laws over resource management and areas with other national laws: 1995 Mining Law, 1975 Revised Forestry Code for resource use in protected areas, moreover illegal actions by logging and mining industries (Capistrano &Charles: 2012) • Since 2004 the Coron municipality has decided to make tourism a priority: destination for financial aid, airport in 2007 supported by JICA, land purchases by tourism elite, scuba diving and focus on ecotourism (Fabinyi: 2010) • Internal problem of transparency between community leaders and members (Mayo-Anda et al: 2006) • Government (formed by mostly migrants and tourism-inclined) do not recognized the exclusivity of the Tagbanua (Mangahas:2010)
Gili Indah (IN)	<ul style="list-style-type: none"> • Gili Indah named as MPA in 1993 due to rich biodiversity (Afifi: 2011) • Centralized policy due to the Marine Touristic Park in 1993 with areas overlapping Gili Indah CBM; the park signed a newly created state property right→ where government has to provide monitoring and enforcing → unclear division of the tasks. (Satria et al: 2006) no consensus issue for community approval of Park initiative; coalition between government and Tes group (since common aims) (Satria et al: 2004) • Internal crisis of legitimacy: Awig-Awig is biased towards tourism; reduction of fishing grounds without alternative; paid enforcement system which is against the principle of CBM (since Te includes also local police); heavy intervention of central government (against the decentralization law); conflict for the prohibition of muroami fishing (Satria et al: 2006, Satria et al: 2004) • Difficulties in enforcing law against blast fishing, since it is a practice commonly spread and accepted, and against muroami, since still largely practiced; MFSO issue the muroami licences, while KSDA prohibits the practice for coral reef protection (Satria et al: 2004-2006)
Patos Lagoon (BR)	<ul style="list-style-type: none"> • coastal areas in Brazil falls under different regime types but fisheries are regulated by open access by Constitution (Reis &D’Incao: 2000) (Kalikoski et al: 2002) • Unclear regulation of FPL for definition of community, leader, and groups represented in the Forum; due to the location and timing low participation by the fishermen class; bad communication of meeting time and place as well as agendas (Reis & D’Incao:2000) • IBAMA is the agency which should provide enforcement but scarce services

	<p>provided for outsiders fishers: the monitoring and enforcing should be decentralized as well (no HR and structures)(Reis & D’Incao:2000)</p> <ul style="list-style-type: none">• Fisheries are managed by 2 different governmental agencies: IBAMA and Department of Fisheries and Aquaculture, with different policies and approach (Kalikoski et al: 2002)• Fishermen non compliance with the rules imposed by IBAMA in top-down approach (Reis &D’Incao: 2000)
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