

**MARINE PROTECTED AREAS: A CASE STUDY IN NORTHEASTERN ILOILO,
PHILIPPINES**

Cheryl Joy Fernandez, Master Student, Massey University, Palmerston North, New Zealand,
cheryljoy.fernandez@gmail.com

ABSTRACT

Marine Protected Areas (MPAs) can be considered as one of powerful conservation tools of fishery resource management in the literature. However, due to continuing environmental awareness and mismanagement, the Philippine government has decentralized the power of legislation and management of its MPAs since the early 2000. This encouraged participation of various sectors such as the Local Government Units, Non-government Organizations, the academes, business enterprises, and multinational corporations though; it has very low success rate statistics. This paper presents an overview of MPA management in Northeastern Iloilo, Philippines and examines its several management strategies. It examines the interaction between the civil society and market forces of institutional arrangements in Northeastern Iloilo, Philippines. It further aims to determine the main conflict that causes trade off outcomes in terms of analyzing strategic interactions among economic agents of the different regimes. Several scenarios that resemble conflict between various national, local and international sectors are discussed. It also shows that conflict is one of the reasons why the country has very low success rate statistics - thus a proper evaluation current scenario is imminent.

Keywords: MPA, game theory, resource management

INTRODUCTION

As an archipelago, the Philippines is endowed with diverse marine resources, a lengthy 17 460 km of coastline and a wide 2 200 000 km² of water marine area, in order to sustainably maintain fish catch, promote tourism and preserve biodiversity (BFAR, 2005). The country's marine resources are highly valued economically and socially. According to the same source, in the year 2005, fisheries contribution is around 4.3% of the country's Gross Domestic Product (GDP) or about 22% of the country's total agricultural sector. However, through the years, these valuable natural resources have been continuously and rapidly declining, thus calling for immediate coastal resource conservation response.

In 1970s, marine protected areas (MPAs) are considered as a conservation tool and are established in the Philippines in response to the continuing decline of marine resources. Many scientific case studies cited the benefits of having a marine protected area (Sumaila, 1998; Hanneson, 1998; Alger, 1996; Roberts et al., 2001 as cited in Christie, White & Deguit, 2002). In effect, there is rapid increase in the number of MPAs in the country, reaching 800 in the late 1990s (Gjertsen, 2005). However, in early 2000, a major policy shift happened. Fernandez (2006), Webb et al (2004) and White et al (2002) state that Philippine laws such as the Fisheries Code of 1998; the National Integrated Protected Area Systems (NIPAS) Act of 1992; and the Local Government Code of 1992 make the devolution of authority possible for it gave legal rights to different sectors of the society such as the local government units (LGUs) to establish MPAs. It also encourages participation of non-government organizations (NGOs), municipal and provincial sectors, and the community stakeholders as well as the market forces i.e. business enterprises.

This scrapped the sole responsibility of the national government in managing these areas. Thus, there was a decentralization of power on enacting and implementing marine policies as well as on

initiating decisions on the management of coastal resources. With this interaction, there are sequential expectations of the stakeholders, managers and politicians.

In the Philippines, before the term MPA was used, closely related terms were being used such as fish sanctuary, marine reserve, and marine park (White & Courtney, 2002). The Department of Environment and Natural Resources (DENR), the government environmental body, defines MPA as “any such marine or coastal protected area, often within the context of a broader coastal management regime or program” (2001, as cited in White & Courtney, 2002). However, with such technicality associated with the term, the term MPA is not popularly used and is still referred to as fish sanctuary, marine reserve, or marine park. Despite of the varying definitions of the term (NOAA, 2008 and Ministry of Fisheries, 2004), they all refer to marine resources, which are common property. Since these resources are common pool, issuance of clear property rights should be made to avoid the Tragedy of the Commons i.e. free access of a common resource will eventually lead to overexploitation (Carter, 2003). The role of the government is highlighted in the implementation of MPAs. Many of these governments believe that an enactment of law pertaining to limited access, or no access, is essential to preserve its accompanying benefits.

The next section discusses the affectivity of MPAs in the Philippines and what have been done so far. It also introduces general concepts such as the property rights, government role and conflict. It further presents the paper’s objectives and significance.

THEORITICAL FOUNDATIONS

Given the vast number of literatures, there is no doubt that MPAs will yield huge benefits but its effectiveness is another issue to consider. The International Union for Conservation of Nature and Natural Resources (IUCN) relates that the success and failure of MPAs rely on the attainment of specific objectives of the people concerns (Pomeroy, Park & Watson, 2004). According to Kelleher et.al (1995, as cited on Jameson et.al, 2002), it is “no mystery” on the lack of effectiveness in MPAs. It was found out by a study of Pollnac et al. (2001, as cited in Christie, 2002) that eighty percent (80%) of the MPAs in the country are not successful. Pajaro (1999, as cited in Uychiaoco et.al, 2002), on the other hand reported that 10% of the MPAs are functional. A study by Alcala (2001, as cited in Gjertsen, 2005), indicated a much lesser success rate at 10%. Furthermore, Jameson et.al, (2002) highlighted two paradigm shifts in order for MPAs to be effective: how they are located or how they are managed. The latter is the only focus of this research. Management, according to Pomeroy (2005) refers to the process that deals with planning, design, implementation, monitoring, evaluation, communication, and adaptation. According to White et al (2003a, as cited in Beger et al, 2005), 19% of small-scaled MPAs in the country are rated as “enforced” or “sustained” and only one is rated “institutionalized”. This reflects the country’s struggle in effectively managing its coastal resources through MPAs. This also undermines the number of MPAs in the country, thus, an increase in quantity of MPAs will not fully address the problem of marine resource depletion. Meanwhile, Hockings and Jones (2002) reported that the affectivity of MPAs is based on whether their objectives are met and that there is no ‘one size that fit all’ solution. It is therefore imperative to analyze specific areas for policy implications.

Property Rights and Institutions

Resource economists seek to answer the question efficiency in allocation of natural resources. The concept of property rights comes in which are rights to claim to a resource or service that the resource can provide. Problems on allocation will arise if these rights do not exist or are not properly defined (Perman et al., 1999). According to Hayami and Ruttan (1985, p.101), institutions are rules of the society or of organizations that facilitate coordination among people by helping them form expectations which each person can reasonably hold dealing with others. With this regard, property rights are

embedded on institutions and thus the rise of different property rights regimes. The well functioning legal system takes an important role in imposition of property rights. This will allow the violation of property rights to be settled in an efficient way i.e. lower cost in terms of time and money.

There are threats to MPAs, several of which was indicated by Aliño (2001) in his study which includes level of enforcement; overexploitation; destructive fishing; coral harvest; mariculture; sedimentation; shore conversion; industrial pollution; oil pollution; domestic sewage; agricultural run-off; tourism and mangrove deforestation. Given that these human activities are responsible for damages to the MPA, it is logical to say that an effective MPA would be free from these threats (or at least minimal).

In the existence of different management regimes in MPAs, there is an a priori expectation that there is an overlapping and conflicting combination of property rights regimes (McKean, 2000). In the effectivity of managing coastal resources, e.g. through an MPA, an appropriate mix of property rights (common, private and state) is imminent. It is the aim of this research to look at these management regimes and analyze players' interactions.

Conflict in Marine Protected Areas (MPAs)

Based on MPA proposal across the globe, MPA management and implementation generate conflicts (Jones, 2002). The Northeastern Iloilo municipalities are not exceptions to this for finding from Fernandez' study (2006) found out that there is a persistent conflict in the area. He states that in the implementation of various development programs and projects, there are 'conflicts over management plans and strategies between and among subsistence fishers, commercial fishing operators, politicians and their pressure groups, fish processing plants, barangays with MPAs, and the non-government organization (NGOs)'. In addition, due to lack of 'common interpretation of the law', he also observes that there is conflict between the local government and the Northern Alliance for Coastal Development (NIACDEV) as well as between municipal and commercial fishers.

This paper aims the following: (1) to identify and examine different economic players and their respective roles in the management of MPAs in Northeastern, Iloilo; (2) to analyze strategic interactions among economic agents of the different regimes in order to sustainably maintain fish catch, promote tourism and preserve biodiversity; (3) to determine whether coalition can be formed as well as to know how can coalitional gains be divided in order to secure a sustainable agreement; and (4) to recommend policies that would solve the identified problems. It will serve as an overview of the situation, problems and policies of MPAs. An overall assessment on the conflict as a failure indicator can be used in modifying strategies for MPA managers and policy makers. This could also aid in knowing if MPA objectives area met or not, developing a useful guide in successively managing protected areas. Further, it will serve as an additional literature for those who wanted to comprehensively assess conflict and interaction of actors of MPAs in the Philippines.

The next section describes the methodology that will be employed on this paper. It will be followed by the empirical analysis that outlines the fisheries management and conflict experiences in the Philippines in general and specifically in NI. The last section presents brief outline of further work to be done on this paper.

METHODOLOGY

The paper will use social survey and key informant interviews on municipalities of Northeastern, Iloilo, specifically Ajuy, Balasan, Batad, Carles, Concepcion, Estancia, and San Dionisio. The personal survey interview will cover the months of May and June 2008. Fishermen respondents (municipal and commercial) will be chosen using random sampling. On the other hand, other economic actors such as the

public and private sectors will be chosen purposively i.e. those who are familiar with the development and management of MPAs will be chosen. In testing for the affectivity of each of the management regimes, respondents will be asked about their understanding and assessments on MPA management. This may include the users' local values on marine resource patterns and beliefs regarding the marine resources. In this regard, a Likert five point scale will be adapted.

EMPIRICAL ANALYSIS

There is a consensus on the fact that fisheries management is multidisciplinary in nature for it involves not only biological perspective as well as economic, social and cultural ones. Philippine history recognizes that the country's allocation of coastal resources is through traditional property rights. However, at the beginning of Spanish colonization, Philippine coastal management is since managed through a central authority i.e. bureaucratic in nature until the fall of the Dictatorship regime in mid 1980s (Pomeroy & Carlos, 1997). Fisheries resources such as mangroves, corals and fishes have been continuously exploited because of the Presidential Decree (PD) 704 of 1975. This law encourages utilization of the resources as well as excessive production, which eventually led to 'ineffective in promotion of sustainable management and development' of Philippine fisheries (Pomeroy & Carlos, 1997).

As mentioned earlier, three laws bring about interaction of different sectors in the management, planning and implementation of MPAs in the country. First, the National Integrated Protected Areas (NIPAS) Act of 1992 deals with the management of protected areas that are national in scope. It was however observed by Luna (1997, as cited in White et al, 2002) that MPAs established through municipal ordinances are more 'realistic and sufficient' for it has terrestrial bias and it needs specific guidelines. Secondly, the Local Government Code (LCG) of 1991 recognizes the role of the local government entities. This decentralization of authority makes decisions on the coastal management without the approval of the national government through the NIPAS Act. Differences on the quality of management arise due to lack of skills and interest from the local government. Lastly, the Fisheries Code of 1998 reaffirms the jurisdiction of the LGU in the involvement MPA management. It also supports assistance from the fisherfolk association and non-government organizations on the preparation of development plan.

Conflict in Northeastern Iloilo, Philippines

Public policy like the implementation of MPA can generate natural resource conflict. This is underlined in Tyler (1999) study, wherein he stressed that in some ways, specific policies and implementation of government programs can induce conflict rather than solve it. In lieu with this, he believed that parties could sometime reconcile conflict among themselves, without the help of the government. However, there are also instances wherein policy frameworks are working and fair but are negatively influenced by elites and other pressure groups. Situations such as this arise due to traditional cultural deference; obscure government bureaucracy; uncoordinated planning and investment; or asymmetric information (Tyler, 1999).

According to Lewis (1996), conflict that arises because of conflicting views, for example, can be both productive and hostile. The outcome depends on how the managers and the institutions address the issues. It could be productive in the sense that problems are identified and resolute in order for improvement to be achieved. On the other hand, hostility will surface if conflicts are not properly solved. The same author assumed that conflict resolution could be achieved if there is communication between stakeholders for which formal legal or legislative action can be met. One of the principles that can be applied in solving conflicts in protected areas such as MPAs is the 'focus on underlying interest'. The principle states that conflict can be resolved if all parties, if their interests (i.e. people's needs and

concerns) are satisfied. This is a win-win situation wherein all parties believe that they have gained something, thus coming up with a mutually agreeable outcome (Lewis, 1996).

Most of the marine protected areas' are establish in order to address the problem of food security (Fernandez, 2006). The conservation due to biodiversity and cultural aspects remains secondary. In addition, the same author specifically mentioned that the regeneration of corals and seagrasses; promotion of breeding area for fish and enhancement of fishery stocks are not the priority. Further, the structure of most of the MPA in the region is a co-managed common pool resource, which means that it is a combination of co-management and common resource management. This paper will examine specific scenarios that resemble conflict in the management of MPA as stated in Table 1 below.

Table 1: Conflict in different Management Regimes in Northeastern, Iloilo

Management regime	Economic Actors	Scenario
1. Bureaucratic	Fishermen, Public sector	<ul style="list-style-type: none"> • Poaching on MPA sites and territorial conflict • Conflict on implementation of the maximum sustainable yield (MSY) through fisherfolk identification and boat licensing of vessels (below 3 gross tons) • adoption of new fishing technology
2. Community-based	Fishermen, Public sector	<ul style="list-style-type: none"> • poaching on MPA sites and territorial conflict
3. Co-management	Fishermen, Public and private sectors	<ul style="list-style-type: none"> • participation/cooperation conflict

Note: Fishermen – municipal and/or commercial; Public Sector– national and/or local government; Private Sector– non-government organizations, business sector, people’s organization, research institutions and the likes.

In a bureaucratic type of management, central authority like the national or the local units is the one responsible for the management of MPAs. Most of the common conflict noted in Northeastern Iloilo (NI) is on the implementation of the national laws on regulating fish catch. Community-based frameworks or common property resources management is a framework wherein coastal management is a collective effort of usually poor and underprivileged people in the country. Meanwhile, co-management framework involves the users and the government in the management of MPAs. It oftentimes involves private sectors such as research institutions, which gives donations or technical support on the planning, implementation and monitoring of MPAs. The distinct difference between regimes is in terms of property rights. In the bureaucratic regime, property rights are own by the government in behalf of the public like the provision of laws pertaining to sustainable fish catch. On the other hand, the community owns the property rights in a community-based framework. In contrast to this, the rights to use in a co-management scheme are distributed among the users and the government.

The fishermen are the primary stakeholders in MPAs for they are the ones who directly use the natural resource. In Northeastern Iloilo, MPAs are enacted due to the declining fish catch to address food security of coastal communities. However, there are also other users of the marine resource, such as the tourist industries. Conflict is was inevitable in Galapagos Islands, wherein there is no recognition of the legitimacy of commercial fishing and tourist industries (Tyler, 1999). The management of the protected area is ineffective, as found out by Oviedo (2006, as cited in Tyler, 2006), until a consensus-based plan was made.

The public sector, which composes of the national and the local government, play an important role in MPAs. Initially, it is the one responsible in the enactment and enforcement of the laws. In all three management regimes, its role is crucial. In conflict resolution in El Nido Marine Reserve in the Philippines, the willingness of the top government officials to come and talk to the stakeholders of the reserve brought about positive changes and successful consultative dialogues (Peñañiel, 1996). In some municipalities in Northeastern Iloilo, particularly in Concepcion and Carles, government officials are actively participating in the management of MPA and other fisheries management plan. However, conflict can also arise when different resource users receive different signals from different government agencies (Tyler, 1999). This stresses that uncoordinated planning on the part of the public sector can generate or induce conflict. In Northeastern Iloilo, a change of political leader or project priority and a flow of donor from different agency can hamper the development and implementation of MPA. Interviews reveal that enthusiasm on the part of the public sector to initiate the MPA plan is very important.

The private sector also has the vital responsibility in MPA management. The same case study in Palawan reveals that as a third party, the non-government organizations (NGOs) made dialogues effective by building local people's trust to the government. Further, Tyler (1999) observes that in developing countries, inadequate information and consultation are the common problem. In a co-management regime, NGOs and the government create a partnership in terms of sharing visions, resources, expertise and network systems to manage MPAs (Fernandez, 2006). However, further conflict may take place there is inadequate funding (which is evident Northeastern Iloilo), training and capacity building. People who are involved in the management whether, directly and indirectly, strongly agree that MPA will improve marine resources such as mangroves and coral reefs. Based on their perception, it shows that there are improvements on the fish catch and corals.

In Balasan, a town with no MPA, respondents believe that the establishment of MPA will not benefit them for their towns have small coastal area. As on the side of the local government, an establishment of MPA is not incorporated on their development plan. The municipality's economy is driven by aquaculture and selling of fishes in nearby towns and not many are municipal fishers, around 120 in 2005. In the municipality of Concepcion, fishermen believe that the establishment of MPA will increase fish catch. Although, a focused-group discussion reflected that fishermen believe that there is no improvement on their income as a whole, because prices are very high since early 2000. In June 2008, the country's inflation is recorded at 11.4 in, where the last recorded one was in May in the year 1994 (Dow Jones, 2008). Totally, however, respondents agree that MPA is effectively achieved its major objective of increasing fish catch and preserving other marine life.

Interaction amongst sectors

Perceived benefits and costs of MPA reflect actors' decisions in complying or not complying with MPA regulations. Around 48% of the respondents noted that MPA would increase fish catch, which garnered the highest frequency and co-inside with the actual benefits derived from MPA. On the other hand, around 10% view that MPA can also protect other marine resources such as mangroves and corals. Furthermore, around the same percentage believe that there are no perceived benefits of MPA. In support with this, more than half of the respondents noted that there are no disbenefits of MPA.

There are associated costs, some believe that implementing an MPA would decrease the fishing grounds of fishermen; around 8% say that it is a waste of money for MPA is not an effective project; and 4% believe it would be an additional cost for the government. These results prove that MPA holds natural capital (fish, coral, etc.) that have associated costs in the short run such as boat petrol for extra-mile fishing. In effect, it could be viewed as an investment. There are economic who are willing to trade these extra costs for to reap MPA's benefits in the future in order to sustain their livelihood and biodiversity conservation. This has the highest frequency and co-inside with the actual benefits they derived from

MPA. Furthermore, the respondents there are no perceived benefits of MPA. There are associated costs, as shown in Table 2, which presents the reasons why economic actors are complying and not complying with MPA regulations. More than 50% of the respondents say that they are complying to the regulation because they believe that fish catch have increased and as a consequence, income will increase as well thus will improving their income in return. However, around 11% will not comply because the government is not managing the MPA well. In addition, seventeen percent of the respondents do not trust the government’s project, thus they will not comply. This highlighted that there are still areas where the government is not actively participating managing on MPA management– thus mismanagement is proven to be a factor to MPA success. In effect, compliance is low. Around 10% do not have enough knowledge on the regulations and information regarding the benefits from the project; this is why they will not comply with the regulations. . Fernandez (2006) observes that there are oftentimes misinterpretations of the law. In addition, Courtney et. al (2000, as cited in White et. al) suggested that the government’s institutional roles must be properly implemented in order to effectively address the problem.

Table 2: Frequencies of benefits and disbenefits of MPA when complying or nor complying

Benefits/Reasons of Complying	Frequen cy	% (n=658)	Benefits/Reasons of NOT Complying	Frequen cy	% (n=476)
1. Increase fish catch	195	29.64%	1. Increase income (catch)	192	40.34%
2. Protect other marine life. corals, mangroves, sea grass	52	7.90%	2. Do not trust the government	82	17.23%
3. Municipal grounds is safe, free from poaching	34	5.17%	3. Increase fishing cost	9	1.89%
4. Cheaper to fish in the sea (see their families, more time)	13	1.98%	4. No proper monitoring(weak)	14	2.94%
5. To comply to the objectives of MPAs	12	1.82%	5. MPA mismanagement	9	1.89%
6. Increase income	167	25.38%	6. Conflict and lack of cooperation	1	0.21%
7. Increase employment opportunities	28	4.26%	7. Lack of freedom, violation of human rights	10	2.10%
8. Lower cost for fishermen (fuel, less time)	2	0.30%	8. MPA is not applicable/not effective	15	3.15%
9. Good management	77	11.70%	9. Lack of information or education regarding the matter	49	10.29%
10. No knowledge	2	0.30%	10. No food supply	32	6.72%
11. Reduce illegal fishing	6	0.91%	11. No alternative livelihood offered	10	2.10%
12. Persuasion (no choice)	5	0.76%	12. Values	50	10.50%
13. Peace of mind, no conflict with others	18	2.74%	13. Poverty	3	0.63%
14. Ecotourism	12	1.82%			
15. Taxes from the	10	1.52%			

government				
16. Pride of the community	5	0.76%		
17. Help future generation	20	3.04%		

The focused group discussion on Barangay Nipa in the municipality of Concepcion determines and verifies the requirements of an effective MPA. Key informant interviews reveal (and as supported by Fernandez (2006) study) that MPA project is one of the success stories of implementation in North Iloilo. It is found out that the fisher folk associations in the area are active; with many of its members have voices on their own. It is observe that a dominant actor among the group is not present i.e. everyone has a say on the discussion, with no single individual as domineering. This reflects the results of Fernandez (2006) that a strong participation of fishermen on the implementation of MPA is success factor. The public sector in the municipality appointed a separate employee, specified on the management of their fisheries sector, which is unique among the Northeastern Iloilo. Last May 2008, a fisheries technician is appointed on the municipality of Batad. However, interview confirms that employee’s main task is abalone industry rather than MPA. In addition, in Balasan for example, people perceived that MPA is not a good project for they have small coastal area, and will support other projects such as mudcrab or other aquaculture projects. This highlights previous studies, saying MPA effectiveness is dependent on the area where it is establish as well as on the existing socio-economic profile of the area.

Concerning conflict among entities, it is also confirmed on the discussions that there are still conflict amongst them. It was found out the in NI region, conflict among municipal and commercial fishermen, as well as between government and the fishermen (Fernandez, 2006). As shown in Table 1, most of the respondents believe that there are still conflicts at varying levels and on every management regimes. In bureaucratic regime, where there is a conflict between the imposition of fishing grounds between commercial and municipal fishermen. Fisherfolk associations in the province identify the problems why municipal fishers cannot effectively monitor their municipal waters. One of the major reasons is the lack of facilities to monitor, which includes boats (modern enough to chase commercial fishers’ big boats); search lights; and buoyancy marks. In addition, Fernandez (1998, Key informant interview) observe that most of the commercial fishermen are relatives or close friends of political leaders in Iloilo Province. Several leaders and advocates of coastal resource management in particularly in Batad and Concepcion, relate that the imposition of penalties is not often time exercised. If there is a case, additional cost for witnesses, are evident. Normally, the case will not push through due to these unavoidable costs on the part off the witnesses, who are normally poor fishers from the far island barangays. In a community-based management where there is a poaching on municipal waters, discussions show that most of the violators are not from the Northeastern Iloilo municipalities but from fishermen from other neighboring provinces such as Negros and Guimaras. Even in Barangay Nipa in Concepcion, fishermen believed that there is conflict; however, compared to previous years, the conflict has been reduced.

There are associated costs and benefits in complying and not complying with MPA regulations. Fishermen will incur an estimated benefit of around not less than PhP 5,000 a week if they will comply. If they are not going to comply, benefits in terms of fish catch will reduce at around PhP 1,500-1,950 per week. This does not include the penalty they will pay if caught, which is around PhP 2,500 per offence. In the case of public sector, the total revenue of the six municipalities derived from licensing is around PhP 2 million per year. If they will establish an MPA, additional costs are incurred. It is therefore less costly for the government not to establishment an MPA. However, the costs and benefits are direct and do not include non-use values such as future use, which may be more than the costs incurred. On the part of the private sector, the willingness to pay, a non-use value estimate, is valued as around PhP 20 per fisherman per year. Fishermen are willing to pay if certain conditions are met such as wide-spread information campaign and proper implementation. In this case, the fishermen benefit more in complying with the MPA regulations in order to reduce conflict from different management regimes.

CONCLUSION

Through existing literatures, there is some evidence that at different MPA management regimes in Northeastern Iloilo have conflicts. There is no support that one management regime is conflict absent. Conflict extends from different levels and intensity. There is a disagreement between fishermen themselves – particularly between municipal and commercial fishermen. On the other hand, there are also clashes between the local government and the national government due to miscommunication and misinterpretation of the laws. These findings are supported the survey and focus group discussions. It is also found out that there each of the management regimes creates conflict. However, it is imperative to let the direct users of the resource involve in the management of MPA and thus a proper imposition of property rights must be established. In the bureaucratic regimes, a fixed municipal boundary is not applicable in some areas due to the presence of island barangays. In addition, community-based and comanagement regimes may involve the fishermen but technology and lack of support from the local sector will affect its effectiveness. This paper also highlights the importance of politics, which points out the dominant player on the situation. It is obvious that the resources (land, money, power, etc) are in the hand of few rational individuals who pursue their own objectives. What is evident now is that there are some reductions of conflict and problems with the implementation of MPA, however there are still many questions on how MPA help in alleviating poverty will. It seems that more than a decade of studies has been made, but still, the lives of the fishermen, seems not to improved.

ACKNOWLEDGEMENT

The author would like to thank the Young Leaders Network under the Asia-NZ Foundation for the travel grant to participate on the 2008 IIFET Conference and to the Department of Economics and Finance at Massey University for the research grant. Special thanks for Dr. Kim Hang Pham Do and the participants of the conference, for their valuable comments and suggestions.

REFERENCES

- Alger, J. et al (2002). A method for evaluating marine protected area management, *Coastal Management*, 30.
- Aliño, P. (2001). *Areas in the Philippines: how much spillover do we need?* Retrieved March 19, 2007 from www.unuftp.is/pdf/Marine%20Protected%20Areas.pdf.
- Beger, M. et al (2005). A framework of lessons learned from community-based marine reserves and its effectiveness in guiding a new coastal management initiative in the Philippines, *Environmental Management*, 34, 6.
- Bureau of Fisheries and Aquatic Resources. (2005). Statistics highlights. Retrieved March 3, 2008 from <http://www.bfar.da.gov.ph/styles/Publications03/statistics.htm>.
- Carter D. (2003). Protected areas in marine management: another look at the economics and research issues. *Ocean and Coastal Management*, 46, 439-456.
- Christie, P., White, A. & Deguit, E. (2002). Starting point or solution? Community-based marine protected areas in the Philippines. *Journal or Environmental Management*, 66, 441-454.

- Day H., Hockings, M., and Jones, G. (2002). Measuring effectiveness in Marine Protected Areas – Principles and Practice. *Great Barrier Reef Marine Park Authority, Staff Paper 2002-42*. Retrieved March 10, 2008 from <http://ioc3.unesco.org/marinesp/files/Measuring%20Effectiveness%20of%20MPAs.pdf>.
- DowJones (2008). Fxstreet: Philippines June Inflation 11.4% On Year, 2.3% On Month”, Retrieved July 14, 2008 from <http://www.fxstreet.com/news/forex-news/article.aspx?StoryId=0fd76e8f-9ffa-4f94-b738-1e3348d036e6>.
- Fernandez, P. (2006). The relevance of governance institutions in marine protected area, *Science Diliman*, 18, 1.
- Gjertsen, H. (2005). Can habitat protection lead to improvements in human well-being? Evidence from the marine protected areas in the Philippines. *World Development*, 33, 2, 199-21.
- Jameson S., Tupper M. & Ridley J. (2002). The three screen doors: can marine ‘protected’ areas be effective? *Marine Pollution Bulletin*, 44, 1177-1183.
- Lewis C. (Ed). *Managing conflicts in protected areas*. IUCN – The World Conservation Union: Switzerland.
- Ministry of Fisheries and Department of Conservation. (2004). *Marine Protected Areas Policy Statement and Implementation*. Retrieved April 12, 2007 from <http://www.biodiversity.govt.nz/pdfs/seas/MPA-Policy-and-Implementation-Plan.pdf>
- McKean, M. (2000). Common property: what is it, what is it good for, and what makes it work? In C. Gibson, M. McKean, & E. Ostrom (Eds.), *People and forest: communities, institutions, and Governance*. The IMT press: Cambridge.
- National Oceanic and Atmospheric Administration (2007). *Marine Protected Areas*. Retrieved April 13, 2008 from <http://www.mpa.gov/>
- Pajaro, M., Olano, F., & San Juan, B. (1999). *Documentation and review of marine protected areas in the Philippines: A preliminary report*. Manila, Philippines: Haribon Foundation.
- Peñafiel S. Resolving conflicts between protected area conservation and resource utilization: The El Nido Marine Reserve. in Lewis C. (ed), *Managing conflicts in protected areas*. IUCN – The World Conservation Union: Switzerland.
- Perman R., Ma, Y., McGilvray, J., and Common, M., (1999). *Natural Resource and Environmental Economics* (2nd edition). Pearson Ltd: U.S.A.
- Pomeroy R. and Carlos M. (1997). Community-based coastal resource management in the Philippines: A review and the evaluation of programs and projects, 1984-1994. *Marine Policy*, 21, 5.
- Pomeroy, R., Parks, J. & Watson, L. (2004). *How is MPA doing? A guidebook of natural and social indicators for evaluating marine protected area management effectiveness*. International Union for Conservation of Nature and Natural Resources (IUCN). Thanet Press, Ltd: UK.
- Sumalia, U. (1998b). Protected marine reserves as fisheries management tools: a bioeconomic analysis. *Fisheries Research*, 37, 1-3.

- Tyler, S. 1999. Policy Implications of Natural Resource Conflict Management. in D. Buckles (ed.) *Cultivating Peace*. IDRC: Ottawa.
- Uychiaoco A., Aliño P. & White A. (2002). Marine protected areas in the Philippines; towards harmonizing goals and strategies. *Proceedings of IUCN/WCPA-EA-4 Taipei Conference*.
- von Neumann, J. and Morgensten. (1953). Theory of games and economic behavior (3rd edition). Princeton University Press.
- Webb, L., Maliao, R., and Siar, S. (2004). Using local user perceptions to evaluate outcomes of protected area management in Sagay Marine Reserve, Philippines, *Environmental Conservation*, 31, 2.
- Wells, S., Burgess, N. & Ngusaru, A. (2007). Towards the 2012 marine protected area targets in Eastern Africa. *Ocean & Coastal Management*, 50, 67–83.
- White, A., Courtney C., and Salamanca, A. (2002). Experience with marine protected planning and management in the Philippines, *Coastal Management*, 30.