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Graduate School of Development Studies

**CO-MANAGEMENT FOR FISH CONSERVATION
IN RURAL PHILIPPINES:
An Effective Enough Arrangement in Managing the
Marine Commons?**

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REPORT OF THE BOARD OF DIRECTORS

The Board of Directors of the Corporation has the honor to acknowledge the cooperation and assistance of the various departments of the Corporation in the preparation of this report. The Board is particularly indebted to the various departments for their cooperation in the preparation of this report.

The Board of Directors is pleased to report that the Corporation has achieved a record of success in the past year. The Corporation has increased its production and sales, and has maintained a high level of efficiency and economy. The Board is confident that the Corporation will continue to achieve a high level of success in the future.

The Board of Directors is also pleased to report that the Corporation has maintained a high level of efficiency and economy. The Corporation has achieved a record of success in the past year, and the Board is confident that the Corporation will continue to achieve a high level of success in the future. The Board is particularly indebted to the various departments for their cooperation in the preparation of this report.

Very truly yours,
[Signature]

ACRONYMS

BFARMC	Barangay Fishery and Aquatic Resources Management Council
CBCRM	Community Based Coastal Resource Management
CLWUP	Comprehensive Land and Water Use Plan
CPEU	Catch per Unit
CPR	Common Pool Resources
DAO	Department Administrative Order
DENR	Department of Environment and Natural Resources
ENF	El Nido Foundation, Inc
FLA	Foreshore Lease Agreement
FLAgT	Forest Land Use Agreement for Tourism Purposes
ICLARM	International Center for Living Aquatic Resources Management Center
IUCN	International Union for the Conservation of Nature and Natural Resources
KKP	Kabang Kalikasan ng Pilipinas
LGC	Local Government Code
LGUs	Local Government Units
MPA	Marine Protected Area
NGOs	Non-Government Organisations
NIPAP	National Integrated Protected Areas Program
NIPAS	National Integrated Protected Areas System
PAMB	Protected Area Management Board
PAO	Protected Area Office
PASu	Protected Area Superintendent
PAWB	Protected Area and Wildlife Bureau
PCSDS	Palawan Council for Sustainable Development Staff
PENRO	Provincial Environment and Natural Resources Office / Officer
PO	People's Organisation
RED	Regional Executive Director
SCOTIA	Sustainable Coastal Tourism in Asia
SEP	Strategic Environmental Plan for Palawan
TKDC	Ten Knots Development Corporation
TMMD	Tarabangan y ang Mairentek na Manigpangisda sa Dipnay
WWF	World Wildlife Fund for Nature

ABSTRACT

Using a case in rural Philippines, this study examines the effectiveness of the organisations of the State, the private sector, and the community in regenerating fishery resources, conserving marine habitat, and deterring illegal fishers. It also investigates the role of institutions in the functioning of participating organisations and the way they influence the cooperation and complementation between and among organisations in the management of common pool resources within marine protected areas. Furthermore, it examines the effects of cooperation and complementation of the different organisational arrangements on fishery resource conservation. The lessons from the case study provide an understanding on the effective arrangements in managing the commons in marine ecosystems.

CO-MANAGEMENT FOR FISH CONSERVATION IN RURAL PHILIPPINES: AN EFFECTIVE ENOUGH ARRANGEMENT IN MANAGING THE MARINE COMMONS?

1 INTRODUCTION

1.1 The Research Problem

This research examines the effectiveness of the organisational arrangements¹ of the State-managed marine protected area, the community-based marine sanctuary, and the privately-managed marine habitat protection in regenerating fishery resources, conserving marine habitat, and deterring illegal and destructive fishing activities within the marine protected area in El Nido, Philippines. An understanding of the effectiveness of different organisational arrangements within marine protected area contributes to improving the existing management regimes of the commons² in marine ecosystems. With different organisational arrangements operating within the same marine protected area, the study further examines (i) the interaction of the organisations of the State³, the private sector, and the community, (ii) the roles of institutions in cooperation and complementation, and (iii) the effects of collaboration—between the organisational arrangements of the State and the private sector and between the community and the State, on addressing the problems of fishery resources degradation⁴ and persisting illegal and destructive fishing activities.

The study aims at contributing some lessons to the literature on the management of the commons in marine protected areas. This is because most of the studies on organisational arrangements regarding resource management are confined primarily to terrestrial ecosystems (see for example Borrini-Feyerabend, Johnston and Pansky, 2006; Kothari, 2006). There are researches however that tackle problems in marine ecosystems and deal with either pure State management

¹“Organisational arrangements are the different modes of governance that agents implement to support production and exchange” (Menard and Shirley, 2005: 1).

²The commons, such as the fisheries, is viewed by Hardin (1968) as an open-access resource which are bound to overexploitation because resource users’ rationality is to maximize one’s gain without limit. However Hardin’s model has received tremendous criticisms. One major criticism is that the commons are not at all open-access; they are managed within the state property regime, private property regime, and communal property regime (Bromley, 2003: 84-85).

³ The word State (in capital letter) is used to denote the government and its agencies.

⁴“An estimated 70% of the world’s fish stocks are already being exploited at or beyond sustainable limits” (The Independent World Commission on the Oceans, 1998: 98). Polakovic (1999) also reported that “two-thirds of the Earth’s major fishing areas and stocks are now exhausted or seriously depleted, according to the Food and Agriculture Organisation of the United Nations”. FAO concluded that there is an urgent need for resource management to regenerate degraded fishery resources (Pearson, 2000: 430).

regime, pure community-based coastal resource management, pure private property resource governance, or a combination of State resource management and community-based resource management (see for examples California Department of Fish and Game Marine Region, 2002; Fluharty, 2000; Grafton, 2000; Roche and Eldridge, 2004; Steelman and Wallace, 2001; Tupper, no date; Young, 2001; for the State-centred governance; see for examples Agardy, 1999; Berkes, 2006; Crawford and Tulungen, 1998; Crawford, et.al., 2004; La Viña, 2006; Martin, 2001; Raymundo, 2002; Tulungen, Kussoy and Crawford, 1998; Vera, Cleofe and Balderrama, 2003 for the community-based resource management; see for examples Brown and Mitchell, 1999; Eikeland and Riabova, 2002; Grafton, Squires and Fox, 2000; Lesorogol, 2005; Riedmiller, 2003 for the private resource management both in marine and terrestrial ecosystems; see for examples Berkes, et.al, 2001; Castilla and Fernandez, 1998; Clifton, 2003; Jones and Burgess, 2005; Kothari, 2006; White, 1996 for a hybrid of State and community-based resource management). Few studies are being done in areas where there are different organisational arrangements, such as the State-managed marine protected area, community-based marine sanctuary, privately-managed marine habitat protection, and the co-management of either the State and private sector or the State and the community-based protection operating within the same marine protected area.

In the literature on the management of commons, the major issue tackled is resource degradation, a main focus of this study, particularly on the problem of fishery resource degradation. This problem is relevant to the contemporary advocacy campaigns on natural resource conservation. It is manifested in the increasing numbers of marine protected areas and sanctuaries being implemented worldwide to address said problem.⁵ The World Database on Protected Areas, 2005 records suggest that there are already 113,707 existing protected areas worldwide, encompassing 12 percent of the planet's area (Lockwood, 2006: 96); and there are about 225 countries and dependent territories with protected areas systems (Green and Paine, 1999: 23). Based on Marine Protected Areas (MPA) Global database, approximately 0.5 to 1 percent of marine habitats are protected globally, mostly located along coastlines (Wood et al, in Lockwood, 2006: 96).

The implementation and establishment of 'marine' protected areas is essentially geared towards the protection of the ecologically diverse and critical resources in marine ecosystems, including the services they provide, against further degradation (The Independent World Commission on the Oceans, 1998: 79-80). This only indicates that there is a universal problem on marine resource degradation which includes, but not limited to, the decline in fish yields, and the persistence of destructive fishing activities. This implies that efforts on resolving

⁵ "Marine Protected Areas (MPAs) such as reserves, sanctuaries and parks can achieve protection of particular, well-defined areas and critical habitats (Agardy in White, Aliño and Meneses, 2006). When properly designed and well managed, MPA can meet various marine and coastal conservation needs by preserving habitat and important species and can "increase sustainable catch of fisheries" (Stolton and Dudley, 1999: 25). "This approach has been adopted by leading organisations as the number one objective in a global strategy for conserving areas of high biological importance and productivity" (White, Aliño and Meneses, 2006). "The benefits of the reserve to local fisheries [...] were higher catch, increased catch rate, and a reduction in fishing effort" (Russ, et.al., 2004).

the problems of fishery resource degradation will benefit millions of people worldwide who are dependent on fishery resources for food and livelihoods. Hence, studying the case of different organisational arrangements such as the State-managed marine protected area, community-based marine sanctuary management, and the privately-managed marine habitat protection operating within the same marine protected area in the Philippines to address fishery resource degradation has global significance, in theory and in practice.

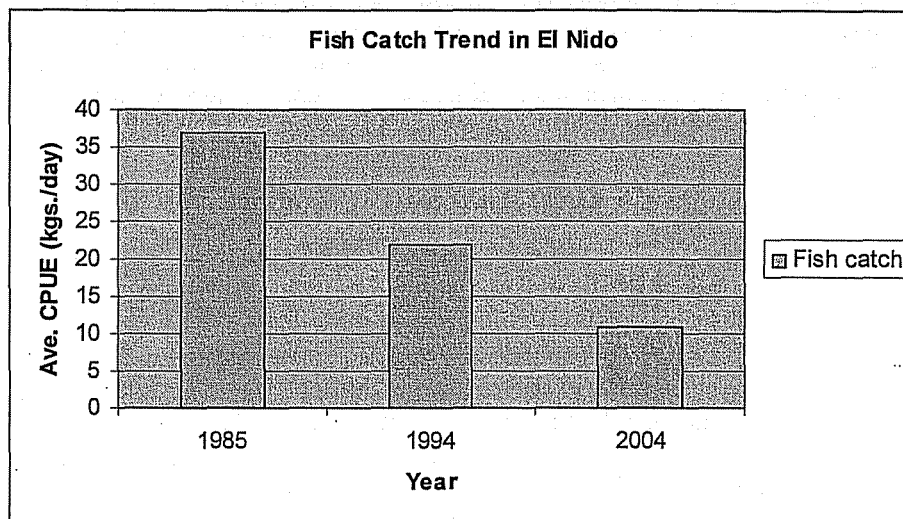
1.2 Introduction To The Case Study

The problem of fishery resource degradation in the case study, as shown by the evident decline in fish yield based on the average catch-per-unit (CPUE) per day (Figure 1.1 below), is due, to some extent, to natural phenomena. There are studies, however, (ENF, 2004; ENPAF, no date; and Sabater, 2004) confirming that destructive fishing activities have also resulted in the decline of fish yield and fish catch.⁶ The proclamation of El Nido as a protected area, which is administered by a State organisation, is a reflection that illegal fishing is a pressing problem that needs to be addressed (PCSDS, no date). On the other hand, the establishment of community-based marine sanctuaries and the operation of privately-manage marine habitat protection in El Nido are also an indication that there is an effort to effectively manage the common pool resources within the marine protected area in order to regenerate the degraded fishery resources.

“The operation of the organisations of the State-managed marine protected area, the community-based marine sanctuary, and the privately-managed marine habitat protection are all a response to address the problem of fishery resource degradation in El Nido” (Municipal Councillor and Chairman of the Environment Committee of the Legislative Department in El Nido).

⁶ The Revised Fisheries Code of the Philippines classifies the use of active fishing gears; use of dynamite, cyanide, fine mesh net, electrocuting, trawl, and dredging in catching fish as illegal and destructive practices which destroys the marine habitats and ecosystems.

Figure 1. 1
Fish Catch Trend



Source: WWF and USAID El Nido Fisheries Resources Assessment Report (2005)

The development of the different organisational arrangements implementing fishery resource conservation program and activities (see Table 1.1 below) have the similar purpose of managing the common pool resources within the marine protected area. Each organisational arrangement has legal jurisdiction to regulate internal use patterns of fishery resources in its respective areas as influenced by its governing institutions.⁷ This becomes a puzzle as to how the different organisational arrangements can be effective in managing the commons in the same marine protected area (see Figure 1. 2) considering conflict between and among organisations is oftentimes unavoidable. They exist within the same marine protected area; however, the positive interaction is only between the organisations of the State and the private sector, and between the State and the community.

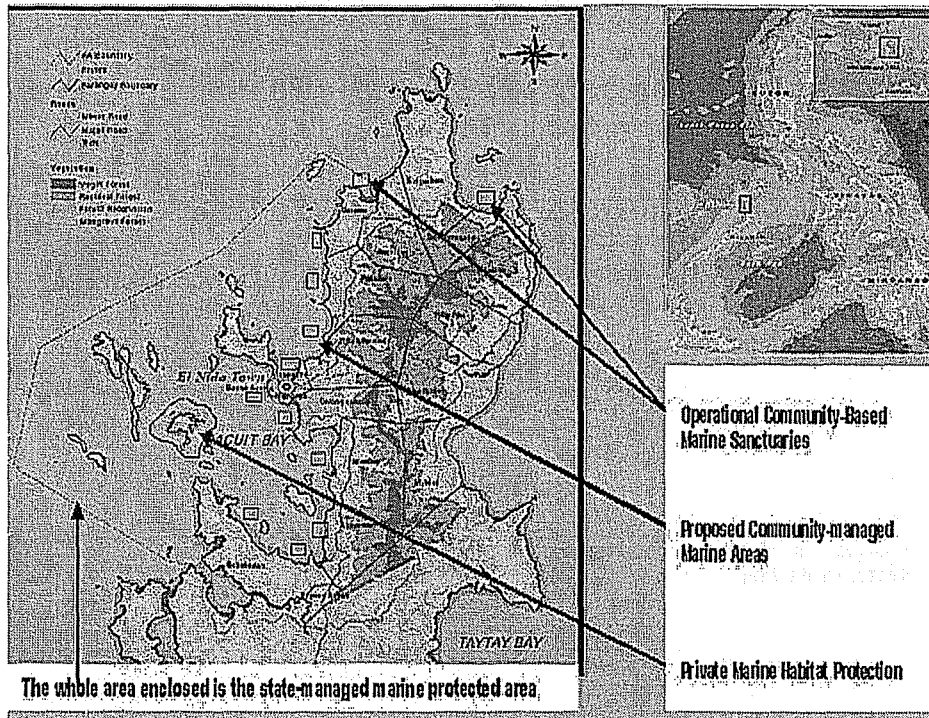
⁷ The National Integrated Protected Areas Act mandates that the organisation of State-managed marine protected area shall have control over the protected area; the Revised Fisheries Code of the Philippines gives legal authority and privilege to the organisation of local users in the management of fishery resources; and the private property rights (e.g. Foreshore Lease Agreement) allocated to the organisation of private protection provides legal power to control the use of resources over which it has contract with the state.

Table 1.1
Organisational Arrangements in the Management of Common Pool Resources
within the Marine Protected Area in El Nido

Organisational Arrangement	Major Program and Activities	Type of Organisational Arrangement
1. State-Managed Marine Protected Area (Protected Area Office)	Over all management of the marine protected area in El Nido	Pure State Protection
2. Community-Managed Marine Sanctuary (Tarabangan y ang Mairentek na Manigpangisda sa Dipnay)	Management of communal fishery resources at the barangay level Mangrove Rehabilitation Project	Community-based protection
3. Private Marine Habitat Protection (Ten Knots Development Corporation)	Management of private property: protection of marine habitats in support of their business Eco-reef installation in partnership with El Nido Foundation	Private sector protection
4. State and Private Sector Protection	Cooperation and complementation of the organisations of the State and private sector in fishery resource conservation	Co-management
5. Community-based and State Protection	Cooperation and complementation of the organisations of the State and community in fishery resource conservation	Co-management

Source: Protected Area Superintendent, Protected Area Office; Leader of the Tarabangan y ang Mairentek na Manigpangisda sa Dipnay (TMMMD); Environment Unit Manager, Ten Knots Development Corporation (TKDC)

Figure 1.2
Map showing the case study site



Source: Office of the El Nido-Taytay Managed Resource Protected Area

1.3 Research Questions and Objective

With reference to the identified gaps from previous studies that only few researches deal with different organisational arrangements operating within the same marine protected area, the main research question is 'On what arrangements can the common pool resources be effectively managed so that fishery resources are regenerated and marine habitat conserved, and destructive fishers are deterred from fishing within the protected zones?' The specific questions in support of the main question are: 1) What are the organisational arrangements existing in El Nido?; 2) Why are there three different organisations operating within the same conservation area and how do they compare or differ from each other? 3) How effective are they in conserving the fish habitat and regenerating the fish population? In addition, linking and aligning this study to the broader paradigm of common pool resource management, further questions that guide the investigations are: 4) How do the three organisational arrangements interact in the same area?; and 5) How and why they cooperate and complement with each other in fish conservation? And, 6) how does their cooperation and complementation have an effect on fish conservation?

Anchored on the earlier stated social problem and the identified research gaps, this study hopes to impart knowledge on how to effectively manage the common pool resources in marine ecosystems.

1.4 Methodology

This study uses the frame of common pool resource theory, and, it also uses institutional analysis (which is discussed in details in chapter 2) in determining the role and influence of institutions in organisational behaviour and arrangements in managing the commons within marine protected area. In effect, this provides a methodological and analytical framework in analyzing the information collected.

To substantiate the analysis and to answer the research questions, this study uses mainly primary data from structured and unstructured interviews of 45 fishers who are equally divided into three categories: (i) regularly fishing close to the protection zones of State protection, (ii) regularly fishing close to the privately-managed marine habitat protection, and (iii) regularly fishing close to the community-based marine sanctuary. One focus group discussion for fishers in one of the barangays within the State-managed marine protected area was conducted to have at least a grasp of fisher's group opinions concerning the management of fishery resources. Unstructured interviews of government officials, key informants, and officers of the different organisations involved in fishery resource management in El Nido were also employed to provide additional primary data that cannot be drawn from fishers. The primary data were collected for five weeks from July to August 2007 in El Nido, Palawan, Philippines.

The perceptions, opinions, narratives, and accounts of the respondents are the primary basis of the analysis in this study as they reflect the real and actual experiences in the area. They serve as proxy, given the limited time and financial resources available, for the costly technical assessment studies in determining the effectiveness of the State-managed marine protected area, the community-based marine sanctuary, and the privately-managed marine habitat protection in terms of regenerating the fishery resources and conserving the marine habitat. The primary tools used in the analysis of data are interpretation of interviews, organisational analysis, and tabular presentation.

With the need of validating the opinions of fishers and other key respondents, however, this research makes use of predominantly the two scientific studies conducted by the World Wild Fund (WWF), for the fishery resource baseline data in 2004, and Kabang Kalikasan ng Pilipinas (KKP), for 2007 fishery resources and benthic status in El Nido. These researches provide a comparative analysis of the effect of the State and the effect of private sector protection on the regeneration of fishery resources and conservation of marine habitat in their respective protected areas. Specific to the increase in fish stock/yield within the protected zones of community-based organisation and their adjacent marine areas, the accounts of fishers, fishing close to the marine sanctuary, served as the primary basis for analysis because they are the ones who work daily in marine areas and have daily accounts of fish catch.

The use of secondary data either published or unpublished, including internet documents, library materials, organisational and program evaluation reports, organisations' documents, and relevant studies done at the case study site, is to further shed lights on the arguments in this paper.

1.5 Limitations Of The Study

The study covers only one municipality. This does not necessarily reflect, therefore, the entire characteristics of marine protected areas in the Philippines and

in other parts of the world. The application of my findings depends on the similarities of conditions and contexts to other areas and case studies.

In the framework I employed on effectiveness of common pool resource management I only limited the scope of study to the resource conservation function, which include regeneration of fishery resources, conservation of marine habitat, and deterrence of illegal and destructive fishers. Although it is the main purpose of the different organisational arrangements in the study, there are other functions of common pool resource systems that underscore effective management, such as livelihood security, equity of access and resolution of conflict, continuity of production, and ecological sustainability. I acknowledge that considering only resource conservation as the most important component to effective management limits my findings and constraints me from providing a more holistic view of effective common pool resource management. This in turn affects the implications for policy and operational interventions.

It cannot be denied that I have some prejudgements in regards to the research problem in question as a result of my previous engagement with the organisation of private sector protection, but having relied significantly on the empirical data generated for the study has helped to provide a more objective lens to the analysis of the problem.

1.6 Organisation Of The Paper

This paper is organized in 5 chapters underlining different organisational arrangements and their effectiveness in the management of common pool resources within marine protected area. The first chapter provides an overview of the research problem and the significance of the study. The second chapter reviews relevant resource management models and theoretical analysis on management arrangements encapsulating common pool resources (CPR). The third chapter examines the effectiveness, highlighting the strengths and weaknesses of the organisations of the State, the community, and the private sector in fishery resources conservation. This chapter reveals that co-management arrangement has the combined strengths which are relatively more effective than the stand-alone organisational arrangement for fishery resource conservation. The fourth chapter investigates the role of institutions in CPR management and discusses the institutional arrangements linking to the cooperation and complementation of the organisations of the State, the community, and the private sector in the management of CPR. This chapter declares that institutions with strong and favourable incentives to an institutional arrangement bind different organisational arrangements to cooperate with and complement each other resulting to a more effective management of common pool resources in marine ecosystems. The last chapter draws lessons and conclusions for operational and policy interventions. It posits that the appropriate arrangement that leads to the effective management of the marine commons is co-management system or integrated management system.

2 REVIEW OF RESOURCE MANAGEMENT MODELS AND THEORETICAL ANALYSIS ON MANAGEMENT ARRANGEMENTS ENCAPSULATING COMMON POOL RESOURCES

The review of the relevant resource management models (sections 2.1 to 2.3) sheds light on the discussion of common pool resources (CPR) management. These resource management models provide sets of theoretical assumptions which guide researchers, academicians, and practitioners in the study of CPR. These models include (i) the State-centred resource management model, (ii) the community-based resource management model, and (iii) the private resource management model. The use of resource management models provides lens that guides not only to the examination of the effectiveness of each organisational arrangement but also to the determination of organisational arrangements that are present in the area and the way they differ from each other.

In the analysis of the interaction between and among the different organisational arrangements the collaborative resource management model plays an important basis. This model provides, on one hand, the concept and assumptions on the area and level of management cooperation, and on the other hand, it provides a framework to analyze how the different organisational arrangements cooperate with and complement each other and their effects on fishery resource conservation. This is discussed in sections 2.4.

To guide the analysis of the organisational behaviour and on why different organisations cooperate and complement with each other in the management of common pool resources, the institutional analysis is adopted in this study. The discussions are in section 2.4.

2.1 The State-Centred Resource Management Model

The State-managed marine resource conservation is a top-down and centralized management approach. The key entities of analysis of this approach are the State and its policy, the experts (policymakers and managers) and the agencies or organisations responsible for carrying out the State policies. In the management of common pool resources, this is the model where the management and control of natural resources are held by the State (Berkes and Farvar, 1989: 10; Bromley, 2003: 92) for the benefit of the people. Usually the State's approach in natural resource conservation is freeing the large areas of biodiversity from human disturbance. It maintains that resource extraction by humans is destructive and so it needs strict control of resource use. The local people in the area where the resource protection is done are mere observers and are often not consulted.

The State-managed marine resource conservation model can be traced to the influence of the colonial minds to developing countries, maintaining that the experts and the State authorities have all the means in solving environmental issues. It assumes that its experts and managers, which control the State, are capable of addressing issues related to conservation (Dryzek, 2005: 89). It also claims that State authorities, tools, policies and interventions (e.g. no-take-zone policy to regenerate and increase fish stocks) will benefit the people and environment (Lipschutz and Conca, 1993: 19) and programs "if carried out by an

efficient State [agency] has little reason to fail” (Prosterman and Riedinger in Borras, 1998: 9). According to McNeely (1999: 195) this type of conservation management is considered the ‘dominant’ one worldwide.

The advocates of this approach are mostly coming from the Max Weber theoretical tradition arguing that the State has sovereignty and power to decide for its people. This emphasizes that the State has its experts in problem-solving rather than facilitating for greater people’s participation in resolving issues (Dryzek, 2005: 75). It institutes and implements rules in the form of environmental laws with the aim of protecting nature such as the marine resources including the fishes.

The major criticism to the conventional centralized management approach is that State-managed marine conservation only focuses on the technical solutions to coastal resources degradation: improving technology and imposing restrictions to resource users (Ferrer, 2001: 18). It failed to address the interrelational issues between humans and nature, and, thus never succeeded in facilitating a win-win condition for both the local people and the marine wildlife.

2.2 The Community-Based Resource Management Model

The community-based resource management model is a decentralized decision-making approach to conservation of natural resources. This approach allows the local users make and enforce their own rules, plans, and decisions in the management of communal property resources (La Viña, 2006: 107) for their own well-being. The key parameters of analysis of this model are the local people and their local institutions, their indigenous practices, their participation in decision making and implementation, and their ability to understand and mobilize local support and counterparts. This model assumes that if resource conservation is led primarily by the local people and that they are the ones who make and implement their own decisions, using their indigenous knowledge and practices, their common property resources can be best managed. This is so because the “local users have access to detailed and timely information about local resource conditions, which allows them to tailor regulations to diverse environments and to react more quickly to changing circumstances” (Singleton, 2000: 3). In addition the local people understand well the community dynamics which makes them easier to monitor and enforce the rules (Ibid).

The paradigm shift to community-based management of marine resources stemmed from the fact that there are promising developments on the ground and the awareness that local people are capable of sustainable resource management. Its evolution can be linked to the concept of mutual-aid, which affirms that local informal conventions such as the mutual support among the community members leads to progress of the people (Kropotkin in Borrini-Feyerabend, et al. 2004), and to the participatory development paradigm (associated with the name Robert Chambers), “which sees [local] people as both the means and end of the development process” (CBCRM Resource Center, 2005: 1). The community-based approach creates an environment where local people take the bigger responsibility in addressing complex and interrelated natural, social, political, and economic issues (Ibid; Singleton, 2000: 1). In addition, this approach claims that local people are capable of building or changing institutions representing their common interests; are able to enforce local formal or informal conventions; and are believed to effectively protect the natural resources and ‘biodiversity’ (Jeanrenaud, 1999: 129). Furthermore, with this approach, local people are also given a greater role in

resource management while allowing and strengthening support system and linkages with government agencies, private sector and non-government organisations (Lockwood and Kothari, 2006: 68-71). This is based on the fact that even the government supports local community management of natural resources backed by legal rules.⁸

Although there is an increasing support to community-based initiatives, some of the experts are still unconvinced by this approach. They criticize the poor capacity and unreliability of community-based approach in ensuring protection of the natural resources against the destructive activities in critical habitats. Locke and Dearden are belittling (in Lockwood and Ashish, 2006: 68) the shift to community-based approach on resource management. According to them this shift will not really protect the wildlife but instead put the biodiversity in a situation for a greater human exploitation. In a similar view, Keller et al, 2000; Brandon et al, 1998; and Bennet, 2003, advocating the more “top-down management”, disagree to the claim that local people have the capacity to manage and protect the natural resources (Ibid). They strongly argue that local people are often disorganized and have the tendency to exploit the resources because they do not possess the conservation values (Ibid). Moreover, according to Christie and White (2007), in relation to the scaling-up of community-based initiatives, the challenge to this approach is “to address large-scale processes affecting coastal environments and communities (including climate change, overfishing, and pollution)”.

2.3 The Private Resource Management Model

The private management of common pool resources in this study is considered an equally important model in fishery resource conservation. It is an approach where the State allocates a private property rights to a private group, individual, or juridical entity to facilitate an efficient allocation of resources (Starrett, 2003: 99-101). The property rights assigned are “usually recognized and enforced by the State and are usually exclusive and transferable” (ICLARM and North Sea Center, 1996). When resources are become exclusive to a private owner, it has control over the access to the resources (Pomeroy and Berkes, 1997: 466-67). With this, the private owner has the right to exclude others from using the resources. The key units of analysis of this model are the private owner, the private property rights as an incentive, and its private interest.

According to Feyerabend, et al (2006: 120), private governance of natural resources has its utilitarian purpose such as to generate tax from eco-tourism and other forms of income generating objectives. The incentives (e.g. land trust or allocation of property rights) negotiated with the government by the private owner is the basis of investment in conservation (Ibid). This is based on the idea that a private owner which has control over resources has a strong incentive, as governed by market institutions, to use them efficiently and invest for their sustainability (Starrett, 2003: 101). This model is influenced by the neo-liberalism advocating that the task of the government is to leave environmental affairs to the market and most of the responsibilities for natural resource management are entrusted to the

⁸See sections 34-36 of the Local Government Code of the Philippines (1991) for provisions that recognize and support the formation of people's organisations.

private owners (Dryzek, 2005: 121). Once a property rights incentive is given to an individual actor, it turns to mobilize the necessary resources “to produce good results for society as a whole” (Ibid: 134).

Similarly, Welch, et al (in Ostrom, 1990: 12) asserted that the approach for the effective management of common property resources is privatization of the commons. This approach can to some extent allocate resources efficiently, however the major criticism is that it fails to consider the complexity of the social system which also affects the sustainability of resource conservation (Dryzek, 2005: 140). Another criticism is it lacks or limited in understanding of social issues that leads to failure in adjusting its interventions to the local conditions that pose a threat to the effective management of common pool resources (Bromley and Cernea in Goldman, 1998: 29; Brown and Mitchell, 1999: 180). This branded the private resource protection as “park as island” because it usually ignores the complex social issues surrounding the protected area management (Ibid, 1999).

2.4 Analyzing the interaction of organisational arrangements of the State, the community, and the private sector in the management of common pool resources

Many scholars and academicians agree that issues on the management of natural resources including the analysis of collaborative management are within the frame of common pool resource theory (Ciriacy-Wantrup and Bishop, 2003; Pomeroy and Berkes, 1997: 466). The management of common pool resources (CPR) encapsulates three major regimes in which their individual concepts, approaches, and theoretical underpinnings are already discussed in sections 1-3 of this chapter. The basic foundation of common pool resource management is characterized by property⁹ rights over a resource which in the study the State governs the law enacted marine protected area; the community has control over a small marine sanctuary though property rights is not formally allocated but is recognized by the local government units and shared by the local people; the private owner has control over a small portion of a marine area within the bigger State-managed marine protected area and its resource protection is based on the allocated private property rights by the government. How about the collaborative regime in the management of CPR? The answer is, it is a hybrid middle course arrangement between the pure State property management regime and pure community-based management regime or pure State and pure private property management regime (Jentoft in Pomeroy and Berkes, 1997: 3). In order to better understand how collaboration takes place between and among organisations in the management of common pool resources in marine areas, the concepts, assumptions, and framework of collaborative management model are briefly discussed in sub-sections 2.4.1. The institutional analysis is used (discussed in brief in sub-section 2.4.2) to guide the discussions on how the rules of the game influence organisational behaviour, and

⁹““Property,” as applied to natural resources, is a “primary” social institution both because of its own importance and because several important “secondary” institutions, including taxation, credit and tenancy, are derived from it. “Property” refers to a bundle of rights in the use and transfer (through selling, leasing, inheritance, etc.) of natural resources” (Ciriacy-Wantrup and Bishop, 2003: 68).

shape cooperation and complementation between and among organisations in the management of CPR.

2.4.1 Collaborative Management Model and Framework

To analyze if there is collaboration between and among the different governing organisations in fishery resources in this study, the basic assumptions of collaborative management model are used as guide. The collaborative management approach as popularized by IUCN¹⁰ and Borrini-Feyerabend¹¹ is essentially the integration of all stakeholders and actors formed in one decision-making authority whereby everyone is informed and consulted, responsibility and accountability is shared to arrive at a consensus for the management of the commons (Feyerabend, et al, 2006:119). The collaborative management approach,¹² which retraced its evolution from the effort to address issues left unsolved by the governance of the State in natural resource management, assumes that with the interaction of multilevel and multidisciplinary actors and stakeholders who possess diverse competencies and “comparative advantage in management”, complementation between and among different organisations and agencies implementing conservation programs are established to attain the twin objectives of equity and sustainability (Kothari, 2006: 529).

The co-management arrangement framework (Figure 2.1) is adopted in this study to provide guide in the in-depth analysis of how the organisations of the State, the community, and the private sector collaborate at different levels and areas of management arrangement. The framework indicates that co-management occurs at different degrees of power sharing whereby there is complementation between the community-based indigenous knowledge and expert’s scientific knowledge at various areas of management-arrangement so that it becomes stronger than purely centralized regime or community-based management (Pomeroy and Berkes, 1997). “There is a hierarchy of co-management arrangements from those in which the [local users] are merely consulted by the government before regulations are introduced, to those in which [local users] design, implement and enforce laws and regulations with advice and assistance from the government” (Ibid).

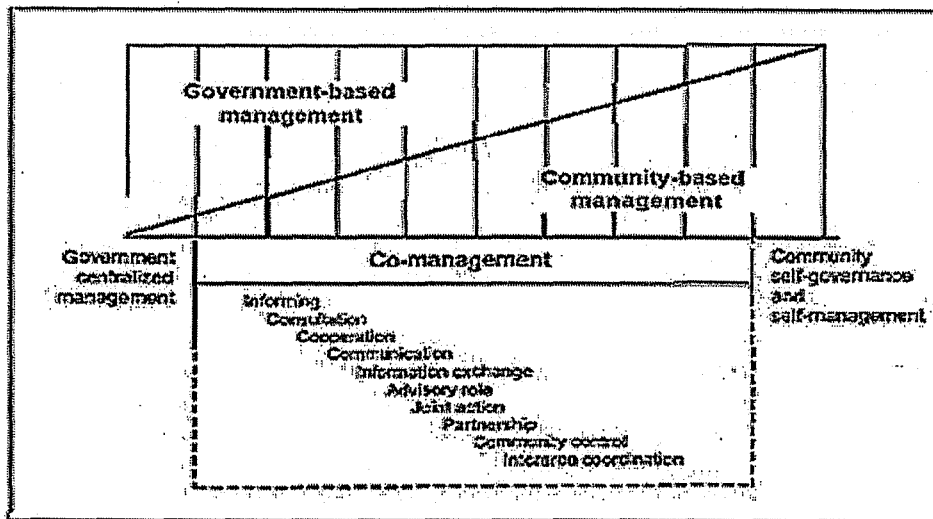
Although the concept of collaborative management provides an understanding if there is collaboration or not in the case study, a framework is necessary to clarify if the collaboration works and to delineate the way it takes place and done on site.

¹⁰“A partnership in which government agencies, local communities and resource users, non-governmental organisations and other stakeholders negotiate, as appropriate for each context, the authority and responsibility for the management of specific area or set of resources.” (IUCN, 1996B)

¹¹“A situation in which some or all of the relevant stakeholders are involved in a substantial way in management activities. Specifically, in a collaborative management process the agency with the jurisdiction over natural resources develops a partnership with other relevant stakeholders (primarily including local residents and resource users) who specifies and guarantees the respective management functions, rights and responsibilities.” (Borrini-Feyerabend, 1996)

¹² For detailed concepts and terms used to describe collaborative management of natural resources, refer to Borrini-Feyerabend, et al. (2004).

Figure 2.1
A Framework of Collaborative Management



Source: A hierarchy of co-management arrangement (Berkes in Pomeroy and Berkes, 1997)

2.4.2 Institutional Analysis

To analyze the governing institutions for the cooperation and complementation of various organisations at different levels of management arrangement, it is necessary to include the discussion of institutions in this study. It is also recognized in much of the literature that the study of the common pool resource problem entails institutional analysis, thus a better understanding is needed on how institutions affect the behaviour and outcomes produced by the different organisations in fish conservation. According to Ostrom (in E. Ostrom, 1990: 51), “[i]nstitutions [...] are the sets of working rules that are used to determine who is eligible to make decisions in some arena, what actions are allowed or constrained, what aggregation rules will be used, what procedures must be followed, what information must or must not be provided, and what payoffs will be assigned to individuals dependent on their actions.” This supports the claim of Berkes and Farvar (1989: 13) that “[t]he effective functioning of [common pool resource management systems] depends on the existence of appropriate institutions.”

The institutional analysis provides an understanding on “how institutional arrangements affect user behaviour and incentives to coordinate, cooperate and contribute in the formulation, implementation and enforcement of management regimes” (ICLARM and North Sea Center, 1996). Institutional analysis also separates institutions--as the rule of the game and organisation--as the player (Ibid). Moreover, the strategy in institutional analysis is to determine of who will be involved in the CPR management; what actions will the managers do and the costs of their actions; what outcomes are achievable; the linkages of the actions to outcomes; the degree of control that each player has; and the benefits thereto from the actions and outcomes generated (Ostrom, 1990: 55). To this effect, institutional analysis sheds lights on the way organisation and institutions interact and why the organisations of the State, the community, and the private sector cooperate with and complement each other.

Specifically the purpose of institutional analysis in the study is to underline the influence of institutions in the working behaviour of different organisations towards fishery resource conservation. This study focuses the institutional analysis on the two categories of institutions that constraint or provide incentives for the possible cooperation and complementation of the organisations of the State, community, and the private sector. The first one is the formal institutions which form part of “writing and enforcing constitutions, laws, contracts and regulations” (Ménard and Shirley, 2005:1), such as the NIPAS Act, Revised Fisheries Code, Local Government Code, Foreshore Lease Agreement and Forest Land Use Agreement for Tourism Purposes, in the study; and, the second one is the informal institutions which structure and inculcate “norms of conduct, beliefs and habits of thought and behaviour” (Ibid).¹³ As a consideration, the influence of State policies; the local formal and informal political system; the local norms such as the belief that fishers have collective right and responsibility to protect their source of food and livelihood; the organisational vision-mission-goal; and the property rights are examined vis-à-vis their roles and influence in the effective management of CPR within marine protected area. This provides an analytical structure in determining favourable institutional arrangements¹⁴ that promote and enhance cooperation and complementation in fish conservation.

¹³ Informal institutions are those unwritten “rules-in-use” such as the “do’s and don’ts”, as in social norms, that anyone learns and follows in a system (Ostrom, 2005: 824).

¹⁴ Institutional arrangement “is an arrangement between [...] units that govern the ways in which these units can cooperate and/or compete” (Davis and North in Guimarães, 2002: 105). “Institutional arrangements are essentially the “rules” influencing human behaviour and include both formal and informal rules. *Formal* institutional arrangements are codified in constitutions, statutes, regulations, plans and policies” (Smajgl, Vella and Greiner, 2003).

3 EFFECTIVENESS OF ORGANISATIONAL ARRANGEMENTS IN FISHERY RESOURCE CONSERVATION

3.1 Introduction

To determine whether an organisational arrangement has been effective¹⁵ or not in fishery resource conservation, the following sections present the individual effects of the organisational arrangements of the State-managed marine protected area, the community-based marine sanctuary, and the privately-managed marine habitat protection, vis-à-vis their theoretical underpinnings, with an analysis on how and why its organisational strengths and weaknesses have a relation to the effect on regenerating fishery resources, conserving marine habitats, and deterring illegal fishers. A concluding section presents the effective organisational arrangements in managing the commons within the marine protected area.

3.2 The Effectiveness of the State-Managed Marine Protected Area

In the study, the State-managed marine protected area is termed the organisation of the Protected Area Office (PAO). It started its marine protection activities since 1998 through the National Integrated Protected Area Program (NIPAP). The examination of its effectiveness; however, shall start in 2005 as the available fishery resource baseline data are established in 2004, and also in that year the NIPAP support has already ended. This provides a three-year analysis of the effect of the State organisation on fishery resource conservation.

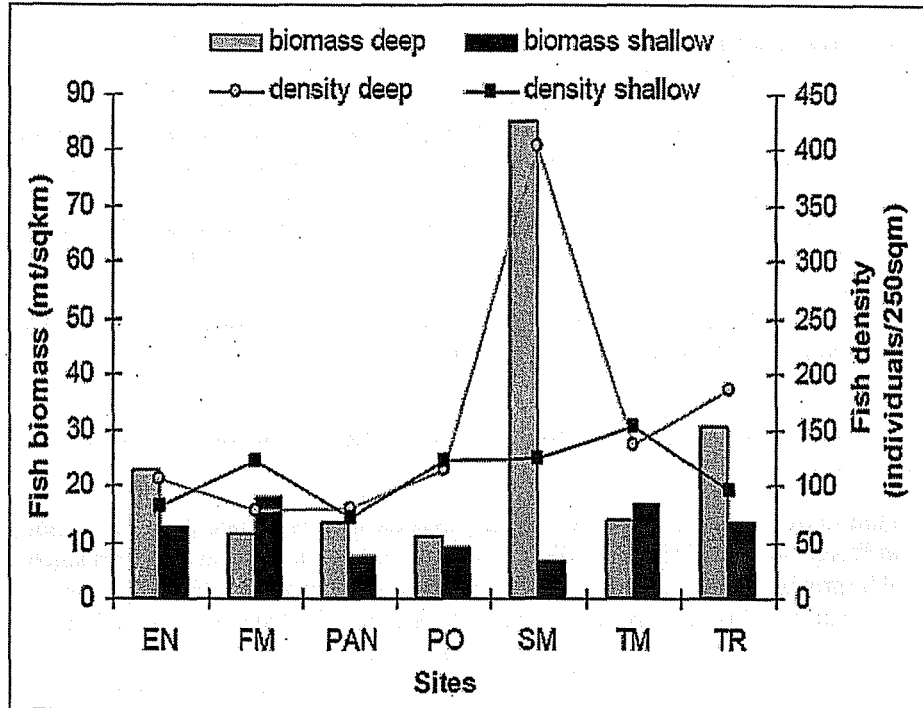
3.2.1 Effects on the Regeneration of Fishery Resources

Based on the benthos monitoring conducted by the Kabang Kalikasan ng Pilipinas (KKP) in July 2007, in marine areas where only the State protection operates, no positive regeneration of reef fishes (see Figure 3.1 and Figure 3.2 for comparison) was observed. These areas are Entalula, Pangulasian, Popolcan, Dilumacad, Bahura de Gracia, Bahura de Serena, and West Matinloc. Although to some extent in marine areas where there is a private protection within the bigger State-managed marine protected area, there was an evident regeneration of reef fishes (see Figure 3.1 and Figure 3.2 for comparison). These areas are Front Miniloc, South Miniloc, and Tres Marias.

¹⁵Based on the perception of fishers, effective fishery resource conservation is characterized primarily by an evident regeneration of fish stock within the protected zones, maintenance or increased in fish catch, and deterrence of illegal fishers to fish within the marine protected areas.

Figure 3.1

Average fish biomass and density between two transects at the ten monitoring sites at 10 and 5 meters depth in El Nido in 2004.



Source: WWF-Philippines 2004 El Nido Reef Fish and Benthos Monitoring Report
 EN: Entalula; FM: Front Miniloc; PAN: Pangulasian; PO: Popolcan; SM: South Miniloc; TM: Tres Marias; TR: Twin Rocks

Based on the perception of fishers, Table 3.1 reflects the relative limitation of PAO in regenerating the fishery resources within its protected zones. Although there are few fishers who have confirmed that the State protection has contributed to some extent to fish conservation. The fishers have based their assessment of the effect of the State protection on their daily catches from the areas close to the protected zones of the State marine protected area. However, their perceptions are based on memory which may have certain percentage of error. In addition, the number of respondents—fishers, does not represent the entire population of fishery resource users. The fishers' catch alone does not completely correspond to the effectiveness of the State organisation in fish conservation. The increase or decrease in coral cover is used as an additional gauge.

Table 3.1

Perception of fishers as to whether the different organisational arrangements have contributed or not to fish conservation (increases in fish catch or maintain fish catch based on their daily requirements)

Organisational Arrangements	Perception				Total	Ranking
	Has contribution		Less or no contribution.			
	Total	%	Total	%		
State-managed MPA ^a	7	47	8	53	15	2
Community-based MS ^b	15	100			15	1
Privately-managed MHP ^c	7	47	8	53	15	2
Total	29		16		45	

Note: Fishers (respondents selected) fishing close to the community-based marine sanctuary are not members of the community-based organisation.

^aMarine Protected Area; ^bMarine Sanctuary; ^cMarine Habitat Protection

3.2.2 Effects on Marine Habitat Conservation

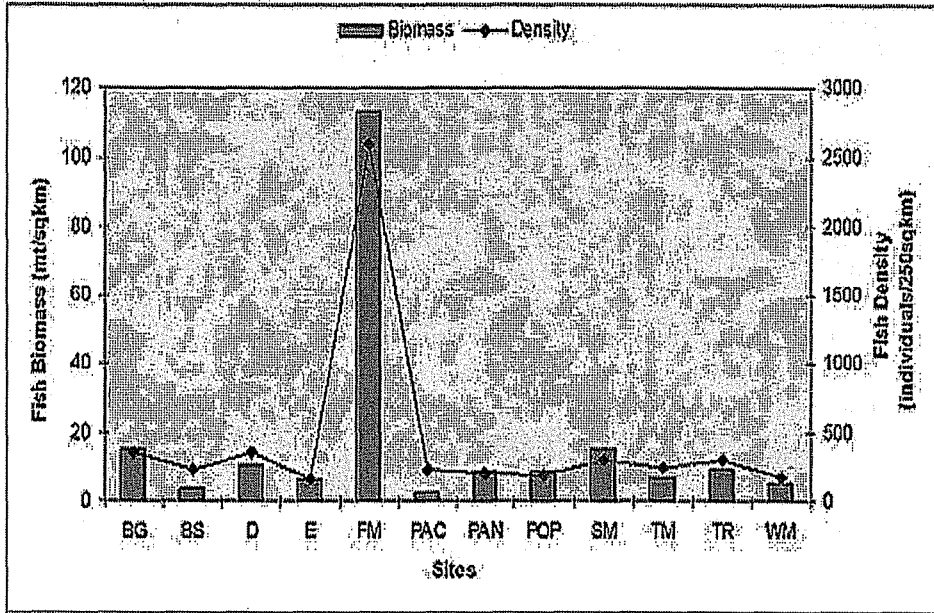
Regarding the effect of the State protection on marine habitat conservation, based on the benthos monitoring of KKP, it shows that there is no significant improvement in coral cover (see Figure 3.3 and Figure 3.4 for comparison). There is, however, relatively maintained physical condition of the marine habitats. Only in the area of Popolcan where there is a slight increase in the mortality of corals which is an indication of less protection.¹⁶ Although in some cases the mortality of corals is due to natural phenomena. It is therefore cannot be generalized that the State protection is not effective in restoring or rehabilitating the marine habitat.

¹⁶ "Intact marine ecosystems and habitats guarantee high spill-over effect (fish production and regeneration) of fishes thus fishers are assured of catch outside the no-touch zones." (M. Arzaga, personal communication)

Figure 3.2

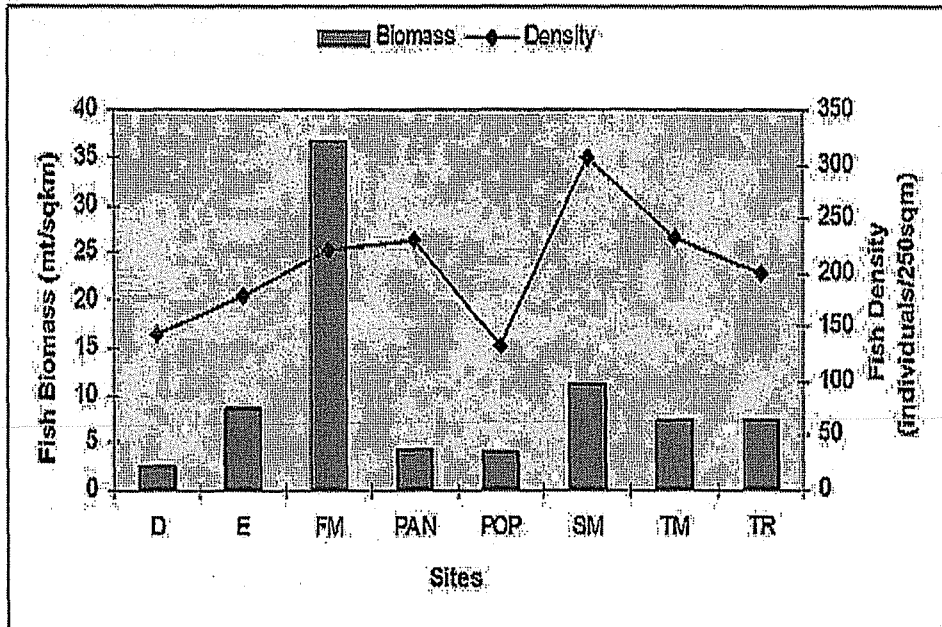
2007 Average fish biomass (in bars) and density (in line)

8-meter deep monitoring sites



D: Dilumacad; E: Entalula; FM: Front Miniloc; PAN: Pangulasian; POP: Popolcan; SM: South Miniloc; TM: Tres Marias; TR: Twin Rocks; BG: Bahura de Gracia; BS: Bahura de Serena; PAC: Pacanayas; WM: West Miniloc

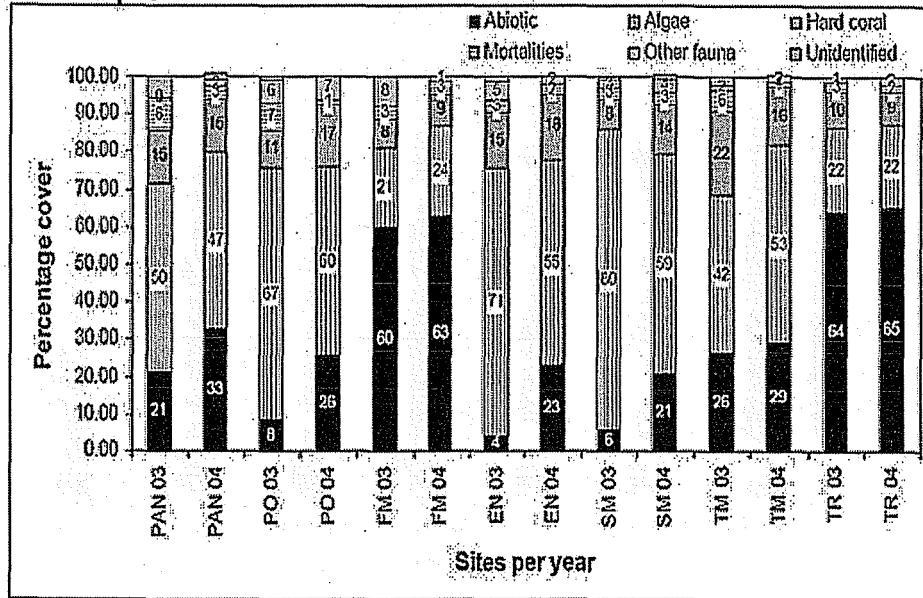
12-meter deep monitoring sites



Source: KKP Status of the Fish and Benthic Community in El Nido 2007 Report

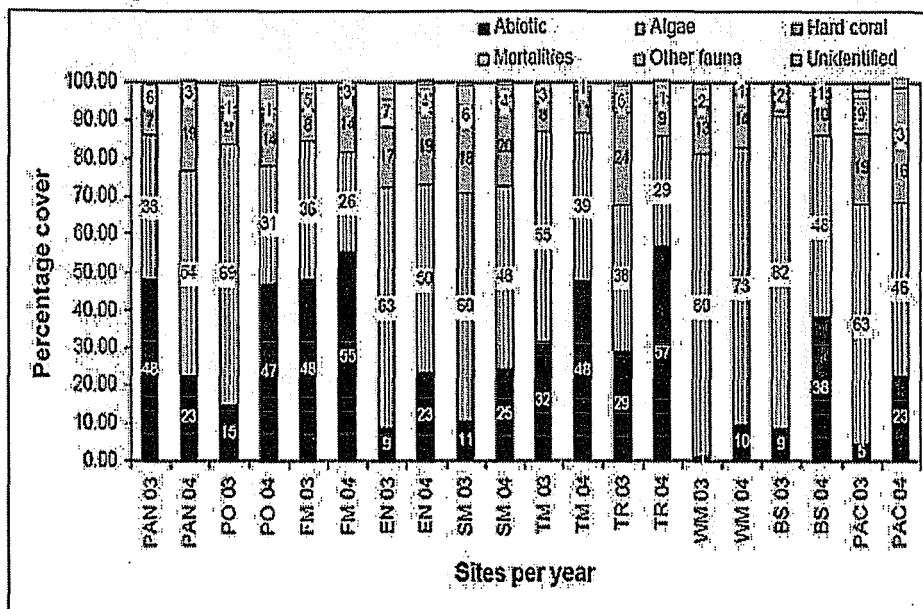
Figure 3.3
2003-2004 Percentage cover of the major benthic categories
at each monitoring sites per year in El Nido

5 meter depth.



D: Dilumacad; E: Entalula; FM: Front Miniloc; PAN: Pangulasian; POP: Popolean; SM: South Miniloc; TM: Tres Marias; TR: Twin Rocks; BG: Bahura de Gracia; BS: Bahura de Serena; PAC: Pacanayas; WM: West Miniloc

10 meter depth.

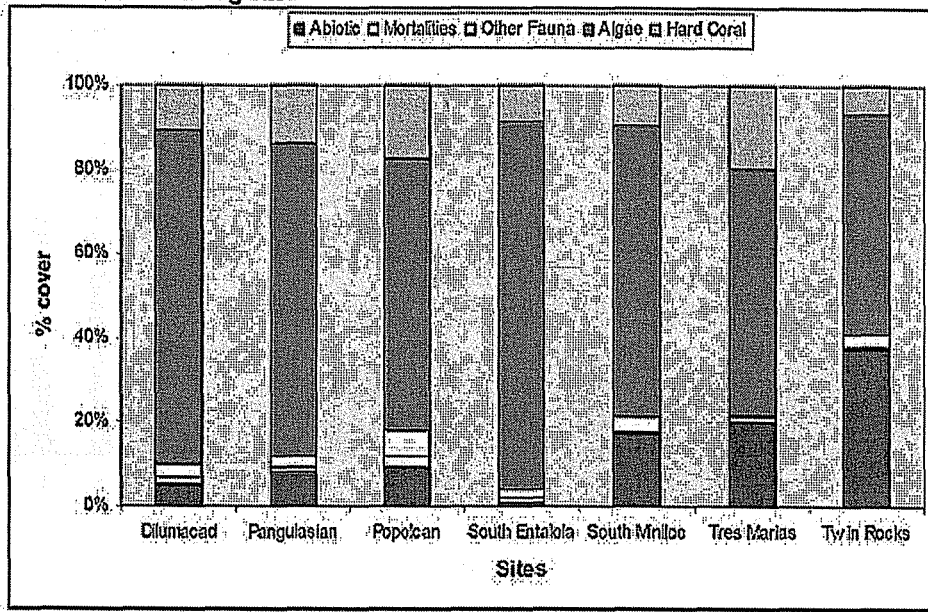


Source: WWF-Philippines 2004 El Nido Reef Fish and Benthos Monitoring Report

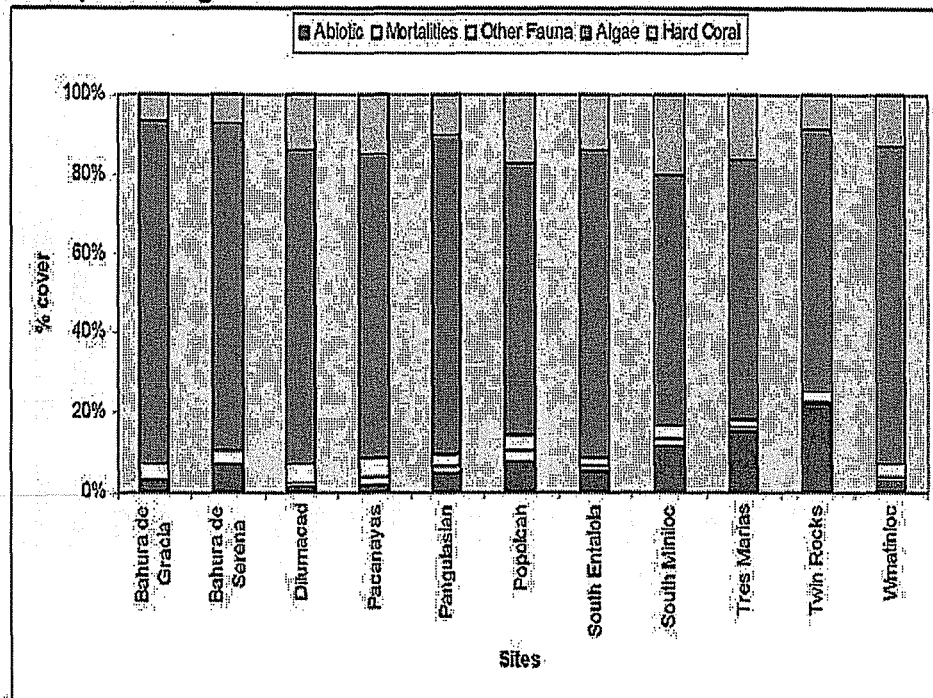
Figure 3.4

2007 Percentage cover of the major benthic categories in El Nido

A. Shallow Monitoring sites



B. Deep Monitoring Sites



Source: KKP "Status of the Fish and Benthic Community of El Nido" 2007 Report

3.2.3 Effects on Deterring Illegal and Destructive Fishers to fish within the Protected Zones

Personal accounts of fishers who are regularly fishing close to the protected zones of the State-managed marine protected area suggest that PAO operation is not enough to deter the illegal fishers (see Table 3.2 below). But considering the 54,303 hectares of the area of State protection and its proportion to three (3) paid rangers, it is expected that the State protected area will have more observed illegal and destructive fishing activities as compared to the small area of protection by the community (2.5 to 51.5 hectares) and the private organisation (< 50 hectares).

Table 3.2
Perception of fishers on the fishing area with more or less presence of illegal and destructive fishing activities

Fishing Area	Observed illegal and destructive fishing				Ranking
	Less		More		
	Total	%	Total	%	
Close to the core-zones of State-managed MPA ^a	10	67	5	33	3
Close to the community-based MS ^b	15	100			1
Close to TKDC ^c protected marine habitat	13	87	2	13	2

^aMarine Protected Area ^bMarine Sanctuary ^cTen Knots Development Corporation

Contrary to the perception of some fishers that PAO's patrolling and apprehension activities are not enough to protect the marine areas in El Nido, some of the high-ranking officials of the municipal government in El Nido are somehow contented with PAO performance.

"The PAO operation has to some extent contributed to maintaining the available fishery stock in El Nido. This is because of the patrolling activities of rangers within the marine protected area" (Municipal Mayor of El Nido).

"Although PAO cannot completely protect the marine resources in El Nido because of lack of funds, to some extent it has deterred the encroachment of commercial and destructive fishers within the marine protected area. I can say that there was a considerable reduction of illegal and destructive fishing activities within the marine protected area" (Municipal Councillor, Chairman of the Environment Committee in the Municipal Legislative Department in El Nido).

3.3 The Effectiveness of the Privately-Managed Marine Habitat Protection

The organisation classified as privately-managed marine habitat, is Ten Knots Development Corporation, an eco-tourism company that manages two-world class resorts in El Nido. The company has been protecting the marine areas where it operates since 1985. However with the major change of stockholders in early 2000, its protection has become more intensive. Aside from its regular protection done by its guards, it has installed about 625 units of eco-reef¹⁷, in one of the critical marine habitats close to its resort for the purpose of regenerating the degraded habitat and fishery resources in the area. The eco-reef installation was realized through the principal effort of its social development arm, El Nido Foundation.

3.3.1 Effects on the Regeneration of Fishery Resources

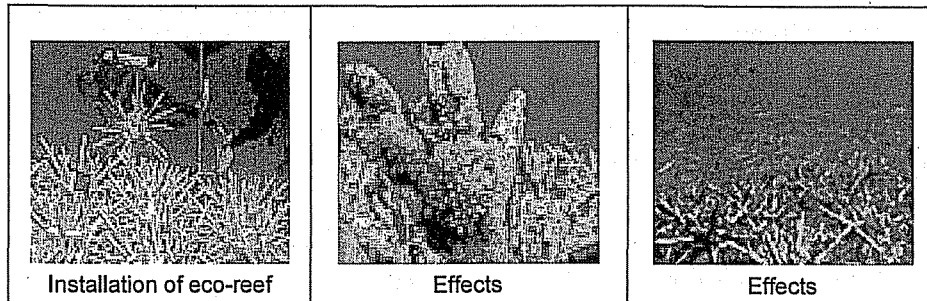
The 2007 monitoring of El Nido Foundation staff reveals that the eco-reefs do not only attract polyps and fishes but they have also facilitated the formation of new coral reefs in areas where they were installed (see Figure 3.5 below). They encourage breeding and regeneration of fishery resources though their impact is not realized yet by fishers but in the long run they are expected to yield considerable volume of fishes (Rivera, 2006) outside the protected areas as a result of spill-over effects¹⁸.

“We are doing a monthly regular monitoring of the installed eco-reef and in just three months from installation, we found out that there are newly formed corals. In more than a year from installation almost all the eco-reefs installed were already turned into real corals and there is an increase in the dense of fish in the reef of Tres Marias (where the eco-reef was installed)”(Technical Staff of El Nido Foundation for its Biodiversity Monitoring and Assessment Project).

¹⁷An environmentally degradable artificial (ceramic) reef that attracts polyps which eventually form corals.

¹⁸“Increased egg output is predicted to supply adjacent fisheries through export of offspring on ocean currents. In addition, as protected stocks build up, reserves are predicted to supply local fisheries through density-dependent spillover of juveniles and adults into fishing grounds” (Roberts et al, 2001: 1920-1923).

Figure 3.5
Example of the Protection of Private Organisation



Source: Photo courtesy of El Nido Foundation

Based on the KKP “Status of the Fish and Benthic Community of El Nido” 2007 Report, there was a significant regeneration of fish resources (biomass and density) particularly in areas where the TKDC resort is operating (refer to Figure 3.1 and 3.2 to see the effect). These areas are Front *Miniloc* (in front of *Miniloc* Island Resort), South *Miniloc*, and *Tres Marias* (where eco-reefs were installed). Apparently, there is a strong protection of the private organisation of fishery resources in areas where it operates. Although there are some fishers who disclosed that they did not experience increase in fish catch from fishing close to the private protection (refer to Table 3.1 for the perception of fishers on the contribution of private sector protection). The negative response of some fishers to the private sector protection is because they are restricted to fish very close to the protected zones of private organisation.

“The conflict usually arises from the fishermen’s use of beaches (not cleaning up, leaving cooking fires un-quenched); and fishing in reefs right in front of the resorts where fish are protected. Also from the fishermen’s capture of over- or under-sized fishes and selling to the resorts. The resorts refuse to buy, causing some fishermen to be upset” (TKDC, Environment Unit Manager).

3.3.2 Effects on Marine Habitat Conservation

Referring to KKP’s “Status of the Fish and Benthic Community of El Nido” 2007 Report, marine habitats at shallow and deep sites (Figure 3.3 and 3.4 compare 2004 and 2007 status) are physically maintained, and reefs in *Tres Marias* and South *Miniloc* have the highest recorded hard coral cover recovery (Palomar and Abes, 2007). Interestingly, these two marine areas are covered by the protection of private organisation (TKDC) though within the coverage of the operation of State-managed marine protected area.

“Usually we take our guests to *Tres Marias* and other dive sites of El Nido Resorts, owned by TKDC, because they still have better coral cover and you can find school of fishes” (A local dive master).

3.3.3 Effects on Deterring the Illegal and Destructive Fishers

The private organisation (TKDC) has its resorts' guards that regularly patrol in areas where its business operates. It also has employees that from time to time take its guests to its protected areas for sight seeing and diving activities. With its business operation, the areas where it operates are visibly protected against intruding illegal fishers. As a manifestation, the observations of most of the fishers fishing close to the privately protected marine areas prove that there are few illegal fishing activities observed within the areas where TKDC operates (refer to Table 3.2).

“The presence of TKDC and its protection of their diving sites have long before a big contribution to PAO and the municipal government's efforts in protecting the marine resources in El Nido municipal waters. Its business operation does not only deter illegal fishers to fish within the protected zones but also provides help to PAO and the municipal government by lending its boats for patrolling and other related marine protection activities” (A local dive master in El Nido).

3.4 The Effectiveness of the Community-Based Marine Sanctuary

This study examines the effect of one marine-sanctuary that has been operational since 2004. Although there is another operational community-based marine sanctuary that could be an important source of learning, its effect is not felt yet by the local people because its operation has only started in 2006.

With the limited baseline data and exclusion of community-based marine sanctuary site from recent technical studies concerning the status of the fishery resources, the basis of the discussion that tells the effectiveness of community-based organisation in managing the commons in marine ecosystem is basically confined to the perceptions of fishers and opinions of the officers of community-based marine sanctuary organisation.

3.4.1 Effects on the Regeneration of Fishery Resources and Conservation of Marine Habitat

In more than two years from the establishment of a community-managed marine sanctuary in El Nido, the fishers fishing close to the buoyed marine sanctuary reveal that there is an evident increase in the volume of fishes within and outside the marine sanctuary (refer to Table 3.1) Although they disclose that there was a big difference between their fish catches ten years back when the marine habitats are still relatively intact.

“The fishers have lesser fish catch nowadays and they need to spend more hours in fishing to catch for their daily requirements. When some non-member fishers have observed and experienced the increasing density of fishes within the marine sanctuary, they are encouraged to participate in the marine sanctuary activities. These fishers are previously against the establishment of marine sanctuary but now are supporting its expansion. It is only a sign that the establishment of the marine sanctuary in our barangay was able to regenerate the fishes within the protected area” (Officer of the *Tarabangan y ang Mairontek na Manigpangisda sa Dipnay*).

The regeneration of fishes according to the fishers and the officers of community-based marine sanctuary are owing to the fact that they were able to make the marine habitat within the protected area recover from serious degradation which encourages fishes to breed and multiply. This account proves that a well protected marine habitat leads to increase in the density and individual sizes of fishes relative to the unprotected marine areas.¹⁹

3.4.2 Effects on Deterring the Illegal and Destructive Fishers

The organisation of the community-based marine sanctuary has five to ten *bantay-dagat* (fish wardens) who are regularly patrolling around the marine sanctuary. These deputized fish wardens are members of the organisation who voluntarily take turn in protecting their marine sanctuary. With the regular presence of its *bantay-dagat* around the marine sanctuary, the small area for protection (2.5 to 51.5 hectares), and the relatively close location of the sanctuary (10-15 minutes by motorboat) to the barangay are advantages that help the managing community-based organisation to easily detect intruders and apprehend those who fish within the protected areas. The advantages it has affirms the observation of non-member fishers fishing close to the marine sanctuary that they see no destructive fishers encroaching the protected zones (refer to Table 3.2). Moreover the barangay government, with the coordination of the organisation of community-based fishery protection, has institutionalized incentive to deter illegal fishers to fish within the marine sanctuary. This boosts the moral of the members of community-based marine sanctuary organisation to exert more effort in fishery resource protection.

“Apprehended illegal and destructive fishers are being fined. A barangay ordinance restrains fishers to do illegal fishing, aside from the shame of being caught and known to be illegal fishers within the barangay. In most cases the illegal fishers are also residents of our community” (The Barangay Captain where the community-based marine sanctuary organisation is operating).

3.5 Analyzing The Strengths And Weaknesses Of The Different Organisational Arrangements In Relation To Their Effects On Common Pool Resources Management Within MPA

Analysing the strengths and weaknesses of the organisations of the State, the community, and the private, in relation to their effects on fishery resource conservation, provides reflections on why and how an organisational arrangement has been effective or not in regenerating the fishery resources, conserving the

¹⁹ A scientific study done by Halpern (2002) indicated that “marine reserves, regardless of their size, and with few exceptions, lead to increases in density, biomass, individual size, and diversity in all functional groups. The diversity of communities and the average size of the organisms within a reserve are between 20 and 30% higher relative to unprotected areas. The density of organisms is roughly double in reserves, while the biomass of organisms is nearly triple.”

marine habitat, and deterring the illegal fishers. To this effect, it shows what organisational arrangement/s is/are more effective or less effective in the management of common pool resources within marine protected area.

3.5.1 The strengths and weaknesses of State protection that make it effective or ineffective in fishery resource conservation

The relative ineffectiveness of the organisation of State protection can be traced back to its structural and institutional weaknesses (see table 3.3 below). Some of the manifestations are its limitation in manpower and financial resources which are caused by the inappropriate administrative structure and policy support system from the State.

“To improve the performance of the Protected Area Office, there is a need to improve its management structure and operation system as well as its system of fund mobilization” (KKP Project Manager).

“We need to get the approval of the Department of Environment and Natural Resources (DENR) before we can proceed with our plan. What if the Secretary of the DENR does not prioritize the protected area then no support will be provided to the PAO. Although the DENR Regional Director is a co-chair in the Protected Area Management Board, still no tangible support is provided, except for the fact that it gives back the 75 percent of the total user and conservation fees collected after three years from remittance. I am also an official of DENR but it seems my obligation to them is like a collecting and disbursing officer” (Protected Area Superintendent).

“If the protection of the natural resources will only be relied on to the national government, nothing will happen. The national agencies like DENR complicate the local initiatives because they regulate whatever environmental programs we are implementing. This discourages local empowerment” (Municipal Councillor, Chairman of the Environment Committee in the Municipal Legislative Department in El Nido).

“The operation of PAO is very dependent on the user and conservation fees mobilized by the municipal government and TKDC which are remitted to the national government and allocated back after three years from remittance. If there is no fund allocations from the national government then PAO operations become paralyzed” (Municipal Mayor of El Nido).

The strong criticism of some of the fishers that PAO is weak in patrolling and apprehension of illegal fishers has something to do with its approach in trying to get the fishers involved in fish conservation. Its use of law as a way to engage the local people in the protection may not be appropriate for the fishers so that some of them are disappointed with PAO performance.

“When we ask the fishers for a meeting no one is attending, especially if they know that PAO rangers are the ones facilitating the meeting. We want them to get involved in fish conservation but I think they are against the restrictions set by the law that is why most of the fishers are reluctant to support the marine protected area program and the establishment of marine sanctuaries” (PAO ranger).

Table 3.3
Strengths and Weaknesses of Different Organisational Arrangements in Fishery Resource Protection

Organisational Arrangements	Strengths	Weaknesses
State-managed marine protected area	<p>Constitutional power to enforce the law.</p> <p>State property rights to manage the commons within the marine protected area</p> <p>Able to mobilize the financial and administrative support of the local government units</p>	<p>Dependent on the top management for decisions</p> <p>Limited manpower (3 rangers) and financial resources to cover the 54,304 hectares of marine protected area.</p> <p>Unfavourable administrative structure and weak policy support system which hinders the effectiveness of PAO operation</p> <p>Not able to get the fishers involvement in fish conservation activities</p>
Community-based marine sanctuary	<p>Active, trained (deputized), and committed (voluntary) sanctuary guards;</p> <p>Able to mobilize the support of fishers and barangay government (barangay police helps in patrolling and apprehension of illegal fishers);</p> <p>Backed by law (Section 2 & 17 of the Revised Fisheries Code)</p> <p>Support from NGO (e.g. the Sustainable Coastal Tourism In Asia Project);</p> <p>"We believe that we have communal property rights over the fishery resources in our barangay that is why we are protecting our source of food and livelihood."</p>	<p>Limited authority to enforce the law.</p> <p>Limited financial resources. "Without the financial support of SCOTIA we will not able to build our guardhouse and buy mooring buoys, and patrol boat."</p> <p>Limited technical know-how in doing scientific resource assessment and technical design and plan as required by law</p>
Private marine habitat protection	<p>Enough manpower (expert) and financial resources;</p> <p>Less or no bureaucracy in profit-oriented company;</p> <p>"We have property rights to protect or conserve the resources that we have control."</p>	<p>Limited in political power to enforce the law.</p> <p>Limited in capacity to facilitate for the involvement of fishers and other stakeholders in fish conservation.</p> <p>Protection is term-based depending on the interest of the private owner</p>
State and private sector protection	Support of law, Available resources(complementation), Technical solutions	No or less involvement of fishers
State and community-based protection	Support of law, Involvement of fishers in the protection	Limited resources, technical limitations

Source: Interview of Protected Area Superintendent for the State-managed marine protected area; Officer of the Tarabangan y ang Mairentek na Manigpangisda sa Dipnay for the Community-based marine sanctuary; and TKDC Environment Unit Manager for the Private Marine Habitat Protection

The fishers' involvement in fish conservation is an important consideration in apprehending illegal fishers because fishers have daily encounter in marine areas and can witness whatever illegal or destructive fishing activities that are occurring which are useful information for the operation of PAO. Even PAO has enough financial resources if its approaches in mobilizing the fishers are not appropriate, less support can be drawn from this key partner in fishery resource conservation.

"The problem with PAO is that it does not consult us of its operation. We cannot remember that PAO rangers went to our barangay and ask us of our concerns. We can help them if they are asking our help because we know better our marine areas" (Group of fishers in Barangay Pasadefia).

3.5.2 Why the strengths and weaknesses of private protection lead to its relative effectiveness in fish conservation and ineffectiveness in dealing with fishers' concerns

The relative success of the private organisation in fish conservation can be attributed to its organisational strengths (refer to Table 3.3). It has sufficient resources to invest in fish conservation by employing marine rangers and installing eco-reefs to restore marine habitats. In addition, its organisational strategy has something to do with its intensive marine habitat protection.

"Our company espouses the Triple Bottom Line approach: financial profitability with environmental conservation and exercise of corporate social responsibility. We are a tourism operator, so best for us to reach out to our clients and other members of our industry, to solicit their support and contribution" (TKDC, Environment Unit Manager).

The relative effectiveness of private sector protection is not alone a credit to its organizational strengths. It is because its protection is supported by PAO as mandated by a State policy (Section 1 of Department Administrative Order – DAO 99-34). Moreover, the marine areas protected by the private organisation are also covered by the protection of PAO.

In consideration of the net social benefits from private protection, this organisational arrangement has its theoretical limitation which is carried out in practice. According to Kothari (2006:549), for the common pool resources within protected area to be sustainably managed, it is important to involve the local users because they are an integral part of resource conservation as they closely relate to the biodiversity because of food and livelihoods. In this respect, the private organisational arrangement is inherently ineffective when it comes to dealing with social issues because its organisation is less concern with the involvement of fishers as its protection is basically for the benefits of the private owner's interest.

"As part of our corporate social responsibility, our company has an Environmental Enforcement Officer, who comes from the local community, who communicates with fishermen and other stakeholders on a regular basis, however it is not our obligation to provide for the needs of the fishing communities in El Nido" (TKDC Environment Unit Manager).

3.5.3 How the strengths and weaknesses of community-based protection relate with its effects on fishery resource conservation

The relative effectiveness of community-based protection based on the accounts of fishers has direct relation to its strengths. First, the marine sanctuary has considerably generated fishery resources because fishers are protecting their source of food and livelihoods; otherwise they suffer the consequences of resource degradation.

“We established a marine sanctuary because we felt that our marine areas are over fished and there is a need to regenerate the fishery resources for our local requirements” (Leader of the *Tarabangan y ang Mairentek na Manigpangisda sa Dipnay*).

Secondly, the volunteerism spirit among the members of the community-based organisation is seen as an important element in the effectiveness of protection. Relative to the State protection, the rangers are not doing protection activities if they are not paid. The fish wardens of the community-based protection do regular patrolling without any compensation. Thirdly, the ability of community-based organisation to mobilize support of fishers, NGOs, and local government units is a strength that helps intensify its campaign for marine sanctuary protection.

“With the impressive development of the marine sanctuary in barangay San Fernando, the municipal government is strongly supporting the initiatives of the community level organisations such as the establishment of marine sanctuary by adopting a policy, through a municipal ordinance consistent with the Revised Fisheries Code and Local Government Code, directing all coastal communities in El Nido to establish their own marine sanctuaries in support of the bigger fishery resource conservation program of Protected Area Office” (Municipal Councillor, Chairman of the Environment Committee in the Municipal Legislative Department in El Nido).

With the legal support by the government to the organisation of community-based protection, plus its organisational strengths, to some extent it has been effective in managing its communal property resources. However it is still incompletely successful because its protection is very limited, and there are areas of concern that need support from other organisations (refer to Table 3.3 below), which cannot be addressed by its local and indigenous practices alone.

“Yes we can protect our fishery resources to some extent but we really need the support of the municipal government or other agencies for detailed police personnel to help us in our patrolling and particularly the apprehension of big commercial fishers. Like for example without the help of the Palawan Council for Sustainable Development Staff in conducting the technical studies as part of the legal requirements for the establishment of marine sanctuary, we will not be able to implement our project. Also, SCOTIA provided financial support for us to be able to demarcate the boundaries of the sanctuary, build our guardhouse, and buy our patrol boat” (An officer of the community-based marine sanctuary organisation).

“With the marine sanctuary we are experiencing an increase in fish catch. Their organisation was able to apprehend the illegal fishers and made it sure that violators are litigated. This was through the efforts of their fish wardens. However their current efforts are not enough. I think they need to intensify their education campaign to draw support from all the fishers in the barangay and adjacent communities for patrolling and apprehension of illegal and

destructive fishers” (A fisher fishing close to the community-based marine sanctuary).

“There are still some fishers who are against the marine sanctuary because the marine areas where the fishers usually fish are being covered by the organisation of marine sanctuary. This upsets the fishers” (A fisherman fishing close to the marine sanctuary)

3.6 Summary And Conclusion

The State policy and its experts cannot completely address the fishery resource degradation at its present condition. This is because it was not able to resolve its structural and institutional weaknesses which caused its organisation to become limited in financial resources which also led to less protection of fishery resources. Its approach failed to provide for some of the site-specific requirements in managing the commons. Its use of law failed to get the fishers participation in its protection activities. With its limitations, it mobilizes the support of the local government units for its continued operation and builds an alliance with the community-based protection to get the involvement of the fishers in fishery resource conservation.²⁰

On the claims of the private resource management model that privatizing resource conservation leads to the efficient allocation of resources, because of the private property rights that provide incentive for the private owner to invest in the sustainability of the resources over which it has control, in this case holds true in practice. However the relative success of the private protection is not a credit to its organisation alone because the marine areas it protects are also covered by the State protection. Although to varying extent, the areas protected by the private organisation have shown a positive regeneration of fishery resources, conservation of marine habitat, and deterrence of illegal fishers relative to the State protection. The only limitation of the private protection is its less concern for the needs of the local users. It is not the responsibility of the private owner however, to provide for the needs of the fishing communities; therefore its protection is intended mostly to serve the private interest. As long as the private owner is still interested in the area then the protection continues. In this arrangement the sustainability of the fishery resources is still at stake because the private protection is term-based depending on the interest of the private owner in the area.

On the theoretical assertion of the community-based resource management model that if the local people are the ones planning, deciding, and managing their communal property resource, they can effectively address the problem of resource degradation, but in a smaller scale, is in this case holds true.²¹ The criticism of the experts that the local people lack conservation values is not applicable in this case. However it does not guarantee that community-based operation can create a bigger scale effect considering its very small protected area relative to the State protected area. Even though the fishers fishing close to the marine sanctuary confirmed that

²⁰ In a study of Baltazar (2006), she claimed a similar finding that local participation in National Integrated Protected Areas Program (NIPAP) sites in the Philippines is not as impressive as it seemed to be.

²¹ A study of Vera, Cleofe and Balderrama (2003) on the impacts of community-based coastal resource management programs on other marine areas in the Philippines revealed that marine habitats within the community managed marine sanctuaries are better protected.

there is an evident regeneration of fishery resources with the implementation of community-based marine sanctuary if the adjoining and neighbouring communities will not undertake the same efforts, it is argued that community-based effects will remain at the level of the village and it cannot meet the increasing local demand for fishery resources.²² Its financial and technical limitations, which are important considerations in the expansion of marine sanctuary, cannot be addressed by its local and indigenous practices alone. Moreover, it does not follow that if it is a community-based initiative, it can already mobilize all the support of the local users. Contrary to the mainstream claim that community people are close-knitted, in this case it does not apply because fishing communities are heterogeneous, and there are group of fishers who deviate from the local norms and go against the expansion of marine sanctuary.²³ The financial and technical limitations of the organisation of community-based protection in large-scale protection provide constraint for it to build partnership with PAO, the local government units and NGOs,

²² Berkes (2006) also pointed out in his study that the critical challenge in community-based system is its difficulty in imposing its rules on other communities sharing the same geographical resource to do same efforts in conservation.

²³ Similarly, Cleaver (2001) claims that a community is not homogenous and is not characterized by solidaristic relations, rather it has multiple characteristics.

4 THE ROLE OF INSTITUTIONS IN FISHERY RESOURCE MANAGEMENT AND THE INTERACTIONS OF DIFFERENT ORGANISATIONAL ARRANGEMENTS

The study reveals that institutions are responsible for the development of the different organisational arrangements in fishery resource conservation (refer to Table 4.1 below). These institutions are codified in State policies and local regulations, reflected on organisational strategies, and embedded in norms in the society. They play an important role in the interaction of different organisational arrangements in fishery resource conservation. As a manifestation, the following sections present i) the organisational response to institutions; ii) the way the different organisations cooperate and complement and how they are institutionalized; iii) the influence of institutions behind their interactions; and iv) the effect of cooperation and complementation on the management of fishery resources vis-a-vis the governing institutions.

4.1 Institutions, Incentives And Organisational Behaviour

The organisation of State-managed marine protected area is developed by the implementation of a national law—NIPAS Act. Its workings are bounded by structure set by the law. The national agency, Department of Environment and Natural Resources (DENR) which is mandated by law, controls the functioning of Protected Area Office (PAO). Because of bureaucracy, in instances where DENR does not prioritize the PAO, then it cannot do its duties and responsibilities. The funding system is centralized and DENR controls the resources for PAO's operation.

“The law basically controls the functions and operation of PAO because we have to get first the approval of the national agency before we can execute our plan” (Protected Area Superintendent).

The organisation of privately-managed marine habitat protection is working primarily based on the exclusive private property rights—FLA and FLAgT allocated to it by a national State agency.²⁴ This provides an incentive for the private owner to invest in fish conservation. Its corporate social responsibility as reflected in its service code (see Table 4.1 below) also plays an important role as to why it gets involved in marine habitat protection. Through its social development arm, El Nido Foundation (ENF), the private organisation has facilitated the installation of eco-reefs in one of the areas where it operates. It invests in marine habitat restoration as it sees that the ecological service it provides can satisfy the interest of private owner.

“TKDC and ENF are the same. They support marine habitat protection as part of TKDC's corporate social responsibility. For example they installed the eco-reef because TKDC will benefit from the project” (An activist and former NGO worker turned Barangay Captain).

²⁴ Section 15-16 of the Revised Foreshore Lease Agreement, allocated to the organisation of the private protection, mandates the contract holder to adhere to the terms and conditions of the state for the property rights to be remained enforce.

In the case of community-based marine sanctuary, its organisation is shaped by the strong norms to protect their source of living. It is driven by the incentive of economic benefits out of protecting the fishery resources. This suggests that community institutions are equally an important consideration when dealing with the sustainability of fishery resource conservation (La Viña, 2006). Its importance is reflected for example on why the sanctuary guards of the community-based organisation are doing patrolling and apprehension activities on a voluntary basis.

“One of the reasons why we established a marine sanctuary is because the protection of the PAO does not reach our barangay and if we will not do it by ourselves then we will have no fish to eat in the future. We need to do the protection voluntarily because we believe that our efforts will give us benefits in return” (Member-fisher of the community-based marine sanctuary organisation).

Although there is a certain level of self-initiated organisation of community-based marine sanctuary, the policy-support from the national and municipal government (refer to Table 4.1) also drives the members of the organisation to exert more effort in protecting their fishery resources. This indicates that the State and its policy still play a role in institutionalising norms so that community-based organisations are greatly influenced towards fishery resource conservation.

4.2 Interaction Between And Among The Different Organisational Arrangements

Based on the statements and opinions of the officers of i) three organisational arrangements in fishery resource conservation, ii) the municipal government, iii) NGOs, and iv) PCSDS, the organisations of the State protection, the community-based protection, and the private sector protection are not managing the common pool resources (CPR) completely exclusive of the other. There are areas in which they cooperate and complement (see Table 4.2 below) depending on the capacities of each organisational arrangement. Their interaction is more of a support to the weakness of one organisational arrangement so that one organisation which has capacity in one management aspect complements the other. A positive interaction exists between the organisations of the State and the private sector and between the State and the community. The interaction between the private sector and the community in fishery resource protection is characterised by more of conflict rather than cooperation, as reflected in chapter 3.

4.3 Analyzing The Interaction Of The Different Organisational Arrangements In Relation To The Constraints Faced And Their Governing Institutions

The organisation of the State protection is constrained by its structural and institutional weakness and bounded by a State policy. Its major weakness has resulted in its poor financial and manpower capacity to do its functions that is directly related to the provisions of the governing policy and its administrative structure. The State proposing a collaborative management approach (see to Table 4.3 below) to address its limitations in a way suggests that the organisation of State protection need to work with other organisation in order to carry out its responsibilities.

As discussed in section 4.1, the law controls the workings of the State organisation which aggravates its weaknesses. It is its governing institutions that drive the State organisation to cooperate with the community, the local government units, and the private sector because its provisions recognize the importance and benefits of integrated system (see Table 4.3.1 below). In particular, the State organisation has to support and cooperate with the private property rights holders “for the conservation and maintenance of an ecologically-balanced environment” because of the constraints provided by the institution of FLA and FLAgT (Government of the Philippines, Department of Environment and Natural Resources, 1999) so that a co-management in fish conservation between the State and the private sector is established.

If the bases are the strengths and weaknesses of private sector protection and its effects on fishery resource conservation (as discussed in chapter three), it suggests that its organisation can effectively manage its private property to some extent without having to cooperate with and complement other organisational arrangements. Interestingly enough, the private organisation is complementing the State protection and is also cooperating with the national government agencies and local government units in fishery resource conservation because it satisfies the terms and conditions of the private property rights—Foreshore Lease Agreement (FLA), for example (refer to Table 4.3.1), set by the government.

Another institution, that provides incentives for the private organisation to support the over all resource management plans and programs of the State, is its corporate social responsibility principle as reflected in its organisational strategy (see Table 4.3.1 below).

“We cooperate and complement with other organisations in protecting El Nido’s natural resources because we also benefit from the effect or impact of any conservation program; it is also aligned with our company’s strategy” (TKDC, Environment Unit Manager).

In these sense, institutions, with strong incentive, influence the private organisation to cooperate and complement in fishery resource conservation rather because of its organisational weaknesses.²⁵ Although its weaknesses in enforcing the law and getting the fishers involved in their protection activities are only a contributory factor so that it cooperates and complement with the local government units. It suggests that the governing institutions of private sector protection do not have the incentives that encourage the private owner to directly involve the fishers in its regular protection. The incentives of its governing institutions are inappropriate to the situation so that it only cooperate with and complement the State protection.

In the case of community-based organisation, its interaction with the State and NGOs has stemmed from its organisational weaknesses rather than institutionally induced. Its weaknesses, as reflected on the proposed alternative solutions to address the faced constraints, Table 4.3 below, drive it to seek support from outsiders and in return it cooperates with the assisting organisations. The local shared norms dictate the community-based organisation to protect its source of living. These norms as institutions do not provide a direct incentive for it to

²⁵Menard (2005: 284) claims that “[c]ooperation has to do with the behaviour of agents and relates to incentives, that is, devices that can make agents with diverse goals efficiently complementing each other.”

complement or cooperate with other organisations so that it is in conflict with the private sector. The local norms however, are affected by the prescriptions of the government officials and the State policy so that these norms are rescinded, enabling the community-based organisation to do complementary resource management activities.²⁶

²⁶Prescriptions from authorities or influential group or individuals either by the use of law or power that can change the structure of repetitive situations (as in norms) which participants use or refer “to explain and justify their actions” (Ostrom, 2005: 832).

Table 4.1
Governing Institutions of the Different Organisational Arrangements
in the Management of Commons in Marine Ecosystems

Organisation	Governing Institutions	What do their institutions indicate?
Protected Area Office (State-Managed Marine Protected Area)	National Integrated Protected Area System Act (R.A. No. 7586, 1992). Constitutional Duty	Section 10 of NIPAS Act declares that the Department of Environment and Natural Resources shall control and has administrative authority over the law enacted and established protected areas.
Community-Based Marine Sanctuary Organisation Barangay Fisheries and Aquatic Resources Management Council (BFARMC)	Shared social norm of fishers to protect their source of food and livelihoods Revised Fisheries Code of the Philippines (R.A. 8550) Local Government Code of the Philippines (R.A. 7160)	The Local Government Code (Sections 15-16 & 18) decentralizes and empowers local communities to participate in all development programs and activities at the local level (Aguilar, 2001). The Fisheries Code provides legal basis for the fishers to establish marine sanctuaries and support fishery resource management in municipal waters (Section 2). Section 17 of the Revised Fisheries Code indicates that the duly registered fishers' organisations/cooperatives shall have preference in the grant of fishery rights by the Municipal/City Council pursuant to Section 149 of the Local Government Code.
Privately-Managed Marine Habitat Protection Ten Knots Development Corporation (TKDC) owner of El Nido Resorts	Department Administrative Orders: Foreshore Lease Agreement (FLA) & Forest Land Use Agreement for Tourism Purposes (FLAgT) Corporate Social Responsibility	Pursuant to the provisions of Sections 3, 4, and 5 of the Public Land Act, the contract holder (FLA) is entitled to a right to utilize the foreshore areas for productive purposes. El Nido Resorts - Service Code: We will love our work. We will protect nature. It is the foundation of our business. We will identify and apply environmental concerns in all aspects of our work.

Source: Interview of PASu Loreto Rodriguez (Protected Area Office), Isidoro Bacaltos (Tarabangan y ang Mairentek na Manigpangisda sa Dipnay), and Mariglo Laririt (Ten Knots Development Corporation); Review of Relevant Laws on the Organisations of State Protection, Community-Based Protection, and Private Protection

Table 4.2
Cooperation and Complementation (between and among organisations)

Organisations	Cooperation and Complementation Arrangements
<p>A. Major Organisational Arrangements</p> <p>1. Protected Area Office (PAO)</p> <p>2. Organisation of Community-Based Marine Sanctuary</p> <p>3. Organisation of Private Marine Habitat Protection (Ten Knots Development Corporation-TKDC)</p> <p>B. Support Organisations</p> <p>1. Local Government Units (Municipal and Barangay Governments)</p> <p>2. El Nido Foundation, Inc. (NGO)</p> <p>3. Kabang Kalikasan ng Pilipinas (NGO)</p> <p>4. Sustainable Coastal Tourism in Asia (NGO)</p> <p>5. Palawan Council for Sustainable Staff (PCSDS)</p>	<p>1. TKDC and LGUs are helping the PAO in resource mobilization and development of sustainable funding mechanisms (design is already drafted with the assistance of PCSDS and NGOs).</p> <p>2. TKDC, Kabang Kalikasan ng Pilipinas (KKP) and LGU are complementing with PAO in patrolling and apprehension of destructive fishers.</p> <p>3. The barangay bantay-dagat (community-based fish wardens of marine sanctuary) members are helping the PAO rangers in patrolling and apprehension at the village level.</p> <p>3. PAO assists the community in the apprehension and litigation of commercial and large-scale illegal fishers.</p> <p>4. NGOs provide financial and technical assistance in the establishment of community-manage marine sanctuary.</p> <p>5. LGUs help in institutionalizing the marine sanctuary through local policy implementation.</p> <p>6. The LGUs, TKDC, PCSDS and NGOs are developing a mechanism for the localization of protected area management.</p> <p>7. NGOs are helping the PAO and the community organisation in the information and education campaign, community organizing, and development of alternative livelihoods in support of the over all effort for the conservation of fishery resources.</p> <p>8. LGUs and PCSDS are helping in policy development for the effective management of MPA.</p> <p>9. PCSDS is providing technical assistance to the community organisations in fishery resource assessment needed for the development of technical plan & design of marine sanctuary as required by law.</p> <p>10. TKDC is providing technical assistance to PAO in studies (e.g. algal bloom) concerning marine resource management.</p> <p>11. PAO, TKDC, the community organisations, LGUs, NGOs, and PCSDS are members of the Protected Area Management Board (PAMB) that meet regularly to discuss cooperation and complementation activities for the management of marine protected area.</p>

Note: KKP is sub-contracting the law enforcement component of El Nido Foundation's Community-Based Coastal Resource Management Program. El Nido Foundation is the social development arm of Ten Knots Development Corporation (private organisation) in El Nido

Table 4.3

Summary of Constraints Faced by the Major Organisational Arrangements, the Resolutions Undertaken and Proposed Alternatives

Organisational Arrangements	Constraints	Proposed Alternatives / Resolutions Undertaken
State-managed marine protected area	"The bureaucratic system of State protection hinders our effective implementation of fish conservation program. It is impossible for the Protected Area Office to do the marine resource protection and management of protected area even with the backing of the law. Although we are administratively supported by the national government, the lack of financial resources is a big constraint so that we cannot perform as expected" (Protected Area Superintendent).	"Collaborative management is the best approach to manage the protected area that is, involving all stakeholders in the whole process and activities of marine resource protection. Without the complementation from other organisations and agencies, for example the municipal government and TKDC are providing considerable financial assistance to the PAO; we will not exist in El Nido because the national government is not providing financial support to us. Another alternative is the localization of Protected Area management so will not be dependent on DENR" (Protected Area Superintendent).
Community-based marine sanctuary	"We cannot apprehend the big commercial fishers because we have limited police authority, facilities, and equipment like the PAO and municipal government has. We are also limited in capability to mobilize funds for our expansion" (Leader of the Tarabangan y ang Mairentek na Manigpangisda sa Dipnay).	"We need the support of municipal government for detailed police personnel to help us in our patrolling and apprehension. An intensified campaign to draw support from all the fishers in the barangay and adjacent communities for patrolling and apprehension of illegal and destructive fishers is also necessary" (Officer of the <i>Tarabangan y ang Mairentek na Manigpangisda sa Dipnay</i>)
Private marine habitat protection (Ten Knots Development Corporation—TKDC)	"Our biggest drawbacks are our limitations to enforce the law and make the fishers get involved in our protection activities" (TKDC Environment Unit Manager).	"Addressing these limitations is, unfortunately, beyond our sphere of influence. An enabling law should come from legislators, to institutionalize private sector authority over Marine Protected Areas. This is similar to deputation, but much organisational in scale. Once a law is in place, it is up to TKDC to formulate ways to engage fishermen in "buying in" to the concept of restraint and sustainability" (TKDC Environment Unit Manager).

Source: Interview of the Protected Area Superintendent for the State-managed marine protected area; Officer of the Tarabangan y ang Mairentek na Manigpangisda sa Dipnay for the Community-based marine sanctuary; and TKDC Environment Unit Manager for the Private Marine Habitat Protection

Table 4.3.1
Influence of Institutions in Cooperation and Complementation

Organisational Arrangements	Governing Institutions	What do the governing institutions indicate and how they influence cooperation and complementation
1. State managed Marine Protected Area (Protected Area Office)	NIPAS Act State Property Rights (constitutional)	NIPAS Act recognizes the importance of an integrated protected areas system as an effective and efficient mechanism for the conservation of the country's biodiversity. Sections 10-11 of the Act mandate the implementing State agency (PAO) to involve all stakeholders in the PAMB. The sections' provisions also call for participation from other organisations with similar interest.
2. Community-Managed Marine Area Organisation (CMMA) / Community-Based Marine Sanctuary Organisation	Shared norm of fishers to protect their source of food and livelihood Local Government Code Revised Fisheries Code	"We support the plans and programs of the barangay and municipal government on protecting our fishery resources because we believe that the prescriptions of our government officials can do good to us" (<i>An Officer TMMMD</i>). By virtue of the local government code (Sections 389, 444, 455, 458, 465), local government officials have the political power to mobilize their constituents to support the plan of the municipal government—Comprehensive Land and Water Use Plan and program of the national government—Protected Area Program. People's Organisations (POs), such as the community-based organisations, and NGOs should be seen as active partners in the pursuit of local autonomy (Section 34 of the Local Government Code). It is indicated in section 14 of the Revised Fisheries Code that coordination with the different organisations and agencies concerned is necessary to ensure the effective management of the fishery and aquatic resources on a sustainable basis.
3. Private Marine Habitat Protection (El Nido Resorts / TKDC)	Private Property Rights (Foreshore Lease Agreement & Forest Land Agreement for Tourism Purpose) Corporate Social Responsibility and Organisational Strategy	The allocation of private property rights is bounded by responsibilities to support the government in the natural resource management. For example in section 1 of Foreshore Lease Agreement (FLA) and section 2 of Fisheries Code, the recipient is obliged to adhere to the State policy and therefore will institutionalize a cohesive partnership with the government. The mission Statement of TKDC is guided by the principles of Excellence: Exceed expectations through excellence of service and experience, turning all those we deal with into loyal clients and supporters; Local Community Partnership: Commitment to developing partnerships with and supporting the local community; Nature Protection: Commitment to protect the environment and promote environmental awareness among our clients and partners; Individual Development: Ensure that each member of the Ten Knots Family is able to contribute to the success of the business by nurturing individual development; Development of Organisation: Develop a great work environment where people are treated with dignity and respect; Operational Efficiency and Profitability: Recognize that operational efficiency and profitability are essential to sustainability

Source: Interview of Protected Area Superintendent, TKDC Environment Unit Manager, and Leader of the Tarabangan y ang Mairentek na Manigpangisda sa Dipnay; Review of Related Laws Governing the State-Managed Marine Protected Area, the Community-Based Marine Sanctuary, the Privately-Managed Marine Habitat Protection

4.4 Effects Of Cooperation And Complementation On Fishery Resource Conservation

With the co-management arrangement it cannot be completely concluded that the effect of an organisational arrangement on fishery resource conservation is exclusively attributed to its organisation alone. However the combined strengths of the collaborating organisations, for example the co-management of the State and private sector protection (refer to Table 3.3), suggests that this organisational arrangement can be relatively more effective than the State organisation solely doing protection in an area. Its complementation in a way addresses the resource constraints of the State which is very important in the intensification of protection activities. However the co-management of the organisations of the State and private sector alone does not guarantee participation of the local people because their approaches are both inappropriate in getting the fishers involve in the protection activities. Their management arrangement can conserve the fishery resources; however it leaves a space of uncertainty in the sustainability of protection at the community level as there are stakeholders like the fishers who do not undertake the same efforts if they are not involve in the management process.

The co-management arrangement of the State and the community in fish conservation has the combined strengths that address issues related to law enforcement and local people's participation. The State can to some extent enforce fishery laws but it cannot force the local people to do fish conservation activities without having them participate in the decision making. Although the local officials in the barangay and at the municipal level are part of the State which have political power to mobilize their constituents, but their use of law to engage the fishers in the protection is not enough to guarantee fishers' participation. The complementation of the community-based protection to the State protection in mobilising the fishers in the community for fish conservation at the barangay level addresses the issue of fishers' participation. However their organisational arrangement does not solve the resource constraint issue (refer to Table 3.3) which hinders the scaling-up of fish conservation activities because both the organisations of the State and the community are inherently limited in resources.

The effects of cooperation and complementation provide basis for the participating organisations to institutionalise the co-management arrangement as reflected in the proposed solutions (in chapter 3 and in Table 4.3) to the limitations of the stand-alone organisational arrangements of the State protection, the private sector protection, and the community-based marine sanctuary. The co-management is seen as an arrangement that leads to the effective management of the marine commons (see Boxes 1.4 and 2.4 below).

Box 1.4

Effects of cooperation and complementation on fishery resource conservation
(Opinions from the officers of the main organisational arrangements)

"I can say that because of the cooperation and complementation for example of PAO, TKDC, NGOs, and LGUs in the management of marine protected area, the fishery resources are able to regenerate to some extent and there is reduction in the number of illegal fishers within the protected zones" (TKDC Environment Manager).

"Apprehension of illegal fishers is easier and faster because there is division of responsibilities; projects such as the eco-reef installation, that directly contribute to the regeneration of fishery resources are undertaken, which cannot be done by one organisation alone because of the big funding required; and also we can say that there is continuity in the protection of marine resources if all the stakeholders are helping each other" (Barangay captains who have proposed to establish marine sanctuaries in their communities).

"Though there is no possibility of reversing the decline in fish stock but the collaboration of the different stakeholders makes the law enforcement activities intensified which deters illegal fishers to fish within the marine protected area. The collaboration between PAO and the local government units was also responsible for the increase in awareness of the people on environmental conservation because it is not only the Protected Area Office (PAO) that disseminates the information. For example, some fishers and local residents as influenced by the local government officials were able to contribute to PAO by reporting the illegal activities in their barangay. With this, we can immediately respond to apprehend the illegal fishers" (Protected Area Superintendent).

Box 2.4

Effects of cooperation and complementation on fishery resource conservation (Opinions from the officers of support organisations)

"Because of the cooperation and support of the local government units in fishery resource conservation there is a considerable increase in awareness, among fishery resource users, on the importance of marine protected areas and sanctuaries that is why there are many barangays proposing for the establishment of marine sanctuaries" (Municipal Councillor, Chairman Environment Committee of the Legislative Department).

"With the cooperation of Protected Area Office (PAO), the municipal government, the NGOs, and Palawan Council for Sustainable Development Staff (PCSDS), the plan and design for the localization of the management of protected area (PA) was drafted for submission to the Legislative Department (Congress & Senate) of the Philippines and for deliberation to become a law. The localization of PA management is a mechanism that can surely sustain the operation of PAO without the national government. With our present revenues & collection we are confident that the localized management can provide better services as compared to the system being ran by the Department of Environment and Natural Resources (DENR)" (Municipal Mayor of El Nido).

"The complementation and cooperation between and among the different organisations involved in fish conservation and management of marine protected area in El Nido has resulted to the harmonization of different organisational plans and programs consistent with the Strategic Environmental Plan (SEP) framework for Palawan and the Comprehensive Land and Water Use Plan (CLWUP) for El Nido. The different organisations are guided with the SEP and CLWUP framework to where and what areas in the management of the protected area they can contribute in particular and the entire development of El Nido in general. A good example of cooperation is that the conflict between the DENR (mandated by NIPAS Act to administer the protected areas in the Philippines) and PCSDS (mandated by SEP to protect the natural resources of Palawan for sustainable development) was resolved through a MOA" (PCSDS Project Development Officer III).

"Because of collaboration between and among the different organisations in El Nido we are able to mobilize the fishers to participate in fish conservation, like for example in resource assessment and monitoring, which is very important in determining whether the interventions of the different organisations have an effect on fishery resource regeneration. There is a speedy apprehension of illegal fishers when PAO, Local Government Units (LGUs), Ten Knots Development Corporation (TKDC), the community, and NGOs work together. Apprehension and penalization of illegal and destructive fishers deters them to fish within the protected zones" (KKP Project Manager).

"One remarkable result of complementation and collaboration among the different organisations involved in fish conservation was the organisation of three composite teams to do extensive patrolling within and outside the marine protected area. The regular patrolling is very important, which cannot be done alone by the PAO. The apprehension of illegal and destructive fishing is easier and faster if all stakeholders cooperate. For example the municipal government has the police force and also the environmental desk to help the PAO in the apprehension and litigation of cases related to the violations of environmental laws which expedite the process of law enforcement. Another successful result of collaboration was the installation of eco-reef in Tres Marias for the purpose of regenerating the degraded fishery resources in that critical but important marine area" (Municipal Mayor of El Nido).

4.5 Summary And Conclusion

In the same area where there are different organisational arrangements operating for the management of CPR, it was found out that if one organisation is limited, it takes another complementing organisation to address the complex problem of fishery resource degradation. However the only positive interaction is between the State and the private sector and between the community and the State. This indicates that the effectiveness of one organisational arrangement is attributed to the complementation of the other. On the other hand, there exist no direct cooperation between the private sector and the community in fish conservation.

Cooperation and complementation is not a direct response if each organisational arrangement is limited to effectively manage the CPR. Each organisational arrangement plays a role and follows a rule. The collaboration between organisations primarily depends both on their governing institutions and the built-in incentives. The co-management arrangement between the State and the private sector as well as the State and the community exists because of the favourable institutional arrangement that binds them to cooperate and complement. The State policies legitimize their cohesion and the incentives and constraints provided are strong and favourable enough so that they enable the participating organisations to work together.

In the case of the private sector organisation and the community organisation, the conflict arises because there is no incentive or constraint that binds them to work together. Their governing institutions have no built-in incentives that encourage the private sector to involve the community in fish protection or the community organisation to support the private sector protection. It is not necessarily the institutions, but the incentives provided, that induce the cooperation and complementation between organisations. As long as the participating organisations benefit from the arrangements, the stronger is the cooperation and complementation. The more appropriate and favourable are the incentives provided in the institutional arrangement, the stronger is the cooperation and complementation, the greater the effects, and the more effective is the CPR management.

5 CONCLUSIONS

An Arrangement That Leads To An Effective Management Of The Marine Commons?

Upon examining the organisations of the State, the private sector, and the community in fishery resource conservation, it was found out that each organisational arrangement is developed by formal and informal institutions. The State protection is developed from the enactment of a State policy in which its resource management approach is based on law and technical solutions; the private sector protection, driven by its organisational strategy, operates in accordance with its private property rights, allocated by the government, that provide incentives for the private owner to invest in the sustainability of its private property; and the community-based organisation protects the communal fishery resources, integrating the local people and practices, in order to sustain its source of food and livelihood. The community-based approach is also supported by government's policies.

The relatively effective organisational arrangements are the private protection and community-based protection because they were able to regenerate the fishery resources, conserve the marine habitat, and to some extent successfully deter the encroachment of destructive fishers within the protected zones. However the private protection is ineffective in involving the fishing communities in fish conservation because it is less concern with the social system. This poses a threat to the sustainability of protection if the private owner stops its business in the area. The community-based protection though able to involve fishers in fish conservation, is limited in scaling up its protection that would mobilize other fishing community to undertake the same efforts. It is because its indigenous and local practices are not sufficient to address the technical complexities of fish conservation. The less effective protection is the operation of the State organisation. Its relative ineffectiveness in fish conservation is due to resource constraints, caused by its inappropriate structural and institutional system and operational approach.

With the limitations of the major organisational arrangements in effectively managing the common pool resources within the marine protected area, they tend to cooperate and complement. This develops the co-management arrangement between the State and the private sector and between the community and the State. This indicates that the effectiveness of one organisation is attributed to the complementation of the other.

It is primarily the governing institutions and the incentives provided, that induce cooperation and complementation between organizations. There is no cooperation between the private sector and the community because their governing institutions do not provide strong and favourable incentives that draw positive interaction. A favourable institutional arrangement is necessary for the two organisational arrangements to collaborate. It is an arrangement where the participating organisations mutually benefit from each other as a consequence of the incentives provided in an institutional arrangement. The greater the incentive, the stronger is the institutional arrangement, and the more effective is the CPR management. This is seen as the appropriate arrangement that leads to an effective enough management of the commons within marine protected area.

Concluding Reflection

As a reflection, an enabling policy support, from the national level down to the local government level, to realize a more effective arrangement in managing the commons is by (i) building and capitalizing on the strengths of the different organisational arrangements to satisfy site-specific requirements and to address organisational limitations and externalities, (ii) restructuring inappropriate bureaucracies to promote efficiency, (iii) strengthening the incentives in an institutional arrangement to encourage cooperation between the private sector and community. One way to do so is to integrate the fishers in the eco-tourism activities of the private sector so that they will also protect the fisheries because of the economic benefits that they will derived from eco-tourism as a direct effect of fish conservation.

To become more expansive, in recognition that the sea has borderless resources and mindful of the implications of resource management in areas where fishery resources are unmanaged, this study posits that resource management policies and programs shall provide incentives that encourage integrated and adaptive management of the commons. This is an approach that simultaneously integrates and coordinates the interventions of all actors and stakeholders encompassing the unmanaged and managed CPR, and adapting the appropriate alternatives in the whole management process.

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7 APPENDICES

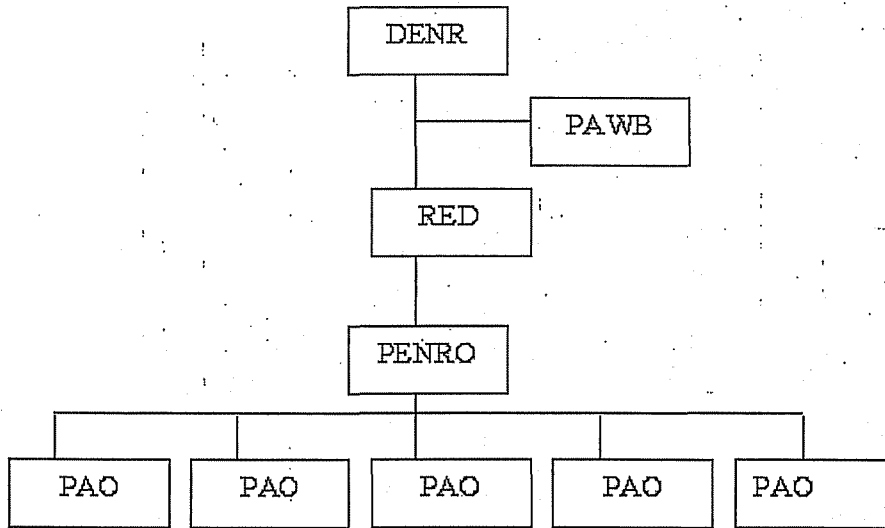
Appendix A. Table 1.2

Support organisations in fish conservation and management of marine protected areas in El Nido

Organisations	Programs and Activities	Type of Organisation
1. Municipal Government of El Nido & Barangay Government	<ul style="list-style-type: none"> Comprehensive Land and Water Use Plan for El Nido 	Local Government / Support to the State agency or organisation
2. Municipal and Barangay Fisheries and Aquatic Resources Management Council	<ul style="list-style-type: none"> Implementation of Revised Fisheries Code 	Support to the State agency or organisation
3. Kabang Kalikasan ng Pilipinas (KKP)	<ul style="list-style-type: none"> El Nido Marine Protection Project sub-contracted under the CBCRM program of El Nido Foundation Provides logistic and technical support in setting up enforcement structures within the El Nido-Taytay Managed Resource Protected Area. Law enforcement activities in support of the Protected Area Office activities. 	NGO
4. El Nido Foundation, Inc.	<ul style="list-style-type: none"> Community-based Coastal Resource Management Program (CBCRM) Development of Alternative Livelihoods to reduce pressure on fishery resources. Coastal Resources Education Biodiversity Monitoring and Assessment Community Organizing in support of coastal resource management Provide technical assistance to the local government units in the implementation of CLWUP. Eco-reef installation 	NGO / Social development arm of Private Organisation
5. SCOTIA-Sustainable Coastal Tourism in Asia	<ul style="list-style-type: none"> Development of community-based marine sanctuary 	NGO
6. Palawan Council For Sustainable Development Staff	<ul style="list-style-type: none"> Provide technical assistance to different organisations in El Nido so that their program and activities are aligned with the Strategic Environmental Plan for Palawan (SEP) framework. Do regulatory functions in support of SEP implementation 	Stage agency / Support to the State Organisation

Source: Interview of the officers of the support organisations fish conservation and management of marine protected areas in El Nido

Appendix B. Figure 3.6
Administrative Structure of the State-Managed Marine Protected Area



Appendix C. Table 4.3.2

Influence of Institutions in Cooperation and Complementation (support organisations)

Support Organisations	Governing Institutions	What do the governing institutions indicate and how they influence cooperation and complementation?
1. Municipal Government of El Nido & Barangay Government	Local Government Code (LGC) Revised Fisheries Code (RFC) Comprehensive Land and Water Use Plan (CLWUP)	Section 34 of the Local Government Code indicates that local government units (municipal and barangay government) shall promote the establishment and operation of people's organisations (PO) and non-governmental organisations (NGOs) to become active partners in the pursuit of local autonomy. Local government units may provide assistance, financial or otherwise, to such POs and NGOs for economic, socially-oriented, environmental, or cultural projects (Section 36 of the LGC). Every national agency should consult with the local government units, NGOs, and other sectors concerned concerning project or program that may impact upon the people and the community in terms of environmental or ecological balance (Sec. 26 of LGC). Section 16, Article I of RFC indicates that the LGU has the jurisdiction over the municipal waters. Section 22, Article I of RFC indicates that the municipal government shall grant fishery rights to people's organisations for the management of communal property. The development and implementation of CLWUP needs an alignment with the zoning framework of PCSDS and PAO to have an integrated and unified plan for the development of El Nido.
2. KKP - El Nido Marine Protection Project	Strategy of the organisation	"Our initiatives are therefore grounded in partnerships and collaboration with government, corporations, local government units, people's organisations and cooperatives, international agencies, research and academic institutions and other special interest groups."
3. El Nido Foundation, Inc. - CBCRM Program	Thrusts of the organisation	"A social development organisation that seeks to improve the quality of life in El Nido while at the same time preserving the area's natural integrity through community-based efforts and partnerships in conservation and sustainable utilization of the community's natural resources."
4. SCOTIA-Sustainable Coastal Tourism in Asia	Thrusts of the organisation	"Through an alliance of conservation advocates and local and international tourism operators, the Sustainable Coastal Tourism in Asia – Philippines (SCOTIA-Philippines) Project will work with key partners and stakeholders to implement measures to reduce the impact and enhance the benefits from tourism to sensitive coastal ecosystems."
6. PCSDS	SEP law	Section 2 of SEP law mandates the PCSDS to promote and encourage the participation of all sectors in the society in natural resource management.