

**INSTITUTIONAL ARRANGEMENT FOR FISHERIES
CO-MANAGEMENT: LESSONS FROM NEW ZEALAND AND
PHILIPPINES EXPERIENCES FOR INDONESIA**

THESIS

A thesis submitted in partial fulfillment of the requirements for
the Master Degree from the Institut Teknologi Bandung and
the Master Degree from the University of Groningen

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DOUBLE MASTER DEGREE PROGRAMME



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INSTITUT TEKNOLOGI BANDUNG**



AND

**ENVIRONMENTAL AND INFRASTRUCTURE PLANNING
FACULTY OF SPATIAL SCIENCE
UNIVERSITY OF GRONINGEN
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**Environmental and Infrastructure Planning
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ABSTRACT

Marine and fisheries management is deemed as multitasking works that deal with the complex problem. Recently, the development of fisheries planning approach has changed from top-down style toward collaborative planning or co-management where it is expected as effective way to address the complex problem in fisheries management. One main aspect of fisheries co-management is institutional arrangement. It implies the partnership form among the fishery stakeholders, how each stakeholder have to share their power and its responsibility to manage the fishery resources. This research is aimed to explore and compare the institutional arrangement of fisheries co-management from Philippines and New Zealand experiences. And then, the result is expected to gain better insight by getting lessons learned for the improvement of fisheries co-management in Indonesia. New Zealand and Philippines fisheries co-management are regarded has own characteristic in bringing the arrangement that could provide adaptable approach for institutional arrangement development of fisheries co-management practices in Indonesia. The research uses Ostrom's design principles by examining the criteria and indicators of institutional arrangement performance to present the strengths and weaknesses as lesson learned. The results showed some lessons learned that might be base considerations to enhance the current fisheries management in Indonesia. Through those experiences, there are some good aspects that could be relevant or adaptable to transfer for Indonesian context such as the establishment of local government units (LGUs) to share their responsibilities over certain water as Indonesia has lack coordination among municipal waters and the initiative of management quota system in particular for limited certain deep water fishery in enhancing the current fisheries plan. However, those selected case studies still needs some improvement since they meet many difficulties to deal with such as fishery's community participation and graduated sanction in its implementation.

Key words: *institutional arrangement, fisheries co-management, policy transfer, lesson learned*

GUIDELINE FOR USING THESIS

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Marine resource and fisheries play important roles in supporting daily life of coastal community in Indonesia. Recently, the resource has declined in line with the increasing of daily activity pressure that sometimes exceeds its carrying capacity. Development of fisheries management seems to be ineffective to address the complex problems toward sustainable fisheries development. In the autonomy era, Indonesia has been implementing the community-based fisheries management that expected to be fit for the model of coastal development in the future. One of main aspects in this model of development is institutional arrangement or partnership form among the fishery stakeholders. This partnership form will influence to fisheries management either the content of plan or its implementation. In this regard, the research is aimed to explore the experience of institutional arrangement of fisheries co-management from other countries (New Zealand and Philippines). It is expected to gain better insight by getting lessons learned from those selected countries for the improving of fisheries management in Indonesia.

This thesis master entitled “Institutional Arrangement for Fisheries Co-Management: Lessons from New Zealand and Philippines Experiences for Indonesia” is submitted in partial fulfillment of the requirements for Double Master Degree of Environmental and Infrastructure Planning (Faculty of Spatial Science, RuG) and Regional and City Planning (School of Architecture, Planning and Policy Development, ITB).

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LIST OF ABBREVIATION

| | |
|-----------|--|
| ADB | : Asian Development Bank |
| ASEAN | : Association of South East Asian Nation |
| CBCRM | : Community Based Coastal Resource Management |
| COREMAP | : Coral Reef Rehabilitation and Management Program |
| CRM | : Coastal Resources Management |
| CSOs | : Commercial Stakeholder Organizations |
| EEZ | : Exclusive Economic Zone |
| EFPP | : Expanded Fish Production Program |
| FARMCs | : Fisheries and Aquatic Resource Management Councils |
| FSP | : Fisheries Sector Program |
| ITQs | : Individual Transferable Quotas |
| IUP | : Izin Usaha Perikanan (Fisheries Enterprise Certificate) |
| LGC | : Local Government Code |
| LGUs | : Local Government Units |
| NGOs | : Non-Government Organizations |
| PD | : Presidential Decree |
| PNPM M-KP | : Program Nasional Pemberdayaan Masyarakat Mandiri Kelautan dan Perikanan (National Program of Community Empowerment in Marine and Fisheries Sector) |
| PLBPM | : Pengelolaan Lingkungan Pesisir Berbasis Pemberdayaan Masyarakat (Community-Based Management on Coastal Environmental Program) |
| PP | : Peraturan Pemerintah (Government Regulation) |
| QMAs | : Quota Management Areas |
| QMS | : Quota Management System |
| SeaFIC | : Seafood Council (SeaFIC) |
| SICRMC | : Southern Iloilo Coastal Resource Management Council |
| SIKPI | : Surat Ijin Kapal Pengangkut Ikan (The license for fish transport vessel) |
| SPI | : Surat Penangkapan Ikan (the license for catching fish) |
| TAC | : Total Allowable Catch |
| TACCs | : Total Allowable Commercial Catches |
| UNCLOS | : United Nations Convention on the Law of the Sea |
| USAID | : United States Agency for International Development |
| UU | : Undang-Undang (Act or Law) |

CHAPTER 1. INTRODUCTION

1.1 Background

Coastal region as transitional area between terrestrial and marine ecosystem has potential diversity of natural resources which can provide benefits for the coastal community's life (Dahuri et al, 2001). In Indonesia, many coastal regions tend to experience development pressures which sometimes exceed the carrying capacity. Utilization of space that are not controlled, not only can lead to conflict but also have potential impacts of environmental degradation in the coastal ecosystems such as the destruction of mangrove forests, coral reefs, fishery habitats, over fishing, coastal erosion and pollution.

On the other side, general overview of coastal communities especially fishing communities in Indonesia live in low economic level and less touched by the concern of development. Environmental conditions of slum and not well ordered and not supported by adequate infrastructure seems to be trademark for the coastal area in Indonesia. A bad picture about sanitation systems (drainage, waste, water supply, etc.), roads condition, and limited environmental infrastructure and infrastructure supports for local economic activity, increasingly creates impression how the coastal areas are still left behind than others. These pictures cause environmental problems and social problems as well.

All the problems above need a coastal management that should be implemented in integrated and sustainable ways. Since the presence of regional autonomy in 1999, Indonesia has undergone a profound change in its legal system. Management of coastal and other natural resources has been switched from central to local government (Law no. 22/1999 (shifted by Act no 32/2004) and no 25/1999). There is a huge of authority for local government to regulate the coastal development in their regions. In addition, the development process that conducted by local government is expected in line with the need of coastal community. This policy system should be conducted by the transparency, sustainability and accountability principles from local government as one of the main goals of decentralization souls (Indonesia's Ministry of Environment, 2003; Siry 2006).

But in reality, the implementation of coastal development that conducted by the stakeholders both government and non-government organization (private or community) often work overlap with each other. Lack of coordination among the stakeholders and disintegrated policies in managing coastal area cause the problem become more complex such as in economics, inequality, and poverty (Wiranto, 2004). Commonly, the coastal management programs in Indonesia are still oriented on two main approaches that each of them has the weaknesses: state-based and community based. Through some experiences showed that stated-based approach is tend to ineffective and create situation where the local community does not actively to contribute in the planning programs (Budiarti, 2000). This weaknesses are close related to the fact that top-down mainframe cannot encourage the local initiatives and participation. Further, this approach is more focus on the formal academic ways or technical way in response of environmental problems; it is not to emphasize on community capacity and stakeholder involvement in coastal management (Sudharto, 2001).

Meanwhile, community-based also has the weaknesses in some parts. It is because the approach tends to decrease significantly the role of government. But through some experiences, it shows that the approach is not always flourishing in the coastal management for long term and large scales (Lee, 1994 in Wijanarko 2006). Furthermore, the approach is not always effective because many local communities still need supporting from government and other stakeholder to bring them more independent and sustainable in managing their life.

To overcome all problems and its issues rise in coastal resources management, it needs a collaborative model that synergize some component from local users (fisherman and privates) and government or it called Co-Management that avoid the dominant role from one actor in managing the resources in order to other actors can give their responsibility in that management (Rudyanto, 2004). Through this model, the coastal management carried out by bringing together relevant institutions, especially community and government and other stakeholders in any resource management process, from planning, implementation, utilization and supervision. Share responsibility and authority

between the stakeholders can do in various patterns, depending on the capabilities and readiness of human resources and institutions in each region.

Recently, co-management in term of natural resources utilization is the sharing of power and responsibility between the government and local resource user's to regulate internal use patterns and transform by making improvement (Ostrom and Schlager, 1996; Berkes et al., 1991). Further, Carlsson explain that co-management of common-pool resources can be performed by single actors or jointly by groups of individuals or as a results of cooperation among different groups (Carlsson and and Berkes 2005).

Meanwhile, The World Bank is more broadly defined co-management as 'the sharing of responsibilities, rights and duties between the primary stakeholders, in particular, local communities and the nation state; a decentralized approach to decision-making that involves the local users in the decision-making process as equals with the nation-state' (The World Bank, 1999;11). So in general, co-management has some common underpinnings such a kind of shared responsibility in natural resources management, partnership between the governments, public and private actors, and co-management is a flexible process both structure and its function that takes a long process (Carlsson and Berkes, 2005).

To solve and respond the challenges of coastal resources management, co-management approach emphasize the important of institutional arrangement and organization. It involves collective action in coastal resources management to achieve a diversity of social, political, economic and ecological goals (Noble, 2000). Further, Noble argued that it is essential to the development of improved coastal resources management strategies, and in particular development of cooperative management through institutional arrangements. So, institutional arrangement can provide as a way of decentralizing resource management decisions and improving participatory democracy and compliance.

In this research, it will focus on the important of institutional arrangement in coastal resources co-management in particular fisheries sector. This is important due to that marine and fishery resources are being view as common property right especially in developing countries such as Indonesia. The bad

consequences of common property management led to environmental destruction as previous explanation above. Cooperative management in coastal resources plays significant roles towards sustainable coastal development in future. The formulation of partnership form should consider a uniqueness of local-social condition, because no one model can be properly implemented for all case in institutional arrangement of fisheries management (Satria and Matsuda, 2004).

Through some experiences of co-management programs from other countries could be as one of solutions not only as a comparison of knowledge but also as improving the policies of coastal management in particular fisheries development programs in Indonesia. In this research, I would like try to use the experience of coastal co-management programs in Philippines and New Zealand as a lesson learned for Indonesia. In Philippines case, the implementation of fisheries co-management involves good coordination among municipal waters to address their commons concerns (illegal fishing activities and habitat degradation) (Espectato et al, 2012). It becomes interesting how the partnership is built and its maintenance. Also, due to the condition which is very similar with Indonesian case such as coastal social condition and there is no clear boundary of water in term of fisheries utilization. Meanwhile, fisheries co-management in New Zealand is used as case study because there is a new term of co-management that totally different both common literature concepts and its implementation. So, there is a new knowledge of co-management that could be adapted and transferred to fisheries management in Indonesia.

1.2 Research Objectives

Marine and fisheries in Indonesia, like other developing countries, face many problems that need to be solved in particular the improving of condition. The research tries to elaborate the experience of fisheries co-management from other countries and to find out the lessons learned for fisheries co-management in Indonesia. So, this research will focus on several objectives, as follows:

1. To explore and compare the extent of current institutional arrangement in fisheries co-management from New Zealand and Philippines experiences with Indonesia.

2. To gain better insight of fisheries co-management for Indonesian case by getting learned experiences from those selected countries.
3. To propose the framework for measuring the institutional arrangement for fisheries co-management from the comparative studies.

1.3 Research Questions

To fulfill the research objectives, this research will explore sort of questions that could be as considerations to the topic. They are as follow:

1. What lesson could be described from the experience of New Zealand and Philippines in institutional arrangement of fisheries co-management?
2. To what extent the current implementation of fisheries development program in Indonesia?
3. What are the potential resources that could be maximized to improve fisheries co-management in Indonesia?
4. What is the possible and adaptable approach of fisheries co-management through some experiences from Philippines and New Zealand cases for Indonesia?
5. What is general institutional arrangement for fisheries co-management mentioned might be evaluated the criteria and indicator from New Zealand and Philippines case studies?

1.4 Research Methodology

The basic idea of this research is to seek lessons learned from other countries to enhance the implementation of coastal resources management program, in particular the fisheries co-management arrangement in Indonesia. Subsequently, the research will be conducted by using these methods as follows:

a. Literature review

Literature review is needed to construct theoretical framework about the concept of coastal resource management (CRM), concept of fisheries co-management, the assessment of institutional arrangement of fisheries co-management, stakeholder participation, and lesson learned. It will be conducted

through collecting literatures from some sources such as journals, research reports, government reports, relevant publications and books.

b. Explorative and Comparative Analysis

In this section, data and information about implementation of fisheries co-management will be collected in those case studies in selected countries including regulation, type of governance, organization and its stakeholder participation. Subsequently, this research will try to explore and compare the current implementation of institutional arrangement of fisheries co-management in those case selected countries. In analyzing the performance of institutional arrangement in fisheries co-management, will be used some criteria and indicators based on the institutional analysis and development (IAD) Framework with some modification (Pomeroy et., 2001; Espectato at al., 2012; Ostrom, 1990).

The IAD framework is expected could address or provide guidance for analyzing to what extent there are sufficient incentives and social capital to support the difficult and ongoing work of maintaining and institution capable of managing a common pool resource. It also could answer a classic work on common pool resource management; under what circumstances might the communities relying on natural resources develop arrangements to sustainably manage those resources. It is important to recognize this scenario as a special case rather than as a general result through a comparative study. This is become a useful tool in describing between theory and practices of co-management in particular fisheries management.

For further explanation of the method will be described in theoretical framework. The data and information comparison is obtained from the availability of secondary data and qualitative review. The expected final result is the list of recommendations of possible and adaptable policy transfer that could be suitable with the characteristic and condition in Indonesia.

1.5 Research Scope

The research will be focused on the institutional arrangement of fisheries co-management that has been conducted in selected countries. This research will explore and compare the current implementation of partnership form in fisheries

management from those countries. Then, it tries to give recommendations from the possibility and adaptability of fisheries co-management arrangement in both New Zealand and Philippines case studies into Indonesian context in term of improving better adaptive institutional arrangement of fisheries management in Indonesia.

1.6 Research Structure

This study will consist of six chapters. The content of this research can be described, as follow:

Chapter 1: Introduction

This chapter consists of background, research objectives, research problems, research methodology, research scope, research structure and research framework

Chapter 2: Theoretical Framework

This chapter defines briefly about theoretical framework that covers coastal resources management, co-management definitions and concepts, stakeholder involvement, assessment of the successful of co-management, lesson learned and analytical framework of research.

Chapter 3: Implementation Fisheries Co-Management Arrangement in New Zealand and Philippines

This chapter provides the description of fisheries co-management implementation in both selected countries, New Zealand and Philippines

Chapter 4: Implementation of Coastal Management Program in Indonesia

This chapter explains the general overview of coastal management program that has been conducted in Indonesia and its challenges.

Chapter 5: Comparative Analysis

This chapter consists of comparative analysis of the implementation of co-management in selected countries, and the possibility of transfer and adaptable policy from New Zealand and Philippines contexts into Indonesian context.

Chapter 6: Conclusion and Recommendation

This chapter will propose some research findings or conclusions and recommendations

1.7 Research Framework

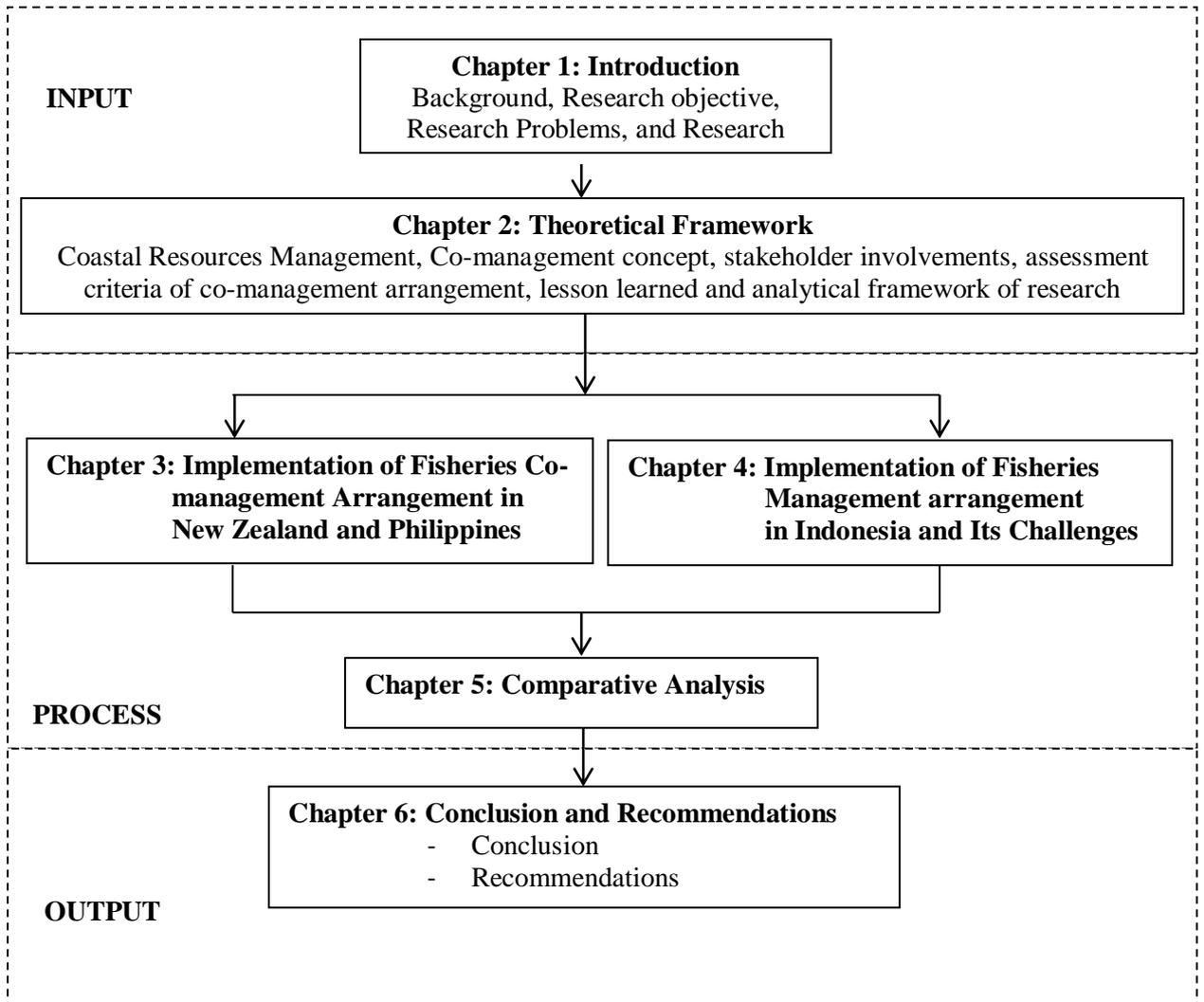


Figure 1.1 Research framework

CHAPTER 2. THEORETICAL FRAMEWORK

This chapter highlights a short brief definitions and concepts related to the main topic. There are six main parts, as follow: First, describes coastal resources management. Second, defines the brief concepts or definition of co-management. Third, try to elaborate with the stakeholder involvement concepts to co-management project. Fourth, describes what kind of assessment in the successful of co-management arrangement. Fifth, the lesson learned will be explained by using transferable and adaptable policy. These selected definitions and concept of coastal resources management and co-management are required to identify some criteria and indicators of institutional arrangement in analytical framework of research as the last part of this chapter.

2.1 Coastal Resources Management

The apparently of decline, degradation, and mismanagement of coastal resources threatens the country's source of food and livelihood, and thus poses a challenge to natural resource managers. Therefore, it needs such a way of urgent and effective intervention, and active involvement and participation of all those who have a stake in these resources, known as coastal resources management. In general, the concepts of coastal resources management have changed over the periods. There are development phases of coastal management in tropical countries. It begins with traditional, centralized, community based, and collaborative management (Christie and White, 1997).

In pre-colonial, the coastal management was taken place before colonialism era in many places. The approach has utilized the resources basically for supporting the fisher society's life. The management scale is quite simple and locally through simple structure and no or limited external influences (Wahyudin, 2004). However, the management process starting from planning, organization, implementation, controlling and law enforcement practices has already undertaken by all society's members. The law enforcement usually includes taboos and sanctions mechanism to manage the coastal resources. Furthermore, the model managed how human behavior interacts with their surrounding environment and

conservation efforts (Christie and White, 2008). These facts showed that the forms of coastal resources management have already existed long time ago. The local wisdoms indicate that local people has conservation's value to natural resources management.

Meanwhile, the centralized coastal management emerged since the colonial era begun. This coastal management used a top-down approach which government controls the whole process, planning, implementation and supervision. The approach gave no longer space of community to involve with, how to allocate the resources and to determine decision making (Gilbert and Ward, 1984 in Wijanarko, 2006). There were some critics that the approach often gave failures in some aspects such as unfit design, the weakness of institutional capacity building, low initiatives in community participation and etc. Also, it created the misuse of such powerful methods in coastal resources management and did not accommodate the traditional knowledge systems (Christie and White, 1997).

Some failures in both environmental degradation and social problem as a legacy from centralized approach stimulated the emergence of decentralized approach in the next coastal management. The critical point was lied on that the centralized policy deemed that all waters become de facto pen access or common property rights and it lead to the resources depletion (Satria and Matsuda, 2004). There was no boundary of user, when or how the fishery activities should be done. Therefore, the policy was failed in term of legal protection for fishery stakeholder in particular local fisherman and also for the natural resources itself (Solihin and Satria, 2007).

Subsequently, there was a shifting to decentralized approach which emphasized the important of community-based management in managing the fishery resources. According to Carter (1996), the concept of community-based fisheries management has several positive points: 1. support the equity of natural resources; 2. able to reflect the local specific needs; 3. able to increase local benefit for the community; 4. increase the efficiency management both economic and technical; 5. responsive and adaptive to variety of socio-condition and local environment; 6. able to foster stability and commitment; and 7. local community

is motivated to maintain the sustainability of resources. In addition, the approach tries to emphasize on integrating sociological, economic and environmental information at the community level and also try to generate recommendations for managing coastal resources with a 'bottom-up' approach (Christie and White, 1997).

But the approach has weaknesses in some parts. It is because the approach tends to decrease significantly the role of government. Through some experiences, it showed that the approach is not always worked to coastal management in long term and large scales (Lee, 1994 in Wijanarko 2006). Furthermore, the approach is not always effective because many local communities still need supporting from government and other stakeholder to bring them more independent in managing their life.

Further, the development of the community-based concept changed with some improvement. There is another adaptive approach which synergize the various responsibilities from the intervention state or top-down approach and community or stakeholder involvement. It is known as Co-management approach that avoids the dominant role that in a party in the management of coastal and marine resources. In this concept, the management is not also involved users such as local community or other stakeholders but also government as main actors (Wahyudin, 2004). It is needed to decrease overlapping of interest in term of managing coastal and marine resources. Further, it eliminates the powerful role and stimulates all parties to contribute in a fair mechanism to coastal management. The implementation of co-management, however, could be different in some places. Different characteristics and contexts in each place determine the form of co-management. It should be noticed that co-management practices could be done through in not fair mechanism with unequal position in each member but still creates effective result. Through some experiences, it is expected to define better the concept which fits with specific characteristics and its context in particular fisheries management in Indonesia.

2.2 Concept of Co-management

Co-management, in coastal management, is quite known well as the approach which focuses on the form of collaboration in sharing responsibility to manage coastal resources between government and fishery users (Yandle, 2003). Co-management can also be defined as ‘the sharing of power and responsibility between the governments and local resources users’ (Berkes et al, 1991). Further, It also means as the form of governance system which combine state control with local, decentralized decision making and accountability and which, ideally, combine the strengths and mitigate the weaknesses of each (Singleton, 1998).

Subsequently, the World Bank also has defined co-management as the sharing of responsibility that covers rights and duties between primary stakeholders especially local communities and the nation state; a decentralized approach to decision making that involves the local user in the decision making process as equals with the nation (The World Bank, 1999). In addition, it means the form of partnership and active process in which government, local communities and resource users, non-governmental agencies and other stakeholder negotiate, as appropriate to each context and responsibility for the management of a specific area or set of resources (IUCN, 1996 in Carlsson and Berkes, 2005).

Commonly, co-management can be seen as incorporating a broad spectrum of management approaches and bundling of property rights, usually ranging from bureaucratic control to community management. Yet, as a growing situation within co-management concept, it is not only determined two main management approach (state and community-based) but also market-based regulation can be a key to the development and success of co-management regimes. So, co-management is ‘not just a simple set of arrangements running along one leg of the triangle (Fig.2.1a). Rather, co-management can be thought of as a spectrum of institutional arrangements in which management responsibilities are shared between the users (who may or may not be community-based) and government’ (Fig. 2.1b) (Yandle, 2003: pp.180).

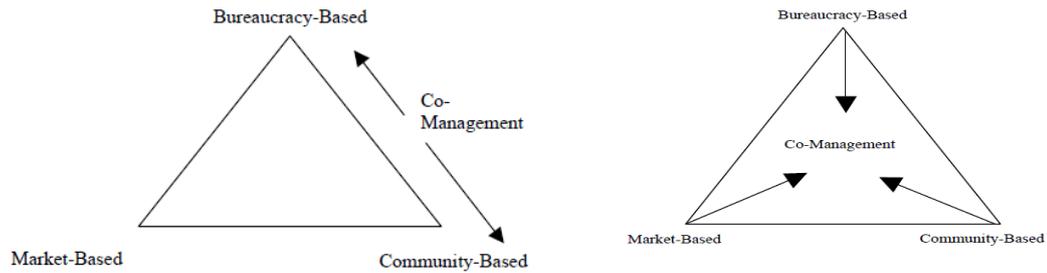


Figure 2.1 (a). co-management (stated and community); (b). integrative understanding of co-management

In the case of fisheries co-management practices, the sharing of responsibility and authority may differ in many places. It usually involves the governments, fishery industries, and fisherman communities. In the implementation, the state (represented by Minister of Marine Affairs and Fisheries) devolves certain authority and responsibility to lower government levels (local government) or to the private (fishery industry organization) or fisherman communities to manage marine and fisheries resource in the field (Yandle, 2003; Espectato et al 2012). The state supports the arrangement through formal regulation and defines the mechanism and what should be done among the arrangement members. Through the mechanism, the state also could act vary depend on the regulation. Sometimes, the government's role is only focus on monitoring and auditing the performance of determined organization that in line with the standards and specification set by the state. On the other places, government makes all decision to the arrangement (Mc Conney et al., 2003).

Meanwhile, the users such as private or fisher community have given more authorities and responsibilities to define the fisheries management starting from planning, implementation and monitoring effort. So, there is inter-relationship between the arrangement members and it implies dynamic process mechanism to what extent sharing authority and responsibility should be implemented. However, it is still largely government-driven although experiences worldwide show that various forms of partnership between government, industry and fishers strengthen management and produce result (Nielsen et al, 2004). Government still plays significant role in the management both in knowledge and its funding.

On the other sides, the concept of co-management could also be proposed by the initiatives of non-government institution such as NGOs, international donor institutions and the academics. In this case, they have own planning to define the

co-management arrangement. And also, they act actively to promote a new term in co-management concept to be implemented (Espectato et al., 2012). It is commonly seen in the developing countries where the governments still need the assistance of external organization to work with. Lack capacity both in government's human resource and fisher's society to manage marine and fisheries resource is become main reason why their participation is needed in term of improving better fisheries management.

From the definitions and concepts of co-management, there are some common underpinnings, as follow: first the concept of co-management is close related to natural resources management; second, it can be understood as kinds of partnership between public and private parties; third, it is not a fixed state but a dynamic process that takes place along a spectrum of parties.

2.2.1 Types of Co-management

In general, the concept of co-management emphasizes participatory management and focuses on the distribution of responsibility and authority between government and users (Mc Conney et al., 2003). In many cases, concepts of co-management may vary in its types (see Fig. 2.2).

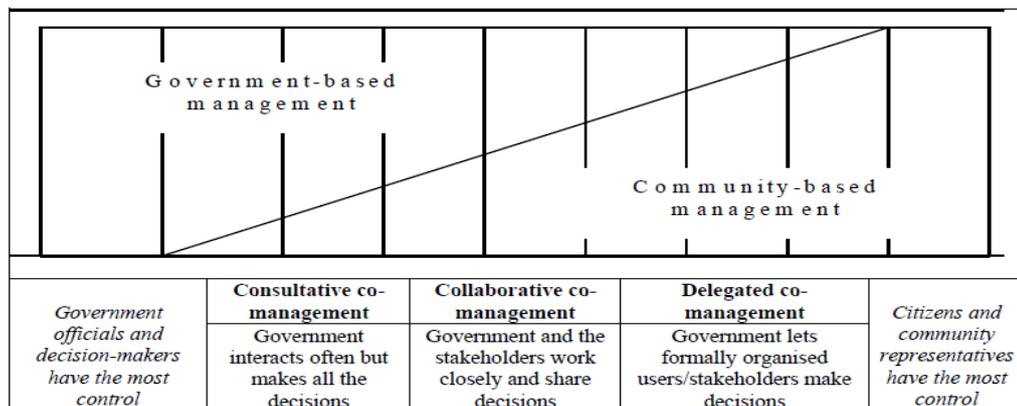


Figure 2.2 Types of co-management arrangement (Mc Conney et al., 2003:pp.9)

It is because there is no fixed formula to overcome the coastal problems in each place. Commonly, there is a spectrum, continuous gradation of framework in co-management from government-based to community based, as follow (Mc Conney et al., 2003):

- a. “Consultative co-management” is decision makers especially government try to seek supporting opinion from stakeholders to determine decision. Here, government’s role is dominant to make decision.
- b. “Collaborative co-management” implies a stronger, and more equitable, partnership. Government and the stakeholders work closely and share decisions.
- c. “Delegated co-management” is includes, but is not limited to, community-based, management where government lets formally organized users/stakeholders make decisions.

2.2.2 Phase of Co-management

Generally, according to this literature the co-management concept will need more time to work out in which all stakeholders giving such contributions in term of improving their environment. In practices, it is like the implementation of participatory approach in many programs, and needs a learning process that the result could be achieved after long periods (Pomeroy et al, 2004). According to Pomeroy, he described three main phase co-management (see Table 2.1), they are (Pomeroy, 2008):

Table 2.1 The phase of co-management in the implementation programs

| 1. Pre- implementation | 2. Implementation | 3. Post- implementation |
|--|---|--|
| Realize need for change Meet and discuss change Develop form of management | Implement co- management Educate people in the program Adjust and decide what is best | Maintain best arrangements Resolve conflicts and enforce Continue evaluating, adapting |

According to Berkes, the implementation of co-management can be distinguished into three phases. Pre-implementation can be identified by problem recognition, discussion, consensus building, seeking assistance, and project planning. Implementation phase covers a variety of activities such as community entry, research, organizing, education, plan and strategy, and plan implementation. Meanwhile, post-implementation can be viewed through evaluation, phase-out, and operation of interventions (Berkes et al, 2001).

From Table 2.1, it can be described how the interaction among the stakeholders. It implies the management arrangements in response to change and

as lesson learned. Also, it can be beneficial for coastal resources management in particular fisheries sector that have suffered significantly in particular developing countries such as Indonesia. One way to prevent this is to openly acknowledge that co-management is regarded as an experiment, and then design it for all stakeholders to monitor and evaluate it as a learning process. Transparency and participatory monitoring and evaluation are important ingredients for success (McConney et al., 2003)

2.3 Stakeholder Involvement

Stakeholder's terminology cannot always be separated with its interests and participation. Through participation, they can formulate their interest and implement common collective interest (Iqbal, 2007). Stakeholder participation here, involves the participation of both skilled personnel (technical staff) from the government or other institutions (provider) and grassroots at local level (Esonu and Kavanamur, 2011). Subsequently, Selener has classified stakeholder participation in two types, namely: First, the technical participation that affects holders of power to accommodate their needs. This type is not oriented on empowerment efforts or social changes. Second, the political participation that has ability in decision making in control of current situation and condition. This type is able to increase local participation and institutional strengthening (Selener, 1997).

Esonu and Kavanamur (2011) stated stakeholder participation that involves community and government has a very vital position in enhancing and development. Further, Krishna and Lovell (1985) stated at least there are four reasons of stakeholders participation, they are:

1. Participation is needed to increase both the planning of development program/ activities in general scale and specific priority program.
2. Participation is desired in order to in program implementation is matched with society needs.
3. Participation is needed to guarantee the sustainability of program
4. Participation can increase the equality role in implementing program

Therefore, the importance of stakeholder participation is not only a current realization of their needs but also for the long term benefits. To sum up, it simply stated that stakeholder participation is a collaborative process whereby the interests and insights of multiple stakeholders are addressed in the development, management, and implementation of plans and policy.

2.4 Assessment of Institutional Arrangement in Co-management

The assessment of co-management arrangement is needed to review whether the program or policy in dealing with common pool resources can work well or not applied well. Based on Ostrom’s design principles, there are some tools of success parameters in co-management institutional arrangement (Yandle, 2003; Espectato et al, 2012; Pomeroy et al., 2001). Those criteria and indicators are described as follows (see Table 2.2):

Table 2.2 Criteria and indicators of institutional arrangement based on Ostrom’s design principles

| No. | Criteria | Indicators |
|-----|-----------------------------------|---|
| 1. | Enabling policies and legislation | Establishment of supportive legislation and authority structures to provide legitimacy to the arrangement. |
| 2. | Clearly defined boundaries | It is relate to individuals or groups who have rights to withdraw resource units from the bounded fishing area must be clearly defined. |
| 3. | Participation | The resource users affected by the arrangement are given the chance to participate in the initiative |
| 4. | Leadership | Leadership in the co-management arrangement provides direction and energy to the group. |
| 5. | Monitoring | Monitors, who actively audit fishery conditions activities, are accountable to the appropriators or are appropriators themselves. |
| 6. | Graduated sanctions | Fishers who violate rules are likely to be assessed graduated sanctions by fishers, officials accountable to the fishers, or both. |

| | | |
|----|-------------------------------|---|
| 7. | Conflict management mechanism | Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials. |
| 8. | External agents | there is participation of other sectors/agents that is needed to serve as a catalyst in the development process or to facilitate the establishment of the co-management arrangement |

These criteria above are proposed as a guidance and it is flexible depend on the condition and processes where the system exists. It could be in some condition can well-established and some may not to be present at all. But, if there is a greater chance for a successful co-management, it could be that the condition of co-management works better (Pomeroy et al, 2001 in Espectato et al (2012).

2.5 Lesson Learned

In the worldwide, the develop country usually had implement co-management process in their governance, but in the other hand developing or less developed countries seem face difficulty in transferring the system from top-down and centralized approach to be more bottom-up and decentralized system. So, taking comparative lesson of success experience from other countries is a good way to overwhelm the problems. The policy makers can adopt some lessons in similar problems from other countries even though the country has unique problems (Dolowitz and Marsh, 1996).

Further, Dolowitz has defined the policy transfer as “a process in which knowledge about the policies, administrative arrangements and institution and etc., in one time or place is used in the development of policies, administrative arrangements and institutions in another time and or place.” (Dolowitz and Marsh, 1996). In this lesson, the policy makers need to selective to find out the transferable and adaptable solution to gain the benefit from the lesson drawing. Furthermore, Dolowitz has tried to identify seven object of transfer in taking lesson, they are: policy goals, structure and contents; policy instruments or administrative techniques; institutions; ideology; ideas, attitude and concept; and negative lessons (Dolowitz, 1996 in Amelia, 2007). Then, for all kind of transfer

lesson can be formulated in five degree of policy transfer: emulation, copying, hybridization, inspiration and synthesis (Amelia, 2007).

In doing this comparative research in fisheries co-management, two things are used to be important tools of analysis. First, similar criteria are used as tools to explore and compare two or more cases. It is important to know the institutional arrangement carried out in those selected cases. Second, it is necessary to compare and look at the context and its background of fisheries co-management work out. It is become important to clarify the context of the arrangements from those countries. So, using the similar criteria and explore the context of those fisheries co-management can be adequate bases in assessing the context itself.

By formulating several experience of co-management practices from other countries (Philippines and New Zealand cases), it is expected as one of alternatives to make better fisheries management in Indonesia. Also, it is a good way to improve knowledge in common pool resources management for other purposes.

2.6 Analytical Framework of Research

Regarding some theories and concept above, will be analyzed and elaborated in constructing the assessment of institutional arrangements on selected countries. In this research, it will be synthesized the performance of institutional arrangements through some criteria and indicators which proposed by Yandle, 2003 and 2008; Espectato et al, 2012; Pomeroy et al., 2001 and 2004). Those adapted criteria and indicators are follows (Table 2.3):

Table 2.3 Adopted criteria and indicator of research

| No | Criteria | Indicator |
|----|-----------------------|--|
| 1. | Type of co-management | a. Consultative co-management: Government gives room of public consultation to find stakeholder opinion but dominant determines decision. b. Collaborative co-management: Equitable position, strong partnership between government and stakeholders to work and determine decision. c. Delegated co-management: Government has devolved an authority and responsibility to determine decision or it is |

| | | |
|-----|-----------------------------------|---|
| | | more community /stakeholder-based management |
| 2. | Phase of co-management | <p>a. Pre-implementation: There are activity of open discussion, and meetings about the problem, negotiation, consensus building and the development of agreement on a plan action among the government, and users/stakeholders.</p> <p>b. Implementation: Implement co-management through establishment core groups, educates people in the program, adjust and decide what is best in plan and strategy implementation.</p> <p>c. Post-implementation: Evaluation and monitoring project activities and adjustment /adaptation of plans and activities as needed.</p> |
| 3. | Enabling policies and legislation | - Presence of supportive legislation and clear authority structures to provide legitimacy to the arrangement |
| 4. | Clearly defined boundaries | <ul style="list-style-type: none"> - Management area is well defined - Recreational and customary fisher rights are well defined or not - Groups in co-management boundaries are well established |
| 5. | Leadership | - A leader in the group/community is identified in the co-management arrangement that provides direction and energy to the group. |
| 6. | Participation | - Participation in the strategy and plan of co-management from members are well accommodated or not |
| 7. | Monitoring | - Monitoring effort from the arrangement member to audit fishery conditions, users activities and its tools. |
| 8. | Conflict management mechanism | - Presence of mechanism for conflict management through arbitration and resolution form. |
| 9. | Graduated sanctions | - Presence of graduated sanctions under current legislation |
| 10. | External agents | - There is participation of other sectors /agents that is needed to serve as a catalyst in the development process or to facilitate the establishment of the co-management arrangement |

Determining criteria and indicators subsequently will be used to compare two selected cases in term of fisheries co-management. In addition, it will be provided the strengths and weaknesses from the scoring of criteria and indicator of both New Zealand and Philippines cases in those arrangements (see Table 2.4). The analytical framework of determining scoring criteria and indicators are follows:

- a. Both New Zealand and Philippines cases are using the Ostrom's design principles through secondary data of international journals about institutional arrangement of fisheries co-management.
- b. In New Zealand case, the performance of institutional arrangement of fisheries co-management is based on the description of Yandle's study (2008) about the characteristics of Commercial Stakeholder Organizations (CSOs) and their relationship with other fishery actors.
- c. In the Philippines case, it based on Espectato's study in 2011 about the initiatives partnership of fisheries co-management in particular the experience of the Southern Iloilo Coastal Resource Management Council, Inc. (SICRMC).
- d. Then, those cases will be evaluated in the following evaluation ratings as follows:
 - Low: indicator is no or present but at a minimal level;
 - Medium: indicator is present but not well-established; and
 - High: indicator is manifested and is strongly established

Note: The rating of criteria and its indicators are constructed through some modification of Espectato and Yandle studies (Espectato et al., 2012; Yandle, 2003 and 2008) and some determining of analysis from the author's justification.

Both overviews, then, will be analyzed as lesson learned, and to what extent these comparative fisheries co-managements can be applied in Indonesia's fisheries management. This is become important as tools to gain better understanding of comparative study in particular institutional arrangement in fisheries co-management.

Table 2.4 Scoring of criteria and indicator assessment

| Criteria | Scoring of Indicator Assessment | | |
|--------------------------------------|---|--|---|
| | Low | Medium | High |
| 1. Enabling policies and legislation | <ul style="list-style-type: none"> No presence of co-management regulation | <ul style="list-style-type: none"> Presence of co-management regulation Presence of an authority structure | <ul style="list-style-type: none"> Presence of co-management regulation Presence of an authority structure |
| 2. Clearly defined boundaries | <ul style="list-style-type: none"> Management area is not well defined Recreational and customary fisher rights are not defined | <ul style="list-style-type: none"> Management area is well defined Recreational and customary fisher rights are not defined Groups in co-management boundaries are well established | <ul style="list-style-type: none"> Management area is well defined Recreational and customary fisher rights are well defined Groups in co-management boundaries are well established |
| 3. Leadership | <ul style="list-style-type: none"> Leadership is monopolized by one representatives of stakeholder/group | <ul style="list-style-type: none"> Leadership is fairly shared Each representatives leader do not exhibit strong leadership | <ul style="list-style-type: none"> Leadership is fairly shared Each representatives leader exhibit strong leadership |
| 4. Participation | <ul style="list-style-type: none"> Government or group dominated in discussion process Community participation is limited | <ul style="list-style-type: none"> Participation is fairly shared among the government and stakeholder in the arrangement Community participation is still limited | <ul style="list-style-type: none"> Participation is fairly shared among the member of the arrangement Community is actively support in the participation process |
| 5. Monitoring | <ul style="list-style-type: none"> There were no or limited monitoring effort from the arrangement member | <ul style="list-style-type: none"> Only one member of the arrangement conducted monitoring effort | <ul style="list-style-type: none"> Two or more the arrangement member active and work together in the monitoring effort. |
| 6. Conflict management mechanism | <ul style="list-style-type: none"> Concern were brought to the attention of the arrangement members but were not resolved | <ul style="list-style-type: none"> Concern were brought to the attention of the arrangement members and most of it were resolved | <ul style="list-style-type: none"> All of the identified concern were brought to the attention of the arrangement members and were found solution |
| 7. Graduated sanctions | <ul style="list-style-type: none"> The government has legal authority for sanctioning, but it is not graduated /used | <ul style="list-style-type: none"> Graduated sanction is limited in the implementation | <ul style="list-style-type: none"> Graduated sanction is fully implemented for those who do not allow under current regulation |
| 8. External agents | <ul style="list-style-type: none"> There was no or limited role of the external agent in directing the arrangement agenda | <ul style="list-style-type: none"> The external agent work together with other group/government to defined the arrangement agenda | <ul style="list-style-type: none"> The arrangement is come from and fully supported by the presence of external agent |

The scoring of criteria and its indicator s is constructed through some modification of Espectato and Yandle studies (Espectato et al., 2012; Yandle, 2003 and 2008).

CHAPTER 3. FISHERIES CO-MANAGEMENT ARRANGEMENT IN NEW ZEALAND AND PHILIPPINES

This chapter explores the implementation of fisheries co-management arrangement in New Zealand and Philippines as case studies. Each case will be divided into four main parts as key identification for the implementation of fisheries co-management arrangement. First, it describes the development of fisheries management in those countries. It will explain general overview and its development of fisheries management in those selected cases. Second, describes the role of stakeholder involvement in contributing fisheries sector towards fisheries co-management. Third, performs the institutional arrangement in fisheries co-management in those cases. The selected criteria and indicators will be used as guidance to determine the characteristic of fisheries co-management in both cases. Looking at the background development and selected criteria and indicators are useful to analyze the comparative study in this research. Fourth, concluding some remarks as findings. Then, the chapter will be ended with general overview of both case studies and its remarks.

3.1 New Zealand Case

3.1.1 Background of Fisheries Management in New Zealand

This part highlights a brief review of New Zealand fisheries management. New Zealand fisheries management is described as commercial fisheries nation. It has strong historical fisheries management's development before led to the introduction of Quota Management System (QMS). There are key dates in the development of New Zealand Fisheries Management before QMS implemented (see Figure 3.1) (Straker et al., 2002; p.16).

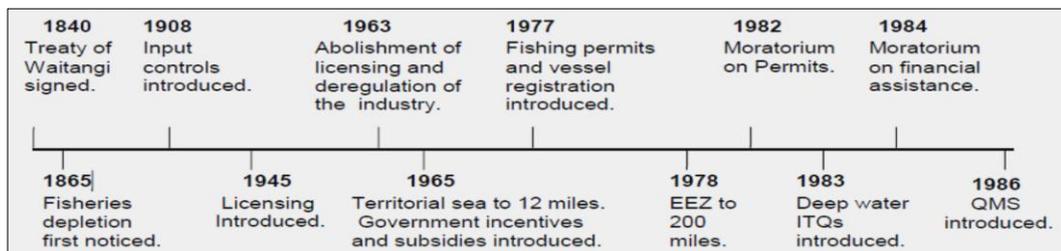


Figure 3. 1 Key dates in the development of NZ fisheries management

In the early of New Zealand fisheries management, it was marked by overfishing activities, the fisheries resource was under pressure as a result of free and open access to New Zealand's coastal fisheries in late of 19th Century. The fisheries resources had deemed to public of the commons that implies individual or groups have rights to utilize the resource and it led to under a threat. In 1904, the government in particular Marine Department had passed Sea-Fisheries Act to manage and address the problems through license fishing boats to the fishing industry. Subsequently, it was supported by the amendment of the Act in 1903, the government tried to more influence by adding some parameter to this industry (Straker et al., 2002).

Another effort of comprehensive legislature for fisheries management was Fisheries Act 1908 that synergized the previous Act and the role of a Minister of Marine. It was as tools to such protection, conservation and controlling efforts to the resource. It covered limited entry licensing, closed areas and seasons, controls on minimum fish size and requirements to land catch at specific ports (Sissewine and Mace, 1992).

Yet, the problem of overfishing at time until 1937 became worse and the government had tried to address it through a Sea Fisheries Investigation Committee. This committee issued restrictions to licensing of vessels, fishers, and exports would restrict exports, deter new entry into fisheries and encourage domestic market expansion (Straker et al., 2002). It was needed to control the conservation action to the resource. Then, in 1945 a Sea-fisheries Licensing Authority was established as cooperation between the Fisheries Amendment Act 1945 with the Committee's recommendations. It regulated the minimum fish sizes, gear restrictions, area closures and non-transferable licenses. This license specified one port for landing fish, although the fishing industry had difficulty in finding ways around the law (Meister, 1999).

In 1965 New Zealand's fishing zone was extended to 12 miles by the Territorial Sea and Fishing Zone Act. Further, in 1970 foreign licensed vessels were phased out of this zone and only allowed to operate more than 12 miles offshore. This changed in 1978 when the 200 miles Exclusive Economic Zone was put into effect. Up to now fishing effort has been confined mainly to a depth

of approximately 200 meters (Meister, 1999). This EEZ is now 15 times the size of New Zealand's land mass, and it is the fourth-largest in the world (Straker, 2002).

This EEZ Act 1978 was passed in response to the United Nations Convention on the Law of the Sea (UNCLOS). But, New Zealand had just ratified the convention until 1996 (Meister, 1999). Actually, the emergence of a wide EEZ encouraged the government to promote growth of the local fishing industry in particular the offshore sector. While the intention was to base fisheries development on the offshore resources, the fishing effort in the prime inshore fisheries also expanded rapidly. There was a significant fisheries activity in both fisheries sectors that led to overfishing.

In 1983, the government decided to start managing the deep-sea fishery as a new basis by introducing a limited Individual Transferable Quota system (ITQs) as the concern about overfishing and sustainable fish stocks. It is a tool to protect the deep water trawl fishery as this fishery sector had developed significantly. ITQs system is implemented by some main objectives, as follows (Meister, 1999):

- a. To achieve a level of catch which maximizes the benefit to the nation as a whole, also ensuring a sustainable fishery.
- b. To achieve the optimum number and configuration of fishers, boats and gear to minimize the cost of taking any given catch,
- c. To minimize the implementation and enforcement costs.

In addition, it functioned to manage total allowable catches for seven specific species into ITQs and was given to existing firms on the basis of investment in harvesting equipment, onshore production equipment and recent onshore production. The right was issued and granted for a 10-year period (Meister, 1999).

In 1986, the government changed Fisheries Act which introduced the concept of fisheries management plans that provided for a sustainable harvest, and promoted stability and efficiency within industry. Also, it included effort controls, competitive Total Allowable Commercial Catches system (TACCs), allowing for a proportion of the Total Allowable Catch (TAC) to be allocated to non-commercial users and transferable ITQs for all the main commercial fisheries, both inshore and deep water (Straker, 2002). In addition, the Act tried to combine

the successful existing deep water trawl policy and ITQs regime into its overall fisheries management framework. Quota Management System (QMS) was introduced in this amendment that allowed the deep water quota to be allocated in perpetuity and become fully transferable so that companies could achieve a suitable mix of fish for their processing and marketing needs; the less significant commercial species continued to be managed by input controls (Meister, 2002).

Since 1986, New Zealand became one of the first countries to adopt market-based regulation that introduced QMS which focused on the use of ITQs. Other efforts were removal subsidies and promotion of export that is viewed as a long-standing example of the market-based approach to fisheries management (Yandle, 2003).

3.1.2 Development of Fisheries Co-management

From the historical development of fisheries management, New Zealand is different from many historically based co-management regimes. Initially with the adopting of Quota Management System (QMS) in 1986, co-management is strongly supported by fishery industry organizations and the government in managing the resources. These sector-based organizations form the backbone of co-management regimes (Yandle, 2008)

Further, the next important step co-management development is marked by “devolution movement” within the New Zealand commercial fishing industry during the mid to late 1990s. It was identified when the 1999 Fisheries Amendment Act was passed. The Act allowed delegating certain management responsibilities to “approved delivery organizations,” more commonly referred to as Commercial Stakeholder Organizations (CSOs) or “stakeholder groups” (Yandle, 2003). Yandle stated that these organizations are usually composed of ITQ owners, who take on responsibility for managing the commercial fishery in which their members own ITQs. As envisioned by the enabling legislation, management by the CSOs is not a replacement of QMS, but rather an additional institutional layer that supplements it (Yandle, 2008).

Meanwhile, the role of government only focused on monitoring and auditing the performance of approved service delivery organizations that in line

with the standards and specification set by Minister. Subsequently, the government will no longer be responsible for delivery of those fishery services. The services include a wide variety of activities cover: maintaining quota registries, management of resources, enforcement, and research related to stock assessment and the effect of fishing in the environment (Fisheries Act 1996 Amendment Bill 1999, New Zealand).

In New Zealand context, the type co-management has changed fundamentally from many literatures which the structure is supported by fishing industry instead of share responsibility between government and community. The structure is consists of two main fishery industries: the deepwater fishery industry, which is dominated by a small number large companies and the inshore fishery industry, which is fished by small-scale operators (who primarily sell to the vertically integrated companies) and boats owned by vertically integrated companies (Yandle, 2003). Furthermore, the structure indicated dominant participant of large-scale industries as important partner with national government rather than local or regional governments. Meanwhile, the local community in the commercial industry has limited roles in its structure of co-management.

3.1.3 Stakeholder Involvement in New Zealand's Fisheries Co-management

In New Zealand fisheries management, fishery organizations and national government has taken place dominant role in fisheries co-management rather than government and communities who usually used to in term of the co-management concepts. Meanwhile, the information of historically strong community-based regulation is lacking (Creed et al., 1994). The main exception to this is the indigenous Maori that fishing is an integral part of their traditional community and life style (Bess, 2001). From the historical development, it can be traced that there is a longer historical culture in New Zealand fisheries management that the government and the fishery industries involved in certain fisheries regulations and policies.

In the process of determining Quota Management System, the government had tried to revise the Fisheries Act 1986 through public consultation as response to challenge of declining fishery sector. It discussed the possibility of introducing

an ITQ system both for deepwater and inshore fishery in New Zealand to overcome the problems (Connor, 2001). The consultative process took long process since it involved all fishing groups up and down in New Zealand. The result showed that government got the support from the fisher since all stakeholders was well aware of the current condition at that time (Meister, 1999).

Another form of the stakeholder involvement is in the decision process to the challenge of New Zealand fisheries. According to Aranda and Christensen there is an active participation when companies gathered in CSOs under the umbrella of the New Zealand Seafood Council (SeaFIC) (Hauge and Wilson, 2009). In addition, the fishery industry actively contributes in discussion paper, for instance final advice papers, the initial position of the TACCs and conversion factors.

Meanwhile, other stakeholders that involve industry, conservationists, and indigenous people also work together with the government and scientists in the research planning as part of planning groups and coordinating committee. The outcome is the Plenary Report which consists of some management recommendations (Hauge and Wilson, 2009). The process is needed to improve stakeholder understanding of research needs and assessment with important contribution, even though it took time consuming and complex problem.

Through stakeholder involvement in such consultation and discussion, there is a good point that industry's participation can function as supplying input to some technical measures. Also, participation process involvement many stakeholders that implies there would be a legitimate management decisions. This process is needed by the government in particular the Ministry of Fisheries to get sort of inputs from stakeholders to define better fisheries management decisions. One of this is there is a research planning that undertaken by the government and stakeholders and subsequently proposed in Fisheries Research Plan.

3.1.4 The Performance of Institutional Arrangement in New Zealand's Fisheries Co-management

This part will describe the performance of New Zealand's fisheries co-management in particular its institutional arrangement. In this research will use

the Yandle's study in 2008 about the institutional assessment in New Zealand's fisheries co-management. It describes the characteristics of CSOs and their relationships with other fishery actors based on Ostrom's design principles. The study used Ostrom's design principles for long-lived institutions that provide a well-researched basis for assessing the degree to which an institution has the characteristics associated with long-lived self-governing natural resource management regimes such as fishery (Yandle, 2008). In New Zealand case, co-management arrangement involve the performance of two main actors, the government and CSOs, while other actor can be said has limited contribution to this arrangement. From Yandle's study and additional criteria to this research, the performance of co-management institutional arrangement can be seen from Table 3.1 below:

Table 3.1 Institutional arrangement analysis of the performance of New Zealand's Fisheries co-management

| Criteria | Indicator Analysis |
|--------------------------------------|--|
| 1. Type of co-management | Type of co-management: delegated co-management, it can be seen by devolving authority and responsibility from the government to CSOs in managing the fisheries resources through QMS. |
| 2. Phase of co-management | Phase of co-management: post-implementation phase through good monitoring effort between government and CSOs in fishery condition and fisher activity. Also, there is an actively effort of CSO to improve the current plan such as advice papers. Meanwhile, other stakeholders (Commercial groups, scientists, conservationists, indigenous people and government) also contribute in adjusting fisheries research plan. |
| 3. Enabling Policies and Legislation | Fisheries Amendment Act 1999 established CSOs to take an authority and responsibility to manage the commercial fishery through ITQ systems. Meanwhile, the government focused on monitoring and auditing the performance of approved service delivery organization that in line with the standard set by Minister of Fishery. |
| 4. Clearly defined Boundaries | <ul style="list-style-type: none"> - CSOs only organized for commercial withdrawal rights, it is not included for recreational and Maori rights - The government set geographic boundaries through QMAS but it is too large to monitor and maintain. |
| 5. Participation | A lack of voice for small-scale fishers and other fishery interests weakens collective choice. CSOs is dominant in the participation process |

| | |
|----------------------------------|---|
| 6. Leadership | CSOs are dominant and managed quota management system (QMS) and act as supplying input to some technical measures. |
| 7. Monitoring | Combined actions of Ministry and CSOs result in strong monitoring of fishery conditions and fisher activities. |
| 8. Conflict management mechanism | The government provides conflict mechanism but it is to be unused. Groups only provide conflict resolution for the members. |
| 9. Graduated sanction | Graduated sanctions were not used by government, groups only impose the penalties for breaking rules/laws |
| 10.External agents | The involvement of external agent is limited on revising the fishery research plan. |

From the Table 3.1 above, Yandle (2008) argued that there are some important points in the performance of co-management arrangement as follows:

- Enabling Policies and Legislation: Ministry performance is weak. For overall, the performance is medium, depending on success of CSOs.
- Clearly Defined Boundaries: Geographic boundaries based on Ministry definitions are too large, but a combination of Ministry and Groups definitions has potential to perform this task well. Non-commercial withdrawal rights (e.g., recreation and customary Maori) are not well defined.
- Participation: Except for the deepwater industry, collective choice arrangements do not adequately include all parties. Small or non-quota owning commercial fishers, recreational fishers, and customary Maori interests lack voice. Some improvement is needed to encourage minority groups.
- Leadership: The government devolved certain management responsibility to CSOs. Meanwhile, government's function is laid on monitoring and auditing to QMS. So, CSOs play dominant role to manage the arrangement.
- Monitoring: Cooperation between Ministry and CSOs has potential to perform conditions monitoring very well. But monitoring activities may continue to be a problem.
- Conflict management mechanism: Performance is mixed. It needs further improvement in term of involving other groups and interests (e.g., recreational fishers, customary Maori interests).

- Graduated Sanctions: Sanctioning exists primarily in the Ministry’s domain, rather than in the co-management context. Sanctioning is not graduated. CSOs are reluctant to take on this responsibility.
- External agents: There is a small portion of external agent to revising of fishery research plan, not as adviser or catalyst to the institutional arrangement in the fisheries co-management.

From the explanation above, the weaknesses and its strengths of the performance can be assessed as follow:

Table 3.2 Rating of criteria and indicator in New Zealand fisheries co-management arrangement

| Criteria | Indicator | Rating |
|--------------------------------------|--|--------|
| 1. Enabling policies and legislation | <ul style="list-style-type: none"> ▪ Presence of supportive regulation | High |
| 2. Clearly defined boundaries | <ul style="list-style-type: none"> ▪ Clear of an authority structure ▪ Management area is well defined ▪ Recreational and customary fisher rights are not defined ▪ Group member boundaries are well established | Medium |
| 2 Leadership | <ul style="list-style-type: none"> ▪ Leadership is monopolized by one representatives of stakeholder/group | Low |
| 4. Participation | <ul style="list-style-type: none"> ▪ Government or group dominated in participation process ▪ Community participation is limited | Low |
| 5. Monitoring | <ul style="list-style-type: none"> ▪ Government and CSOs are active and work together in the monitoring effort | High |
| 6. Conflict management mechanism | <ul style="list-style-type: none"> ▪ Concerns were conducted limited on CSOs member only | Medium |
| 7. Graduated sanctions | <ul style="list-style-type: none"> ▪ Graduated sanction were not used | Low |
| 8. External agents | <ul style="list-style-type: none"> ▪ There were limited role of external agent in directing the arrangement agenda | Low |

From the determining criteria and indicators of institutional arrangement, it may help fisheries co-management practices. The institutional arrangement in New Zealand is much decentralized and it has different type of co-management. Typically, it constructs delegated co-management type in fisheries management. As the previous explanation, devolving of authority and responsibility from

government to CSOs in term of managing marine and fisheries resources showed clear identification to this type. The institutional arrangement is more constructed based on market approach by involving industry groups as main actor and the use of ITQs as a main tool to manage fisheries resources. In addition, co-management phase is laid on in the early of post-implementation phase because the arrangement is already established but there are many some weaknesses in the implementation.

But, this co-management is built like any other co-management regimes that the arrangements only running along one leg of the triangle not shared between the users (who may or may not be community-based) and government' (Yandle, 2003). There are many difficulties to support ideal condition in which authority and responsibility are shared among the main members (government-private sector-community). It can be seen from the weak participation of local fisher community (customary Maori and recreational fishers) in contributing to the arrangement.

Meanwhile, the conflict mechanism is not run well with low enforcement. It will raise a new problem to this arrangement in the future. So, it can be said that this arrangement is still fragile due to its newness (Yandle, 2008). However, there is still room improvement to this arrangement. It can be seen through strong commitment between government and the fishery industry could be good basis to institutional strengths. Also, the groups are more enthusiasts to deal with complex problem in the fisheries management.

3.1.5 Concluding remarks

This part will discuss some points regarding the current implementation of institutional arrangement in New Zealand's fisheries co-management. The arrangement is constructed through long historical development of fisheries management in New Zealand. As the previous explanation the need of fisheries management is due to overfishing activities in New Zealand's water as the consequences of common property resources. This was led to such a way to some improvement to fisheries management both formally through rules /regulation and informally by accommodating other voice from the outside of government. So, in

general there are some remarks to the implementation of New Zealand's fisheries co-management, as follows:

a. Shifting governance

There is a shifting of governance in both planning approach and planning product. It can be seen from the way of governance from top down's style to more adaptive way. There is a transition in managing fisheries resources. In the case of co-management, the government, in the beginning, used consultative co-management by accommodating the local voice and other groups but government keep determined the decision. Then, it shifted to delegated co-management in last decades. The government, through the Fishery Act 1999, is devolving the authority and responsibility to commercial stakeholder organization to manage the fishery management in New Zealand both the deepwater and inshore fishery. This is a significant effort to management transition in fisheries management. Trying to work together with fishery industry sector in building the institutional arrangement is suggested as strategic way toward efficient and effective fisheries management. However, there are many works to do due to the robustness of this arrangement.

Meanwhile, the implementation of ITQ system as planning product gives new experience in the New Zealand's fisheries management. It could be as a tool of measurement, such as catch quotas, limited entry to fishing grounds, and reduction in fishing licenses, etc. (Meister, 1999). However, this tool remain raise some problems so that trying more adaptive to other consideration such as social and environmental issues is needed.

b. Stakeholder involvement

Stakeholder involvement is important part for both this arrangement and decision making process. It is needed for improvement through some innovation to strengthen this arrangement. Also, since the arrangement is based on incorporating between government and fishery industry groups, it needs good work collaboration and network. Thus, participation among the members gives a legitimation of this institution.

In fact, lack of participation from customary and recreational fishery should be minimized by giving them more room for participation to reduce the

conflict in managing the fishery resources. Furthermore, it is needed to address complex problems that could hamper and enervate to foundation of this arrangement.

c. Policy and Theoretical Implications for Fisheries Co-management in New Zealand

The amendment of Fishery Act 199 brings new way of management. CSOs given authority and responsibility to manage the fisheries resources have made significant changing in New Zealand case. There is a transition from advocacy organizations towards management organizations (Yandle, 2003). But, this co-management is still fragile so that supporting policy improvement for this arrangement and giving more space for participation from other groups such as customary and recreational fisher groups is very needed to strengthen the institution.

Meanwhile, there is a new term of co-management arrangement compare to in the common theoretical overview. New Zealand fisheries co-management is constructed based on market approach. Meanwhile, the literature is more or less lied on cooperation community and bureaucracy-based management (Yandle, 2003). It is important in term of enhancing theoretical view of co-management that it could be possible as a new way in paradigm of co-management.

3.2 Philippines Case

3.2.1 Background of Fisheries Management in Philippines

This part will describe briefly the development of fisheries management in Philippines. The Philippines, an archipelagic country consisting of more than 7100 islands lying north of the equator and on the western rim of the Pacific Ocean with a total land area of about 298,170 km² and extends about 2000 km in a south-north direction from the northeast coast of Borneo to 150 km off Taiwan (Diaz and Banares, 2008), had a long history of traditional fisheries rights and allocation before the archipelago country was first colonized by Spain in the 17th century (Pomeroy and Carlos, 1997). It can be identified from historical note that the *barangay* (village) had jurisdiction over coastal resources and fishery limits

were defined by them. But, during the Spanish's colonization era the traditional property rights of *barangays* were decreased significantly which community authority and rights changed by state government control (Lopez, 1985 in Pomeroy 1996).

After Philippines independence in 1945, fisheries management had driven for the increasing of commercial fishing vessels. Then, in 1960s, the government with Japanese advisors, worked together to build intensively sort of infrastructure, technology, extension and credit programs in fisheries sector through Fisheries Development Program (Heinan and Gonzales, 1993). In this era, the fisheries management was implemented mainly by top-down approach.

So, there was a strong historical background of top-down fisheries management approach before the government tried to more support decentralization way in managing fisheries resources. In the early of 1970s, the government had established a Presidential Decree (PD) 704, otherwise known as the Fisheries Act of 1975. Under the Act, fisheries management is the responsibility of the government both national and municipal (Pomeroy and Pido, 1995). This policy was much concentrated on "use orientation" which the goal was increasing production and exploitation of the resource base (Pomeroy and Carlos, 1997).

In 1980s, the fisheries management was directed towards the needs of the sector through the Expanded Fish Production Program (EFPP). The program enabled the small-scale fisheries sector with more efficient boats and fishing gears (Pomeroy and Carlos, 1997). But, during the implementation (1984-1988), the result of fish production had decreased significantly each year. And then, the problems of fishery sector continue to worsen until the early of 1990s (Pomeroy, 1996).

Generally, these regulations above were still ineffective to promote such a way of sustainable management and development of the country's fisheries. The regulations cannot overcome the basic challenges that happened in the fisheries sector nationwide. Department of Agriculture through a report study has identified the basic problems confronting the fisheries sector in Philippines as follows:

1. poverty among municipal fishers;
2. resource depletion in the coastal zone;

3. widespread environmental damage; 4. limited utilization of offshore and exclusive economic zone (EEZ) water by Philippines commercial fishers; 5. low productivity in aquaculture. On the other side, the poor implementation act such as law enforcement and lack participation from fishers in both planning and implementation process also worse the recent problem at that time. In addition, lack capacity both government staff and fisher community as fisheries managers in managing the fisheries resources hampered the improvement effort toward effective and sustainable fisheries management (Pomeroy and Dipo, 1995).

In 1990s, the government had started to consider the important of community participation and devolving control over resource access to local government through policies and institutional reforms (Pomeroy and Carlos, 1997; Pomeroy, 1996). It can be identified from establishment of the Local Government Code (LGC) of 1991. Through this policy, government actively promoted community-based resource management to conserve the coastal resources and diversify the income sources of the low-income small-scale fishers under the Fisheries Sector Program (FSP) of the Department of Agriculture (DA) (Pomeroy, 1996).

According Pomeroy (1996) that FSP is a comprehensive and integrated five year strategy to address the basic problems confronting the fisheries sector nationwide. FSP emphasized the reforms of policies and its institutional as follow: (1) decentralization of authority and simplification of procedures for clearance of local fisheries management ordinances subject to national laws and/or policies; (2) strengthening the enforcement of fisheries laws through municipal-based inter-agency law enforcement teams; (3) promoting community-based initiatives to rehabilitate, conserve and protect the coastal resources and to diversify the sources of income of small-scale fishers; (4) engaging NGOs to assist and undertake community organizing; and (5) shifting to limited access in concerned fishing areas (Pomeroy, 1996). Then, during the periods of 1990s there were many community-based coastal resource (CBCRM) programs that conducted in different level scales: national, regional, gulf-wide/bay-wide, local/municipal, and community levels (Pomeroy and Carlos, 1997). These initiatives became the first stage of fisheries co-management in the archipelago country.

Then, in 1998, the Philippines had shifted to the system of co-management, where both governments and the communities/resource users share certain responsibilities in the decision-making and other functions of management under the new Philippines Fisheries Code (Republic Act 8550) or the Fisheries Code of 1998 (Diaz and Banares, 2008; Pomeroy et al., 2001). The fisheries co-management is based on Sec. 68 of the Code which stated the development of fisheries and aquatic resources in municipal waters and bays shall be by the fisher folk and their organizations residing within the geographical jurisdiction of the barangays, municipalities or cities together with the concerned local government units. Moreover, Sec. 69 of the Code also provides for the establishment of Fisheries and Aquatic Resource Management Councils (FARMCs) at the national level and in all municipalities/cities waters (Diaz and Banares, 2008).

3.2.2 Development of Fisheries Co-management

As the previous explanation, fisheries co-management in Philippines is strongly constructed by community-based fisheries management. This fact was based on basic problems such as over fishing activities and its ecosystems and poverty that impeded the fisheries development in Philippines. The government has realized that for many decades the fisheries management has been strongly centrally-determined, top-down and non-participatory (Pomeroy and Carlos, 1997). It needs a new approach and perspectives in addressing complexity problems of natural resources in particular fisheries sector.

Since the establishment of LGC of 1991 and the Fisheries Code of 1998, coastal resource management, one of the basic services of the Codes, has been devolved to the local government units (LGUs) (Espectato et al., 2012). LGUs, according to the Code, are group that consolidate and coordinate their efforts, services and resources for purposes commonly beneficial to them. It promotes partnership or alliance-building initiatives whereby authority and responsibility for fisheries management is being shared (Pomeroy and Pido, 1995).

Complex problems in coastal areas transcend jurisdictional boundaries need collaborative management (Espectato et al, 2012) and require broader partnership and inter-LGU governance structure over the municipal boundaries

(Pomeroy et al., 2009; Eisma-Osorio et al., 2009). In the Philippines context, there are success stories of these initiatives such as the San Miguel Bay Management Council (Pomeroy and Pido, 1995), the Banate Bay Resource Management Council, Inc. (Espectato et al., 2012) and the Southeast Cebu Coastal Resource Management Council (Eisma-Osorio et al., 2009). So, the role of LGUs in this partnership arrangement is very vital in directing the effectiveness of coastal resource development and fisheries management (Espectato et al., 2012).

On the other side, the form of fisheries co-management was also assisted by external agent such as in Southern Iloilo, Philippines; it called Southern Iloilo Coastal Resource Management Council (SICRMC). This initiative was arranged by the University of Philippines Visayas as external agents in the arena of fisheries co-management. This alliance involves many local/municipal governments: Oton, Tigbauan, Guimbal, Miagao, and San Joaquin. Also, there were many examples of fisheries co-management projects in Philippines that supported by the World Bank and the Coastal Resource Management Project which is funded by the United States Agency for International Development (USAID) (Espectato et al., 2012). These examples showed that the concept of co-management over natural resource is now widely accepted and many actors could contribute as good partner in managing the resources.

So, in the Philippines context, the form of fisheries co-management is underpinned by partnerships which authority and its responsibility are shared between various levels of government and the local fishing community (Pomeroy and Pido, 1995). Also, the external agent such as university, international donor organizations, and other groups could share or assist the fisheries arrangement towards sustainable development in managing natural resources particularly fisheries sector.

3.2.3 Stakeholder Involvement in Philippines's Fisheries Co-management

From the fisheries co-management arrangement in Philippines, it can be obviously seen that government has significant role in managing this arrangement. The government, through the enactment of the LGC of 1991 and the Fisheries Code of 1998, ushered in the formal devolution of powers and responsibilities

from the central government to the local government units and community's organization (Pomeroy et al., 2001). These Acts also give more room for participation in different scale levels (Pomeroy and Carlos, 2007). Promoting participation from local community to address the complex problem means give some advantages both for the government and community itself. Through participation they can formulate their interest and try define common collective interest (Iqbal, 2007), also their involvement can enhance the development in particular fisheries management (Esonu and Kavanamur, 2011). The form of alliance government and local community organization gave a new arrangement in managing fisheries development in Philippines.

In addition, the emerging of people awareness also contributed to the changing of fisheries development. Since the past development led to socio-economic problems and environmental degradation (such as poverty in fisher's society, overfishing, coastal destruction), the government reconsider to define better the current policy and strategy through promoting fisheries co-management. But, community involvement in developing country in particular Philippines become a problem which is usually dominated by small actor such as local elite or politician that has good access to government programs (Pomeroy et al., 2001). Therefore, local community's participation is still limited and marginal to this arrangement. One of big challenges facing in social condition of fishery community is poverty.

Poverty can impede the participation process. There are many obstacles to drive them more actively in participation process in particular basic problems such as low educational level, low income level, poor environmental awareness, and etc. So, individual and community empowerment become a central element of co-management. According to Pomeroy et al. (2001) that empowerment is concerned with capability building of individuals and the community in order for them to have greater social awareness, to gain greater autonomy over decision making, to gain greater self-reliance, and in establishing a balance in community power relations. In this case, the external agents helped coastal community to support their participation in managing the fishery resources.

In the Philippines context, the involvement of external agents is quite significant in the fisheries co-management process. External agents may come from NGOs, academic or research institutions, international donor organizations and etc. (Katon et al., 1997; Baticados and Agbayani, 1998; Katon et al., 1998). They usually assist the community in defining the problems; provide independent advice, ideas and expertise; provide training and technical assistance; guide joint problem solving and decision making; provide catalyst in the arrangement (Pomeroy et al., 2001 and Espectato et al, 2012). This process requires more time and effort both financial and non-financial toward sustainable fisheries development.

Through the establishment of the LGC of 1991 and the Fisheries Code of 1998, the government gives formal recognition to the role of resources users as valuable partner in co-management (Pomeroy et al 2001). These regulations stimulate people's organizations formally allowed to enter into partnerships with local government units on a broad range of activities (Katon et al., 1997). So, co-management projects in the Philippines are much underpinned by the emerging of awareness both from government and community in particular fisher community in addressing the problem of fisheries management.

3.2.4 The performance of Institutional Arrangement in Philippines's Fisheries Co-management

This part will explore the current performance of institutional arrangement in the Philippines's fisheries co-management. The research will use and analyze one of the initiatives partnership of fisheries co-management in the Philippines in particular the experience of the Southern Iloilo Coastal Resource Management Council, Inc. (SICRMC) that had studied by Espectato in 2011. Basically, the study analyzes the institutional arrangement using Ostrom's design that fits with the socio-political condition in Southern Iloilo, Philippines (Espectato et al., 2012).

As the previous explanation of fisheries co-management arrangement in the Philippines, it describes the form of partnership of LGUs with the local community in defining the problem and sharing their responsibility over the

fishery resources. Also, the contribution of University of Philippines Visayas as external agents influences to this fisheries arrangement. From Espactato's study and additional criteria to this research, the performance of co-management institutional arrangement can be seen from Table 3.3

Table 3.3 Institutional arrangement analysis of the performance of Philippines fisheries co-management

| Criteria | Indicator Analysis |
|--------------------------------------|--|
| 1. Type of co-management | Type of co-management: <i>consultative co-management</i> , it can be seen from the formal partnership between LGUs and local community but decision making process is still undertaken by government. |
| 2. Phase of co-management | Phase of co-management: implementation. It can be identified by direct participation of the fisherfolks, core groups from LGUs and the community, CRM's plan is aimed to serve as an integrating strategy on addressing issues common to all member-LGUs associated with the management of Panay Gulf. |
| 3. Enabling Policies and Legislation | Presence of supportive formal regulation (the LGC of 1991 and the Fisheries Code of 1998) and clear authority structure/organizational set up. |
| 4. Clearly defined Boundaries | <ul style="list-style-type: none"> - Management area or rights arrangement is well defined by each member-LGU but it does not explain about local fishery's right. - And municipal water boundaries of member-LGU are established |
| 5. Participation | There is direct participation of the fisheryfolks to the arrangement, but in the decision making of SICRMC is still limited. Dominant participation comes from the LGUs. |
| 6. Leadership | Leadership is fairly shared in the structure of SICRMC, responsibility, and authority through the rotation of leadership position among the member in particular among LGUs. |
| 7. Monitoring | There is no document on monitoring effort of SICRMC over fishery conditions, fisher activities and their waters. |
| 8. Graduated sanction | There is no graduated sanction practices yet done by SICRMC. |

| | |
|----------------------------------|---|
| 9. Conflict management mechanism | The LGUs initiate to serve as a venue (mechanism for arbitration and resolution) to discuss conflicting interest of the municipal and commercial fishers. The most problems were resolved. |
| 10. External agents | University of Philippines Visayas served as a catalyst in its establishment. UP Visayas plays significant role in SICRMC since it has apolitical status and serves as vast sources expertise. In addition, the initiated arrangement is funded by UP Visayas Foundation, Inc. |

From Table 3.3, there are some findings that important for the key conditions of successful fisheries co-management as follows:

- Fisheries co-management is constructed based on formal institution that the central government has devolved to local government units and local community to work and shared their authority and its responsibility but the decision is determined by government. It is categorized as consultative co-management.
- Phase of co-management is lied on implementation phase which it is marked by such activities includes local community participation, core groups from LGUs and the community, CRM's plan and strategy.
- Clearly defined boundaries: the scope of management area is well defined (the Panay Gulf) only by each member-LGUs, but there is no explanation of withdrawal rights for local community explicitly in the arrangement.
- Enabling Policies and Legislation: Presence of supportive formal regulation (the LGC of 1991 and the Fisheries Code of 1998) and clear authority structure/organizational set up gives legal entity to stimulate the fisheries co-management arrangement work better toward sustainable fisheries development in the Philippines.
- Participation: lack of participation from local community (fisherfolks) should be encouraged by some training or dissemination to improve their ability in managing the resources and pursuing the robustness of this arrangement in future.
- Leadership: fair sharing of leadership authority among members (LGUs) but it has limited involvement of local community leaders to this arrangement. Local

leader has important role to influence their people to engage in the fisheries co-management. Also, this effort is important to legitimate the arrangement.

- Monitoring: There is no monitoring effort to fishery activities means it led to weak of law enforcement. It should be improved by some regular monitoring among the member and also local representatives as their responsibility to the arrangement.
- Graduated sanction: No practices of graduated sanction to the breaker rule imply the difficulty of the arrangement faces challenges such as over fishing, habitat destruction, etc. Persuasive methods are needed to minimize these challenges although it is a time consuming efforts.
- Conflict management mechanism: The initiation of LGUs member to serve as arbitration to discuss conflicting interest of the municipal and commercial fishers. It implies good potencies to reduce both horizontal and vertical conflict among the members.

From the explanation, we could assess the performance of institutional arrangement of particular case in Philippines as described as follow:

Table 3.4 Rating of criteria and indicator in Philippines fisheries co-management arrangement

| Criteria | Indicator | Rating |
|--------------------------------------|---|--------|
| 1. Enabling policies and legislation | <ul style="list-style-type: none"> ▪ Presence of supportive regulation ▪ Clear of an authority structure | High |
| 2. Clearly defined boundaries | <ul style="list-style-type: none"> ▪ Management area is well defined ▪ Recreational and customary fisher rights are not defined | Medium |
| 3. Leadership | <ul style="list-style-type: none"> ▪ Leadership is fairly shared among the members but weak leadership from the local community | Medium |
| 4. Participation | <ul style="list-style-type: none"> ▪ LGUs dominated in participation process ▪ Community participation is limited | Low |
| 5. Monitoring | <ul style="list-style-type: none"> ▪ There were no or limited monitoring effort in the arrangement member | Low |
| 6. Conflict management mechanism | <ul style="list-style-type: none"> ▪ Presence of mechanism for arbitration and resolution in which most of it were resolved | Medium |
| 7. Graduated sanctions | <ul style="list-style-type: none"> ▪ Graduated sanction were not used | Low |
| 8. External agents | <ul style="list-style-type: none"> ▪ Strong supported by UP Visayas and UP Visayas Foundation in term of initiating and establishment this arrangement | High |

From the current implementation of institutional arrangement in Philippines fisheries management, it is quite different with the New Zealand case. It describes that co-management is constructed based on government-community instead of government-private sector. In Philippines, the main object is centered on the community empowerment, how to stimulate the local fisherman community in the fisheries co-management. Through determining criteria and indicator of institutional arrangement in fisheries co-management, it gives some indications that the practices have already implemented decentralized style although it is typically classified to consultative co-management where the government worked together with the fisherman community but still determine decisions in the arrangement. The SICRMC is still employing top-down approach since policies are being decided by the Board of Trustees which is composed of the Mayors and other official of the municipality members.

On the other side, participation of fisherfolk is still limited in the arrangement. It can be seen from many aspects such as leadership, participation, and monitoring. These kinds of limitation become challenges in the co-management practices in Philippines to define better fisheries management in future. This overview is common happened in developing countries in particular in South East Asia where the government has difficulties to initiate fisher participation or its initiatives.

3.2.5 Concluding Remarks

This part mainly discusses some remarks to the implementation of fisheries co-management in Philippines. From the previous explanation above, the fisheries co-management arrangement is developed through formal regulation. The establishment of the LGC of 1991 and the Fisheries Code of 1998 gives authority local government and community more room for initiatives of collaboration in term of managing the fisheries resources. This policy is underpinned by improvement effort to address their common concerns such as illegal fishing activities and fish habitat degradation. Some remarks of the implementation of fisheries co-management arrangement in Philippines can identified as follows:

a. Fishery governance

From the historical background, the fisheries management was implemented by strong top down approach. The influence of Spanish's colonization gave strong character of governance that government had controlled community authority and its rights in utilization of fisheries resources. Since the implementation led to environmental degradation such as habitat destruction and over fishing activities, the government reconsider to find out new governance through policy and planning in fisheries sector. Trying to more adaptive in decision making by accommodating local community or groups and delegating an authority to manage fisheries management, it will be significant solution to address the complexity problems.

The presence of supportive formal regulation (the LGC of 1991 and the Fisheries Code of 1998) brings such a way to promote many partnership or alliance-building initiatives whereby authority and responsibility for fisheries management is being shared (Pomeroy and Pido, 1995). The government realized coastal areas that transcend jurisdictional boundaries need collaborative management (Espectato et al, 2012) and require broader partnership (Pomeroy et al., 2009; Eisma-Osorio et al., 2009).

In addition, those regulations give more room for external agent such as NGOs, international institution, universities or academes to work together in directing the implementation of co-management arrangement in fisheries sector. There were a lot of project and programs that funded by external agent in Philippines. This is become mutualism relationship within the collaboration where the government, local community and other stakeholders gained a new knowledge that could improve their capacity. On the other side, external agents can implement sort of theories and improve their knowledge to the complexity problems in particular the fisheries management. However, their involvement should be clear both authority boundaries and its effort. Often, the donors bring such interventions into certain country's policies especially developing countries. Therefore, transparency of partnership is absolutely needed to see to what extent that the program or project will be implemented.

b. Stakeholder Involvement

Through the establishment of the LGC of 1991 and the Fisheries Code of 1998, the government has tried to look at the existence of stakeholders such as local community and other groups to more active and involve in the managing coastal and fisheries resources. The government also has realized that the Philippine's fisheries sector is faced with interlinked issues, actors and its problems, which include among others: the depleted fishery resources largely brought about by excessive fishing effort and open access regimes; degraded fishery habitats due to destructive fishing methods, conversion of fishery habitats into economic uses and negative impacts from land-based activities; intensified resource use competition and conflict, among fisher groups and other economic sectors; poverty among small-scale fisherfolk; post-harvest losses due to lack of infrastructure facilities (e.g., fish ports, market roads and dry/cold storage facilities) and limited technological know-how; limited institutional capabilities from the local up to the national levels of governance; inadequate/inconsistent fisheries policies; and weak institutional partnership among government agencies, civil society organizations and private sector (BFAR, 2005).

Therefore, stakeholders are perceived to have important role to overcome the complexity problem. The central government with those regulations has devolved authority and responsibility through promoting partnership or collaboration between local government and local community. In addition, the central government gives more room for external agent to participate and support the fisheries co-management arrangement. These collaborations more or less give many changes to fisheries management toward sustainable fisheries development in Philippines. But, these stakeholders involvement's efforts will need more time since many problem and issues in Philippines fisheries sector. It needs iterative process and financial support to empower local people to define their surrounding problems.

The changing of regulations stimulates people's organizations formally allowed to enter into partnerships with local government units on a broad range of activities (Katon et al., 1997). So, co-management projects in the Philippines are

much underpinned by the emerging of awareness both from government and community in addressing the problem of fisheries management.

c. Policy implication for fisheries co-management in Philippines

Resource management systems must be viewed in the context of the complex interactions of these characteristics that have shaped past and present situations and that have a capacity for influencing the future (Pomeroy et al., 2001). In the Philippines context, the characteristics can be identified include the small-scale, subsistence-based fisheries, the local community traditions, the social and political structures, the political and economic restructuring that is occurring in the region, and the need for food security. Some of the conditions can be met by means internal to the community, while others require external assistance.

From those characteristics, the implementation of fisheries co-management should be conducted at several levels (Pomeroy et al., 2001). These involvements include the individual, the stakeholder, the community that fit existing and traditional social and its cultural institutions, the form of partnerships, the government (i.e., government agency support, enabling policies, and legislation); the external agent; and the overall process (i.e., trust, networking and advocacy, leadership, organization, and financial resources). All of these levels are linked to each other in the arrangement and its process.

Each has different function in the arrangement and should work mutually (Pomeroy et al., 2001). The role of government in co-management is usually associated with the enabling policies and legislation, vigilant and effective law enforcement, arbitration of disputes among partners when these cannot be resolved by the parties themselves, provision of financial and technical assistance to sustain co-management activities and promotion of a stable political and social environment. The role of the external agent involves initiating a process of discovery and social learning, guiding problem solving, building local capabilities, and advocating appropriate policies. Resource users and stakeholders are largely responsible for the day-to-day management of resources, anticipation in consultations, design of appropriate resource management measures, and assistance in monitoring and law enforcement. The fulfillment of these

complementary roles is crucial to the operation and sustainability of co-management (Pomeroy et al., 2001).

3.3 General Overview of Both Implementation Case Studies (New Zealand and Philippines's Fisheries Co-management)

From both New Zealand and Philippines case studies, there are some differences and similarities in the practical approach and implementation of fisheries co-management. There is no fixed formula to define better in the implementation. Each place has unique characteristics such as geographical, social, cultural, political, and etc. that could influence to the planning approach and its implementation. The general overview of fisheries co-management implementation in both case studies can be described (see Table 3.5 and Table 3.6), as follows:

Table 3.5 Type and phase of fisheries co-management

| Case Study | Type of Co-management | Indicator |
|-------------|------------------------|--|
| New Zealand | Delegated | Government has devolved an authority and responsibility to CSOs in managing the fisheries resources through QMS. |
| Philippines | Consultative | The formal partnership between LGUs and local community but decision making process is still undertaken by government |
| Case Study | Phase of Co-management | Indicator |
| New Zealand | Post-implementation | Monitoring effort between government and CSOs in fishery condition and fisher activity. Also, there is an actively effort of CSO to improve the current plan such as advice papers |
| Philippines | Implementation | It is marked by such activities includes local community participation, core groups from LGUs and the community, CRM's plan and strategy. |

Table 3.6 Assessment of institutional arrangement in fisheries co-management

| Criteria | Indicator | Rating/Scoring | |
|--------------------------------------|---|----------------|-------------|
| | | New Zealand | Philippines |
| 1. Enabling policies and legislation | - Presence of supportive legislation and clear authority structures to provide legitimacy to the arrangement | High | High |
| 2. Clearly defined boundaries | - Management area is well defined - Recreational and customary fisher rights are well defined or not - Groups in co-management boundaries are well established | Medium | Medium |
| 3. Leadership | - A leader in the group/community is identified in the co-management arrangement that provides direction and energy to the group. | Low | Medium |
| 4. Participation | - Participation in the strategy and plan of co-management from members are well accommodated or not | Low | Low |
| 5. Monitoring | - Monitoring effort from the arrangement member to audit fishery conditions, user activities and its tools. | High | Low |
| 6. Conflict management mechanism | - Presence of mechanism for conflict management through arbitration and resolution form. | Medium | Medium |
| 7. Graduated sanctions | - Presence of graduated sanctions under current legislation | Low | Low |
| 8. External agents | - there is participation of other sectors/agents that is needed to serve as a catalyst in the development process or to facilitate the establishment of the co-management arrangement | Low | High |

For further explanation about the implementation of both case studies will be analyzed in comparative analysis chapter. This will be provided as lessons learned for fisheries co-management improvement in Indonesia. In the next chapter will explore the implementation of fisheries management in Indonesia. To what extent the development of planning approach has been implemented and supported potencies for the implementation of fisheries co-management in Indonesia.

CHAPTER 4. FISHERIES MANAGEMENT ARRANGEMENT IN INDONESIA AND ITS CHALLENGES

This chapter will describe the implementation of fisheries management arrangement in Indonesia. It will be explained overview of historical development of fisheries management in Indonesia and to what extent the potency of resources and its challenges influence to the keys success of fisheries co-management. These aspects are important to take into account as base considerations to support the possibility of fisheries co-management. The description of specific characteristics is required to define better the fit fisheries co-management arrangement in Indonesia

4.1 Historical Development of Fisheries Management in Indonesia

Indonesia, as the world's largest archipelagic nation with more than 18,000 islands, 5.8 million square km in water area and huge marine and fisheries resources (Kusumastanto, 2003), has experience to the changing of fisheries management. In general, Indonesia's fisheries management has changed over centuries and the planning approach can be divided into three main approaches, namely: traditional approach, centralized/top down, decentralized and participatory approach.

Before colonization era, the fisheries management was recognized by customary or traditional rule system. Strong characteristic of this system is taboo system and ban of fisheries catchment in certain time and place. In addition, strong leadership of local leader also influence to successful of the system. In Indonesia, there are a lot of traditional laws in managing coastal resources management. For example, *Sasi* tradition in Maluku Province. *Sasi* is a traditional consensus about the use of natural resources prepared by the community and pass through a structural mechanism of village customs. It manages a limited coastal area for coastal resources management accompanied with its sanctions. Naturally, all regulations contained in the *Sasi* system delivered orally from generation to generation. Different from any other traditional systems, the system has

accommodated to be a legal formal by local government in 1999 (Wahyudin, 2004).

Another example of traditional law is *Awig-awig* in Bali Province and West Lombok, West Nusa Tenggara Province. The regulation managed fishery resources and carried from generation to generation in Nusa Penida, Bali. It contained bans or enjoinders on mangrove woods, reefs for any purposes that would harm and disturb the surrounding coastal ecosystem. For traditional settlement's purposes, it will be done through an agreement of custom's leader (Kusumaastanto et al, 2004). Meanwhile, in West Lombok, the system has custom ceremonial; it called *Sawen* means bans on fishery resources. It implies ban of fishery catchment in particular time and place through local consensus. The purpose is to get optimal result during harvest time. Like other traditional laws, it has been done through generation to generation and is not written. Yet, the local community is in compliance with these rules (Wahyudin, 2004). So, in general all traditional systems emphasized the important of sustainable fisheries resources by trying to balance the supporting component such as ecological and social-condition aspects and strong law enforcement (Solihin and Satria, 2007).

Then, it was significantly changed to centralized approach since the colonization era (17th Century-20th Century). The top down approach was dominant during colonial time. There was transference of governance from community to colonial government. Centralized management agencies controlled the level of exploitation, modernized fishing methods, and other fish production oriented (Christie and White, 1997). The mismatch between customary law and colonialism fishery practices was quite demonstrated in many places in Indonesia. In addition, the centralized policy that regarded coastal and marine resources as open access led to natural degradation. Therefore, the policies were criticized through some concern both governance and institution in term of managing the resources.

Then, decentralization of fisheries management is highly considered as an alternative to overcome the problem of resources depletion. Concerning decentralization of fisheries management in Indonesia, there is a tracing of the evolution of decentralization that can be divided into three periods: post-

independence period, New Order period and Reforms period (Satria and Matsuda, 2004).

During post-independence period (1945-1966), the central government decentralized some authorities to provincial governments to manage inland fisheries by referring to annual plan authorized by the central government and the guidelines issued by Minister of Agriculture (see Table 4.1) (Satria and Matsuda, 2004). It implied that central government plays dominant role to manage all steps in term of decision making and its implementation. This means that decentralization policy at that time was indicated as weak decentralization.

Table 4.1 Decentralization policy of fisheries management in the post-independence era

| Fishery Policies | Titles |
|-----------------------------------|---|
| Government Regulation No. 31/1951 | Decentralization of inland fisheries to Western Java |
| Government Regulation No. 43/1951 | Decentralization of inland fisheries to Southern Sumatera provincial government |
| Government Regulation No. 46/1951 | Decentralization of inland fisheries to Central Sumatera provincial government |
| Government Regulation No. 49/1951 | Decentralization of inland fisheries to Northern Sumatera provincial government |
| Government Regulation No. 59/1951 | Decentralization of inland fisheries to Yogyakarta Special Autonomous Provincial government |

Source: Satria and Matsuda (2004)

Subsequently, a strong centralized approach was dominant in all sectors included fisheries management during New Order period (1966-1998). It can be clearly seen from the establishment of the Basic of Local Government Law No. 5/1974 that stated the absence of local government jurisdiction over marine and fisheries resources. In addition, the fisheries regulation in particular Fisheries Law No. 9/1985 that there was no form of mandate fisheries either for local government or local community (Satria and Matsuda, 2004). In this era, considering with decentralization type, some policies that propose decentralized approach were seen to be delegation and de-concentration rather than devolution. Furthermore, there was no recognition of traditional fisheries management in those regulations. Also, the absence of responsibility, participation of local people

to conserve and protect marine resources from destructive activities make such conditions were not managed well and resources depletion became inevitable (Satria and Matsuda, 2004).

So, the central government controlled the process and the implementation of delegation and de-concentration process in provincial scales through its policies. Strong characteristics of the centralization of fisheries management was that all marine waters were state property, to be managed centrally, through the provincial, regency, and village offices of the central government, for the benefit of the entire nation (Ruddle, 1993). However, those policies cannot govern marine and fisheries resources in effective way. The central government faced difficulties to handle it. Limitation of finance and personnel to carry out such monitoring, surveillance activities and the enforcement failure means transaction cost for this approach was so high. Then, it created marine resources as de facto open access again (Satria and Matsida, 2004).

After New Order period, Indonesia entered reform era (1999-Present). There has been significant changing in managing marine fisheries sector to bring back toward decentralized approach since 1999. It can be clearly seen from the local autonomy law (Undang-Undang (UU) No. 22/1999 and then the revised version of Law No. 32/2004). It allowed local governments to manage over territorial water, which are 12 miles for provincial authority and 4 miles for district authority. Further, in the regulation stated that these authorities include (a) exploration, exploitation, conservation, and marine resources management within the authority water area; (b) administrative management; (c) zone management; and (d) law enforcement of local regulation or central government regulations that are de-concentrated to local government. However, in the regulation was not clearly defined the traditional fisher rights in term of territorial sea rights, fishing ground area, etc.

In 2000, the central government in term of implementation of the local autonomy law has released a government regulation (*Peraturan Pemerintah*) or PP No. 25/2000 about the detailed description of authority both central and provincial government over marine and fisheries affairs (Satria and Matsuda, 2004). Subsequently, there were some policies that support decentralization

process in Indonesia which cover fishery enterprises; community-based management, sustainable development guideline, intensification of aquaculture, integrated coastal zone management and etc. (see Table 4.2).

Table 4. 2 Decentralization regulation and policies of fisheries management in the reform period (1999-present)

| Policies and Regulation | Title |
|--|--|
| Minister of Marine Affairs and Fisheries Decree No. 41/2000 | Guideline of Sustainable Community Based Small Island Management: |
| Ministry of Marine Affairs And Fisheries Decree No. 58/2001 | A Guidance of community based surveillance system (<i>siswasmas</i>) on marine and fisheries resources management |
| Government Regulations (act) No: 54/2002 | Fisheries enterprise: Fisheries Enterprise Certificate (<i>Izin Usaha Perikanan or IUP</i>), the license for catching fish (<i>Surat Penangkapan Ikan or SPI</i>), and the license for fishes transport vessel (<i>Surat Ijin Kapal Pengangkut Ikan or SIKPI</i>) to fisheries companies. It issued by the governments |
| Minister of Marine Affair And Fisheries Decree No. Kep.09/Men/2002 | Intensification of Aquaculture |
| Minister of Marine Affair And Fisheries Decree No. Kep.10/Men/2002 | A Guideline of Integrated Coastal Management Planning |
| Fisheries Act No. 31/2004 | Revision of Fisheries Act No.9/1985 in particular all aspects in the fisheries resources management, fisheries law, and using technology |
| Law No.27/2007 | Coastal zone management and small islands which cover strategic plan, zoning plan, and action plan in each level of government. |
| Fisheries Act No 45/2009 | Revision of Fisheries Act No.31/2004 in particular technology development and the need of law in term of marine and fisheries resources management. |

Source: Satria and Matsuda (2004); statute books of marine and fisheries in Indonesia

During this era, Indonesia has been recognized community and participatory approach as a guideline over many coastal community empowerment

programs including fishery sector such as National Program of Community Empowerment in Marine and Fisheries Sector (*PNPM Mandiri Kelautan dan Perikanan*), Community-Based Management on Coastal Environmental Program (*Pengelolaan Lingkungan Pesisir Berbasis Pemberdayaan Masyarakat* or it called *PLBPM*) in many districts in Indonesia. Those programs emphasized the community as the central of the program. The approach focus on the role of community in term of planning, implementation and its monitoring programs (Ministry of Marine Affairs and Fisheries, 2009). The government's role is giving fund and assistance efforts in order to the program could run in the right way. In addition, in some region in Indonesia, there are formal local regulations that have recognized customary system as a part of local fisheries management. For instance, the implementation of *Sasi* (in Maluku Province) and *Awig-awig* (in West Nusa Tenggara) that have been accommodated to be a legal formal by local government (Wahyudin, 2004; Satria and Matsuda, 2004).

Meanwhile, the government also provides room of participation from donor organizations or international institutions to more contribute and engage deeply to fisheries and coastal development. It can be seen from many program such as COREMAP I and II (1998-2009) from Asian Development Bank (ADB) about coral reef conservation and other programs from World Bank (Ministry of Marine Affairs, Indonesia). This is needed as Indonesia has important position in term of marine biodiversity and largest coastal ecosystem that could support fish stock globally and also prevent to the overfishing activities and marine pollution (Hayes, 2005). Furthermore, the effort of community empowerment is deemed as suitable solution to overcome marine and fisheries problem today. The more participation from local community, the more chances for successful of the program will be achieved both purposes and its legitimation.

So, from the current implementation of fisheries management program in Indonesia, the fisheries co-management concept actually has been adopted during the reform era. Through local autonomy law, the central government (Ministry of Marine Affairs and Fisheries) has devolved authority and responsibility to the local governments (province and municipal governments) to manage marine and fisheries resources. In this case, the central government establishes the general

guideline for the implementation of fisheries management through Fisheries Act (UU No. 45/2009) and Act No. 27/2007 (Coastal zone management and small islands).

Subsequently, the local governments, usually represented by Marine and Fisheries Agency, are expected to more actively work together with stakeholders especially fisherman society as major coastal community in Indonesia. In addition, they can explore what is the potential resource in their regions either human/social resources or its natural richness. In its implementation, many fisheries programs are driven to empower fisherman community both human capacity and its local institution (fisherman groups). Also, it tries to initiate the initiatives of fisherman or local people to more engage in all phase of the program, starting from planning, implementation and controlling phases (Ministry of Marine Affairs and Fisheries, 2009). The local community is given room of freedom to decide what is the suitable program should be done in their places. It is usually done through village meetings with local leader, fisherman, and representative of local government. So, the local government gives more room of participation and responsibility to the local community in its implementation. But, the assistance of government to fisheries empowerment program is still much needed as the fisherman society still faces many difficulties to initiate their initiatives in all phases of program.

So, community-based fisheries co-management in Indonesia, typically, could be said that it is still constructed by consultative co-management instead of collaborative co-management. It is based on strong involvement of government both in funding and its guidance of program. Also, the local people still needs support from government to work together to define better fisheries management. But, it is still perceived more effective as first step toward ideal condition in term of empowerment coastal community program in Indonesia. It needs long process since Indonesia has long experience in centralistic way in fisheries management over many centuries.

4.2 Potential Resources and Its Challenges for the Implementation of Fisheries Co-management in Indonesia.

In general, the implementation of fisheries management has been adopting community-based and participatory approach during reform era in Indonesia. The government has learned from the new order era experiences that centralized policy led to marine and fisheries resources as common access property which is all users exploit the resources improperly such as overfishing, ecosystem destruction and etc. It means high cost transaction in dealing with fisheries management such as monitoring and controlling function. But dealing with this approach is not easy work in the implementation. The devolution of fishery management authority from central government to local governments and community organizations or other users is an issue that cannot be easily resolved (Pomeroy and Berkes, 1997). However, this decentralization approach by accommodating community-based and participatory approach has brought such improvements towards adaptive fisheries co-management even though there are still many shortcomings in the implementation process.

In Indonesian context, basically, the efforts of fisheries co-management have been initially implemented since the beginning of reform era. But, the purpose of fisheries co-management of providing welfare for the people is still need a long time process. Therefore, potential resources should be identified and to what extent they could be maximized to improve fisheries co-management in Indonesia. These are potential resources that can be explored with its challenges for the successful of fisheries co-management, as follows:

a. Natural and Human Resources

Indonesia is the largest of archipelago country in the world with amount of 17.500 islands and the shorelines of 81.000 km (Patmasari et al,___). The physical potency of coastal and marine in Indonesia consists of archipelago waters which covering an area of 2.8 million km², Territorial Sea area 0.3 million km². National water area of 3.1 million km², total land area of about 1.9 million km², extensive EEZ (Exclusive Economic Zone) of approximately 3.0 million km² (Kusumastanto, 2003). These conditions should make marine and fisheries resources to be big potential sector in Indonesia. In addition, the potency which

has biotic and abiotic resources, artificial resources and service sector that provides important needs for the people (Rudyanto, 2004). Furthermore, the resources also have significant function in term of ecology, economic, and geopolitic which support coastal society in Indonesia. So, these potencies should be integrated and managed so that it could be used for sustainable fisheries development.

Yet, until this time the potency of fisheries and marine resources are still not utilized better in term of increasing the nation welfare. The assumption of marine and fisheries as common property led to over exploitation resources and inefficiency management. These violation practices cannot be avoided as a failure of the centralized policy (Rudyanto, 2004). It can be seen from the cases of illegal fishing by foreign fishermen over Indonesian water. Also, exploited marine and fisheries resources of the parties are not liable (intruders) such as destructive fishing, as well as reclamation of less attention to environmental sustainability (Kusumastanto, 2003).

On the other side, capacity of human resources both in governments and fisher society in term of managing the resources is limited. Human resource capacity plays significant role in govern and determine the manner in which power and influence are exercised. In Indonesia, the decentralized policy actually gives more room for local governments to manage their local potencies optimally. But, with the limitation in both number and capacity of human resources to manage their fisheries resources, these make the fisheries management do not give significant result for the local development itself. In addition, fisher society also face similar problem where the low capacity of human resources is reflected from low education level. It is becoming one of basic constraints in attempting sustainable marine fisheries management (Satria and Matsuda, 2004). Therefore, it needs a gradual effort to increase human resources both skill and knowledge in the fisheries management. During last decade, there are lot of program from national government or cooperation between government and donor institution such as Asian Development Bank and World Bank that trying to empower local people and also local government through fisheries community-based program.

Through these programs, the potency can be maximized and it can be initially as important step toward sustainable fisheries development.

So, human and natural resources have significant position in co-management concepts in particular fisheries co-management. Human as managers in driving the co-management arrangement should have good capacity to bring the form of co-management toward adaptive and suitable with the characteristic features in certain place. Meanwhile, with the huge natural resources in particular marine and fisheries sector, through the concept of co-management could be managed optimally where authority and responsibility are being shared among the stakeholders. And the result can be utilized better and sustained in the future.

b. Socio-Economic Condition

In general, socio-economic problem in fisherman society in Indonesia can be divided into two main level, micro and macro problem (Kusumastanto, 2003). The micro level issues concerning the internal of fisher society such as education, and mentality. This aspect is dominant in term of influencing the nature and character of this community. In addition, the nature and its characteristics are influenced by the type of business activities such as fishing effort, fishery ponds, and fishery product processing enterprises. These communities have unique characteristics associated with their activities. Highly dependent with environmental condition, season, market price and etc. make their life is vulnerable to external factor in which they could not handle it.

But, there is another problem in term of socio-economic in macro level that could be as the fundamental problem, it called structured poverty. Fisher society which has less power cannot avoid this social system. This system is so entrenched in the fisher communities. The issue is what should be the focus of government attention in term of the empowerment program in fishers and fish farmer society. There should be a policy instrument that can effectively reduce (if not eliminate) the social system that does not allow fishermen out of the cycle of poverty. Scenarios such as creating new models that give more for participation and empowerment of coastal society become very urgent to implement. Also, the

model should have a planning target to be more contextual with the specific condition such as coastal community in Indonesia (Rudyanto, 2004).

The socio-economic problem above becomes a challenge in fisheries co-management in Indonesia. Cooperation between the governments, community and other stakeholders is supposed to be good starting point in defining main problem in fisheries management. In the concept of co-management, it allows more room for community participation as responsibility form to manage the fishery resources. It is expected to give more advantages for fisher society to improve their life. On the other side, the governments and other stakeholders take another role to support this arrangement. Dividing responsibility and authority among the arrangement members give clear coordination in term of managing the resources. So, the opportunity of co-management concept in fisheries management in particular addressing socio-economic problem could be as alternative solution in the future of fisheries management in Indonesia.

c. Legal Formal in term of Supporting Fisheries Co-Management:

Decentralized policy that has been implemented in Indonesia; actually, give more room for co-management practices in fisheries management. It is because that the evolution of decentralization of fisheries management policy in Indonesia showed that the decentralization was gradually developed from de-concentration and delegation to devolution form (Satria and Matsuda, 2004). After Reform Era, devolution form of decentralization has been implemented due to the enactment of UU 22/1999 and the revised version UU No. 32/2004 (the Local Autonomy Law), where local government has gained the amount of new authorities concerning marine-fisheries management. By such devolution, however, the community based management system which is rooted from traditional fishing communities, is recognized. The effectiveness of the community based management system for the marine resources sustainability is caused by the bottom up planning and participative approach that led to the increasing of the local fishers' sense of stewardship over the resources. This legal formal base could be important potency for the improvement of fisheries co-management.

The improvement of fisheries community-based management towards co-management should be a basis concept of fisheries management in Indonesia. It is needed as fisheries management faces more complex problem in the implementation of community-based program. Sharing responsibility and authority among government and fisher community or other stakeholders is very helpful to decrease high transaction cost in dealing with marine and fisheries resources. Also, the local community participation can enhance the legitimacy of the regulatory regime, and hence, compliance (Satria and Matsida, 2004)

But, the approach needs the law enforcement as the controlling effort over marine and fisheries resources. In tropical countries, one of big constraints of this management is low enforcement for fishery violence. There is an assumption that the resources are common property which led to create open access regime, pushed the rise of “free competition” in marine waters among fishermen crossing different economic scale (class), ethnical and cultural background, and others (Satria and Matsuda, 2004). As a result, resources depletion (such as over fishing, destruction of mangrove and coral reef) and social conflict were inevitable, and it certainly threatens marine fisheries sustainability in the future. Co-management concepts could address the challenge by sharing responsibility and authority among the members to manage certain waters.

Meanwhile, the legal formal of fisheries management in Indonesia allows a more broadly participation form of external agent such as donor institutions, NGOs, the university, and etc. Since the government realized with some limitations in fisheries management such as human resource capacity, there is many assistance programs from external agent to more involve in the fisheries management. The external agent can act to promote fisheries co-management as this approach is more acceptable in dealing with fisheries management in particular at developing countries. But, this participation should be clear on what the agenda of their involvement is. Also, the governments should aware about their involvements and what the consequences of this cooperation for the development of marine and fisheries resources and for the community as well. This is to be good starting point for the possibility of the implementation of fisheries co-management in Indonesia.

Subsequently, the legal formal of decentralized policy give the possibility of institutional arrangement form in fisheries co-management. It is based on the previous explanation that in some areas in Indonesia has been implemented traditional system as part of formal fishery regulation such as in Lombok (Awig-awig system). It implies cooperation between local community and the government to share the authority and responsibility to manage the resources. But, this institutional arrangement in one area could be different in other place because of different problem and its characteristics. Therefore, the government should consider many aspects in what suitable fisheries co-management can be applied in many area and scale. It could be involved many type of actor or stakeholder charge in the arrangement.

d. Information and Technology

In addition to be able to manage marine and fisheries; formulate strong regulation and public policy in this sector; and effectively secure the coastal ecosystem to more conducive for any economic activities, these fisheries management effort also must be supported by mastery of science and technology, and human resources that have relevant competency with the needs and realities or the real problems faced in managing marine resources (Lakitan, 2012).

In Indonesia, the research of fisheries management is very limited. This fact can be seen from the limited research activities in fisheries and its publication as well (see Table 4.3) (Lakitan, 2012). This condition has close correlation with limited knowledge to use and explore the potency of marine and fisheries resources in Indonesia. If we look at the huge potency of marine and fisheries resources, Indonesia should be able to provide better life for the citizen as well. Through this research, it is supposed to get some innovation in improving fisheries management and able to utilize the resources optimally.

Table 4.3 Portion of research related to marine resources in Indonesia based on keywords in the publication of research results in journals with a global circulation, 2001-2011

| Key words | Number of Articles | Percentage (%) |
|---------------------|--------------------|----------------|
| Ocean | 930 | 3,13 |
| Maritime | 179 | 0,60 |
| Marine | 895 | 3,02 |
| Marine Fishery | 81 | 0,27 |
| Marine Conservation | 81 | 0,27 |
| Marine Biodiversity | 68 | 0,23 |
| Marine Biology | 27 | 0,09 |
| Marine Mining | 23 | 0,08 |
| Marine Tourism | 20 | 0,07 |
| Sea Transportation | 33 | 0,11 |
| Tsunami | 679 | 2,29 |
| Indonesia | 29.668 | 100,00 |

Source: processed form the data base SciVerse Scopus (Lakitan, 2012)

Meanwhile, the productivity of Indonesian researcher in doing marine and fisheries compare to other ASEAN (Association of Southeast Asian Nation) countries is still left behind (See Figure 5.1). Therefore, it is needed an effort to do some movement in term of increasing the research both quality and quantity. Also it needs a conducive policy to stimulate the research in particular marine and fisheries resources as the resources have a big potency to bring the prosperity of nation.

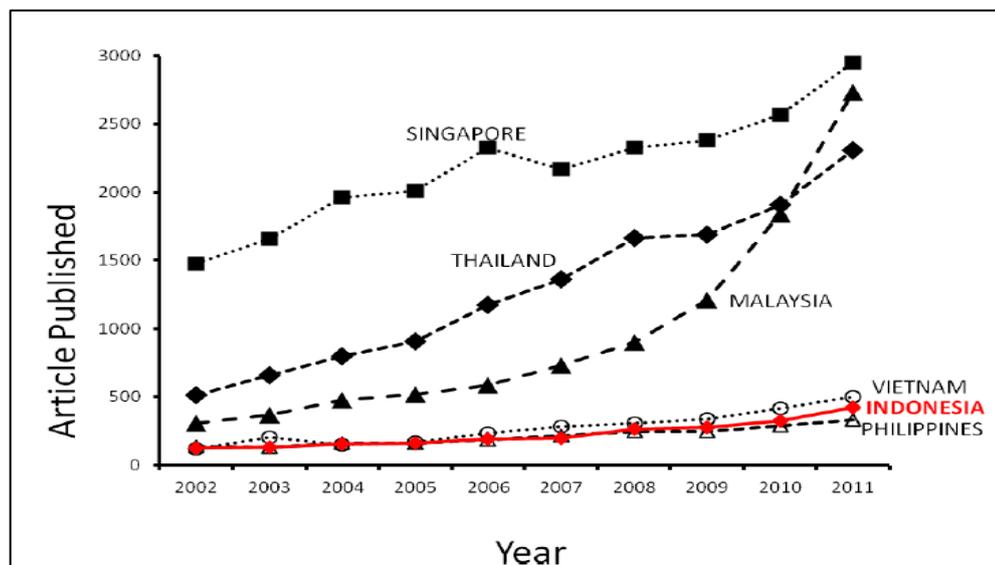


Figure 4. 1 Productivity of Indonesian publications comparing with ASEAN countries (Source: Lakitan, 2012)

Fisheries co-management research also can play significant role in improving the current fisheries management in Indonesia. Concepts of co-management itself as knowledge in dealing with the fisheries management has rapidly developed in many places. It contains sort of action that need some comprehension analysis through technological and social perspectives. Through these experiences, we could find the fit approach of co-management in Indonesia.

From the potencies of resource above, the improvement effort of fisheries co-management should consider specific conditions in Indonesia. There are some strengths and weaknesses in each potency resource that could be as good input in determining what the suitable arrangement in fisheries co-management is. In the next chapter will analyze the what kind of fisheries co-management arrangement in Indonesia by comparing some other experiences (New Zealand and Philippines) and then try to find out the possible and adaptable approach of fisheries co-management in Indonesia in particular its institutional arrangement. And also, it is given some conclusions and recommendations through this comparative analysis.

CHAPTER 5. COMPARATIVE ANALYSIS

This chapter will analyze the institutional arrangement of fisheries co-management based on the current implementation of these arrangements as described in both selected case studies (New Zealand and Philippines). The assessment of criteria and indicators will be considered as base analysis (strengths and weaknesses of the arrangements) to find out the lessons learned for Indonesia. Further, it tries to seek the possible and adaptable of institutional arrangement of fisheries co-management by weighing the current potential resources in Indonesia.

5.1 Comparison of Institutional Arrangement in Fisheries Co-management of Both New Zealand and Philippines

As it has already described in the chapter III about the implementation of fisheries co-management, it will be analyzed by comparing both cases through the assessment of criteria and indicators determined. The comparative analysis will explain each criteria and indicators, and then try to find out the fit approach of the institutional arrangement of fisheries co-management for Indonesia. It is needed to improve the current fisheries management in Indonesia.

a. Type and Phase of Co-management

Historical background of fisheries management has influenced to what extent the form or policy approach determined in a nation. From both of New Zealand and Philippines cases, it can be traced from the development of fisheries management that co-management is needed as adaptive previous approach to address the coastal problem in particular overfishing resources and fish habitat destruction. There were development phases from traditional, centralized and decentralized system. But, the governments in both cases have been taken different type of co-management.

In New Zealand case, the type of fisheries co-management is regarded as delegated co-management. It can be seen from devolving authority and responsibility from the government to CSOs through Fisheries Amendment Act 1999 in managing fisheries resources. It is constructed based on market-based fisheries co-management. This approach is determined because the fishery

industries has played significant role in the fisheries export value (Yandle, 2008). Fisheries sector in New Zealand is characterized by strong historical involvement of the deepwater fishery industry and the inshore fishery industry instead of local community over decades. In the arrangement, the government only focuses on monitoring and auditing the performance of CSOs that in line standard and specification set up by Minister.

Meanwhile, the implementation of fisheries co-management in New Zealand is laid on post-implementation phase which is characterized by good monitoring effort between the government and CSOs to control the violation of fisheries activities. In addition, this phase can be identified by the improvement of current fisheries plan. There is gradual effort from government and stakeholders to redefine the planning towards sustainable fisheries management. The implementation of Management Quota System (MQS) through Individual Trade Quotas (ITQs) is quite effective and efficient to maintain certain species of fish, catch quotas, reduction of fishing licenses, etc. (Meister 1999). These are become the strength point of this arrangement. However, this tool remain raise some problem where the planning approach is tend to fish production oriented rather than considering social and environmental issues.

But, there are some critics related to the arrangement in New Zealand. First, the institutional arrangement does not engage yet the existence of fisher community or customary fisher system that already existed before this arrangement. The involvement of fisher community is still weak or limited. Their involvement can play important role to support and legitimate the arrangement itself. The integrative of fisheries co-management approach needs the synergist efforts that are constructed not only from government and market-based but also considering community-based in the arrangement form. Strong bundle of property rights is a foundation that it is necessary for the development of fisheries co-management (Yandle, 2003). But the integrative approach sometimes does not show effective and efficient result in managing this common pool resource. It is because too many actors could not answer the complex problem such as coastal resources. Second, even in the implementation has showed good point through good monitoring effort between the government and CSOs, but this action only

limited on their CSO members. It cannot reduce its transaction cost in managing the fishery resource such as monitoring and enforcement costs (Satria and Matsida, 2004). In this condition, trying to give more room for community involvement to work together in the arrangement in particular monitoring effort can strengthen the arrangement in long term (Yandle, 2003).

Meanwhile, the institutional arrangement in Philippines has different kind of fisheries co-management in both type and phase of co-management. The Philippines fisheries management is characterized by dominating small fisher community which has low economic level, the local community traditions, limited institutional capabilities of governance, weak institutional partnership among the stakeholders (BFAR, 2005; Pomeroy et al., 2001). Therefore, the co-management is strongly constructed based on community-based approach or it call community-based fisheries co-management. The arrangement is supported by formal regulation (the LGC of 1991 and the Fisheries Code of 1998) in which central government has devolved an authority and responsibility to the Local Government Unit Alliance (LGU) in local government level and the local community to manage the fishery resources.

The type of fisheries co-management is regarded to be consultative co-management. It is because in the case study the decision making process is still undertaken or dominant by government instead of consensus among the members. It is common characteristic in particular at developing countries that local community has limited capacity to involve or engage actively in the arrangement. Most of them is still faced the basic need problem such as food, and health. Fisheries management is still deemed as state domain where people think that it should be government's responsibility to manage the common pool resource. But, the strength point of this arrangement is cooperation between local government to work together manage the resource with their local community. It becomes unique how to define sort of action in the arrangement where each local government has own local regulation in particular in the decentralized era. It is needed synchronization of law among local regulation and the local communities over the water is necessary to involve actively in the arrangement.

Meanwhile, the phase of co-management in Philippines is laid on implementation phase. It can be identified by participation of the fisherfolks, core groups between LGU and community and CRM's plan. As the previous explanation, the government takes all the decision while local fisher community has limited role in the arrangement. The implementation of fisheries co-management is still developing and it needs more improvement the support the robustness of this arrangement. Therefore, the existence of external agent is common in giving sort of action both assistances of driving the concept of community-based fisheries co-management and its funding.

From those case studies, the integrative of co-management approach is still quite difficult work. These arrangements are still running along one leg of triangle (bureaucracy-based and market based or bureaucracy-based and community-based) instead of collaboration between three of them. The integrative approach will be achieved if all instruments and the stakeholders are in well-established condition. In the implementation, sometimes those kinds of approach could be more effective rather than trying to implement the integrative one. Co-management approach seems to be specific case and it is not as general formula.

For Indonesian case, there are many similarities with the Philippines case study that there is strong historical development of community-based fisheries management. The main purpose of the implementation of fisheries management is trying to empower local community in both financial and human resource capacity. The local communities become a central subject of certain fisheries management programs. They are supposed to be able to conduct certain action from planning, implementation and controlling. But, the government's assistance is still needed to guide the program could run in line with the right track. In this case, many empowerment programs in coastal region have difficulties in particular stimulating the local people to engage in decision making process. The socio-economic condition in coastal communities often impedes the process itself. It needs iterative process and could be the result achieved over generations.

Meanwhile, the idea of local government collaboration in Philippines is interesting. It is because many water regions in Indonesia have divided into several local administrative boundaries and each local government has own

regulation to utilize the fisheries. There is no alliance of local governments in one region of waters in term of co-management in the fisheries sectors. It requires formal regulation to support the arrangement such as in the Philippines case. But, the possibility to adopt the approach is quite possible as Indonesia has similar geographical condition with the Philippines that should be manage in co-management way. It is step forward to define better fisheries management to more effective and efficient to manage huge water such as in Indonesia. Yet, it is needed clear commitment among the member of alliance to pursue common purposes. This point sometimes in many experiences has failed because of lot of political interest in it.

Meanwhile, there is a good lesson from New Zealand about the implementation of planning approach and its product. Involving fishery industry in particular for deep sea fishery by giving more room for participation or as co-management's partner is good way. In addition, the implementation of ITQ as tools in managing the fisheries sector is effective to achieve fish catch level, optimum number and configuration of fishers, boats and gear in term of minimizing its cost and to minimize enforcement cost (Meister, 1999). But, the regulation and policies in Indonesia do not allowed yet private sector to take the responsibility such as in New Zealand. In this case, the government has an authority through Government Regulation No. 54/2002 to issue the fisheries enterprise certificate or the license for catching fish. Therefore, it is quite difficult to be implemented in Indonesia. In Indonesia, the resources that can contribute many advantages for many people are belonging to the state. The government must manage the resource for the citizen's welfare.

Yet, in the implementation this regulation is not run effectively because of many limitations in managing this resource. The challenges in fisheries sector need strategic solution. Actually, the example of New Zealand could be adopted in Indonesia but it can be done in limited waters (in particular deep water fishery) in which small fishery actors as majority number are not disturbed with fishery industry actors. It is important to prevent conflict in utilizing the resources in certain waters. So, the governments can do certain policy to manage fishery resources by determining certain waters for this project. In this case, the

government still has an authority in issuing the fisheries enterprise license and its rights but private sector could be given certain responsibility to define the planning through working together with the government on it. This initiative could be step forward in improving the fisheries management in Indonesia.

b. Enabling Policies and Legislation

Enabling policies and legislation is important as legal identity to support legitimacy of the fisheries co-management arrangement. The parameter or indicator is determined by the presence of supportive legislation and clear authority structure to provide the arrangement. In those cases selected studies (see Table 3.6) that both of New Zealand and Philippines have high score in this criterion. It is because that the co-management arrangements are constructed by formal regulation and has clear authority structure. It is become important parameter that there is legitimacy in particular from government to support the arrangement and could be as good commitment from government to define better fisheries management towards more supportive way and sustainable fisheries development. In addition, the government in both cases has point of view about fisheries management that devolving responsibility and its power to the user (private or community) to more engage in managing the resources.

But, the formal regulation in supporting institutional arrangement of fisheries management is not enough. The point is how this arrangement can run effectively in the implementation. Sometimes, it faces many difficulties such as low enforcement, unfair mechanism in determining authority structure where one actor dominant over the other, dividing job description and so on. In addition, the acknowledgement from the fisher community could be another consideration in determining the effectiveness of enabling policies and regulation regarding to the arrangement.

In Indonesian case, until this time there is no national formal regulation to provide the institutional arrangement in fisheries co-management. The possibility of establishment of co-management arrangement can be based on the government and community instead of private. This is because from the development background of fisheries management in Indonesia as the previous explanation.

Through decentralized policy that has been implemented actually gives more room for the arrangement. In many coastal programs such as PNPM-KP, COREMAP I and II, PLBPM and etc. implied clear commitment from the government to support the local community to more involve to do certain action in managing the coastal and fishery resources. It is expected through many empowerment of coastal community program can be initiatives of fisheries co-management arrangement in the future. It is important for improvement of fisheries management by giving formal regulation to support the presence of fisheries co-management arrangement in Indonesia.

c. Clearly Defined Boundaries

This criterion is determined by defining management area, describing customary right and group in co-management as well. This criterion becomes important since the arrangement has to clear about what the right of arrangement member is and to what extent the waters boundaries should be managed. Through these indicators are expected that the co-management arrangement could be implemented to more effective and efficient in managing fisheries management.

From the result, it can be seen that both the arrangements have medium score. In New Zealand, the structure of group and its rights are well established but the management area is too big to be managed. The geographic boundaries of waters set by the government through Quota Management Areas (QMAs) can be too large (Yandle, 2008). ITQs define well commercial rights. But, recreational and Maori rights are less well defined. The good point is groups of commercial fisher industry have potential to set more appropriate geographic boundaries (Yandle, 2003). Meanwhile, in the case of Philippines, it showed similar characteristic which is the weak point is on the community rights in this arrangement. There is no withdrawal right for local community in the arrangement. The institutional arrangement has only well-defined on the right of local government units (LGU) and municipal water boundaries (Espectato et al, 2012). So, from those case studies, the arrangements have difficulty to insert customary or local community rights into this co-management. It should be a part of the arrangement task descriptions management because without support from

the stakeholder in particular the local community, any scheme will fail (Meiter, 1999).

For Indonesian case, actually there is good example of this matter. There is a customary system that already included in the formal regulation that supports community-based fisheries management such as *Awig-awig* system in Lombok, West Nusa Tenggara and *Sasi* in Center Maluku (Wahyudin, 2004). The fisheries management is constructed based on strong cooperation between local government and the community. In these cases, there are clear rights among the member and waters zone management. Therefore, adopting this approach obviously can be done in Indonesia. But, for the implementation is not only limited on certain areas that have strong local customary system but also it can be tried into other areas through adopting the mechanism such as in the Philippines case.

d. Participation

Stakeholder participation is important aspect in the co-management approach. It has a very vital position in enhancing development of community program (Esonu and Kavanamur, 2011). Also, the effective participation will generate efficiency of the implementation of fisheries co-management where it deals with complex problems. This criterion determined by seeing the participation of the arrangement members in particular the main members such as governments, local community, private and other stakeholders. According to the result of participation in both case studies, it shows low score for both of them. It can be identified by dominant role of one main actor in decision making or a lack of voice from small-scale fisher/ local community.

In the case of New Zealand, CSOs plays dominant role in the participation process. CSOs also is actively contribute in discussion paper for instance final advise papers, the initial position of Total Allowed Commercial Catches (TACCs) and conversion factor to improve the development of MQS. On the other side, customary Maori interest, recreational fishers have lack voice. The arrangement is still focused on the need of commercial fishery industry so that some improvement has to prioritize minority group's voice in the arrangement's

development. While, similar kind of condition also happened in Philippines case. The arrangement can be said is still employing a top-down approach since the policies are being decided by the Board Trustees which composed of the Mayors and other official of the member municipalities (LGUs). Participation of the fisherfolk and the community is still limited, while they are also consulted on some matters.

From those case studies, fair mechanism of participation in a program is still difficult. This is also common happen in Indonesia especially the empowerment coastal community programs. To persuade fishers to more involve with, this work is not going to be easy and calls for an approach that fully allows them to participate in the decision-making and through which central or local government gains their confidence. Without that, fishery management will go the path history as trodden, in which many management systems have been put into place, and nearly all have failed, since fishers felt left out of the decision making process and they didn't feel that the problem was theirs (Meister, 1999). But, these empowerment community programs should be kept conducted gradually because it is like education process that requires systematic time planning and long time periods to pursue the ideal condition.

e. Leadership

Determining leadership as one of criteria in the institutional arrangement of fisheries management is based on the role of leader to provide direction and energy to the arrangement. In the assessment of criteria, the indicator determined to see whether leadership is implemented through fair mechanism or only dominant from main member. It is just to simplify assessment of the arrangement. From the Table 3.6, the result showed slightly different between New Zealand and Philippines cases. New Zealand has low score on this criterion where CSOs is dominant in providing the direction of the arrangement, while Philippines has medium score in the same criterion where the leadership is fairly shared among the members even though it is shared among LGUs members.

From those cases, it can be clearly seen that there is no contribution from the community on this criterion. This result is in line with the participation result

where both cases have difficulties in term of combining the community participation in the arrangements. Involving community fisher in particular the local fisher leader actually can provide such benefits for these arrangements. The bottom-up voice can be a new knowledge that will enhance and robust to the arrangements. In addition, it can reduce conflict in fishery activities and reduce transaction cost in particular law enforcement and monitoring efforts. Trying to avoid dominant factor in decision making is also important to reduce the friction in the arrangement. It is because leadership means a political movement that can be separated with power and interest in each member.

This leadership assessment could be different in determining its indicators. It could be that leadership has high score through dominant of one actor but the result is effective in implementing sort of action in co-management. The result is quite representative for all members. The decision is taken by one actor as a leader but it can satisfy for all members. So, the optional of leadership indicator could be quite varying. It is because there is no fit adjustment for defining the criteria and its indicator in this arrangement.

For Indonesian case, the leadership basically is still being state domain if we look at from many coastal community empowerment programs. There are many program where the community as the center of activities that they are given sort of freedom to decide the decision from planning, implementation and controlling action. On the other side, government's assistance is still much needed to guide the programs. However, it implies good step for starting point to the implementation of fisheries co-management in Indonesia. It is expected for the future there will be less dependent of government involvement to guide in almost stage of programs since the program has already devolved responsibility to local government and community to define better in fisheries management. Also, the condition is quite enough for them to do this work without national government's involvement.

f. Monitoring

Monitoring assessment is needed to measure fishery conditions, user activities and its fishery tools. It is a part of the implementation of co-management

in the field. From the Table 3.6, the result showed different level of effort which is in New Zealand's experience there is a strong monitoring effort that CSOs and the government are active and work together in this sector. It means New Zealand's fisheries co-management has high score in this criterion. In contrast, the result showed low score in Philippines's arrangement performance which is there is no or limited monitoring effort from the arrangement members.

In New Zealand, strong monitoring efforts are showed by combine actions of Ministry and CSOs in fishery condition and fisher activities. It means that controlling function to the fishery resources becomes necessity to maintain its sustainability. All of the arrangement members have a good commitment to more engage in monitoring effort. But, to maintain the fishery resource is not easy work in particular if the boundary of waters is so large. It means high transaction cost to do sort of action in monitoring. There will be violation in utilizing the resources such as illegal fishing, destruction of fish habitat and many more. But, the existence of this arrangement will collapse if the resource decreased significantly both the quality and quantity's property in it. Therefore, once again, it needs community participation in the monitoring effort to reduce the cost of this action. The more level of participation from local community or customary fishers, the greater degree of success in the oversight function of marine resource and fisheries. Furthermore, it can robust the existence of the arrangement itself in long run.

Meanwhile, no or limited effort monitoring has showed over the marine resources and fisheries in the Philippines case. This is become classic problem in developing country such as Philippines when the main problem is still centered on the basic needs in particular foods, education and health. Monitoring effort is not become big issues when they don't meet good access of basic needs. In addition, poverty can contribute why they do not or little aware on this problem. In developing countries, the problem becomes more complex when fisher community itself still uses illegal fishing gears in doing their activities. Therefore, it needs community empowerment programs to prevent the problem or to increase the awareness of local community in utilizing the resources to more sustainable ways.

For Indonesian case, similar condition with Philippines's case study also happened in many places. Actually, the government has been implementing many coastal community programs to more giving space of community involvement in the monitoring effort. But, the limitations of human capacity and low people awareness impede this effort effectively. Monitoring effort will be effective if all stakeholders feel the benefits of this resource. Then, they will preserve the resource and try to make consensus to keep it useful in long term. Therefore, it needs gradual planning to encourage community's awareness. On the other sides, educational development is also absolutely needed to synergize the programs to run more effectively.

g. Conflict Management Mechanism and Graduated Sanction

These criteria are very close related to result of monitoring effort. The criteria are focused on the conflict management mechanism and law enforcement to fishery activities. These are become important to see what kind of mechanism in dealing with the emerged problem and the presence of sanction for those members or other stakeholders who did violation of fisher activities. From the result, it showed that both of New Zealand and Philippines has similar score value where they have medium score on conflict management mechanism and low score on graduated sanction.

In the case of conflict management mechanism, both of New Zealand and Philippines has own approach to deal with. In New Zealand case, there was an internal mechanism of conflict for CSOs members and most of it was resolved. On the other side, the government has provided conflict mechanism but it seems to be unused. So, it can be said that the mechanism is still limited for the members and not for other fishery groups such as recreational fisher and customary Maori community. While, different kind of approach has shown by LGU in providing mechanism for conflict mechanism in Philippines's case. The LGUs has initiated to serve as a venue (arbitration and resolution) to discuss conflict interest among the municipals and commercial fishers. Here, the mechanism conflict initiatives are more undertaken by government instead of fisher community. And most of

problem is resolved as well. So, it can be said that government play dominant role in governing the mechanism.

Then, in the graduated sanction criteria, it seems to be difficult problem for both cases. There are no sanctions undertaken by the arrangement members for the violation of fisher activities. In the case of New Zealand, graduated sanctions were not used by government and CSOs are reluctant to take on this responsibility. Meanwhile, the fisheries co-management arrangement in Philippines (SICRMC) also never used sanction practices in its implementation. Basically, law enforcement in managing common pool resources should be a basis to support the arrangement because it is important to avoid over exploitation on this resources. Therefore, all users can utilize more properly on it.

For Indonesian case, in many places the similar condition also happen in dealing with the law enforcement. For inshore fishery that the users are dominant come from small fisher community, the law enforcement practices are very low. There is only persuasive effort to prevent the illegal fishing such as illegal fishing gears (mini trawls). But it seems to be ineffective to provide better mechanism for this problem. Many difficulties are faced when it deals with small fisher society, so that it needs innovative way to change their activities into more sustainable fishery. Supporting assistance from the government to solve the problem is very needed in many cases in Indonesia. On the other side, for deep fishery waters also faces similar problem. Illegal fishing from other countries is common happened in Indonesian waters. Many limitations for this work cause the problem is very difficult to be solved. Involving the common authority such as police or navy could be necessary to support fisheries co-management in particular graduated sanction.

So, from those case studies and the current condition in Indonesia, it should be thought how to deliver the fit mechanism of conflict and sanction in fisheries co-management. Combining local wisdom and legal formal regulation seems to be fit for Indonesian case as fisheries management is rooted from traditional system that still effective in preserving the marine resources and fisheries in certain place in Indonesia.

h. External Agent

The last criterion is the presence of external agent in driving the co-management initiatives in particular the fisheries management arrangement. The assessment is based on participation of external agent to facilitate the establishment of the co-management arrangement or defining sort of action to improve the current coastal management planning. From Table 3.6, it showed different result in both case studies. In New Zealand, there is only limited involvement of external agent in revising the fishery research plan which is means low score in this assessment. In contrary, high score is in the assessment of external agent participation in the case of Philippines.

From the result, both New Zealand and Philippines have different kind of approach in delivered fisheries co-management practices. New Zealand as one of developed country has good basic abilities both financial support, develop fishery infrastructure and human resources capacity to develop fisheries management better instead of any other developing countries. Through these instruments, New Zealand supposed to be having better planning in fisheries co-management. Good capacity of CSOs in delivery fishery practices to maintain the marine resources and fisheries makes the government has devolved an authority and responsibility in term of fisheries co-management arrangement. Also, it is based on the past experiences that fishery industries had good influences to the development of fisheries production in New Zealand. The external agent is only focus on improving the fishery research plan. So, there is no strong role of external agent to stimulate the arrangement.

Meanwhile, the Philippines fisheries co-management arrangement (SICRMC) is constructed by the initiatives of external agent (UP Visayas). In developing countries, some empowerment community programs are funded by external agent such as NGOs, international donor institutions, research institution and etc. Their presence is quite important to provide ideas, technical assistance, problem solving and decision making to the coastal communities (Pomeroy et al., 2001). The government needs external agent to help the agenda of empowerment community in particular dealing with marine resource and fisheries. This fact is common in developing countries since they have lack of capacity (human

resources, technology, knowledge and information) to bring the communities to be able do self-employed in managing fishery resources. But, this activity is not easy because of some limitation such as socio-economic condition, cultural and political situation. Dealing with the complex problem needs long time process to achieve certain purposes as managing a fishery means bringing about a philosophical change in the mind of the fishers (Meister, 1999).

For Indonesian context, the similar situation is also happened with the presence of external agent in contributing to some coastal community empowerment programs. Indonesian government still needs external agent such as donor institutions or international NGOs to solve common problems in particular coastal management. In addition, the involvement of external agent is seems to be effective where there is a transfer knowledge (technology and information) both to community and increasing human resource capacity in each government levels to implement co-management approach that suitable for Indonesian case. Also, it is needed for the improvement of fisheries management since Indonesia has limited research about marine and fisheries management. So, their presence will give many benefits for Indonesia. But, their involvement sometimes accompanied by interventions to state policy. Different culture of intervention to local policy could meet failures. The government should be more critical to the intervention. Therefore, the involvement of external agent in fisheries co-management arrangement should be positioned as a catalyst instead of policy maker to encourage the arrangement to define better marine and fisheries management.

5.2 Lesson Learned

From the analysis of each criteria and indicators in both institutional arrangements of fisheries co-management practices, it provides the strengths and weaknesses values that it can be as good lessons learned for the improvement of fisheries co-management concepts and its implementation for Indonesia, as follows:

- a. From New Zealand's experience, the concept of co-management has changed from co-management regime. Co-management in New Zealand has developed out of a market-based approach. In many literatures, the concept is emphasized

the degree of community and bureaucracy-based approach. New Zealand's adoption of CSOs on co-management represents a shifting from co-management literature predictions (Yandle, 2003). Therefore, the implementation of co-management can diverse and becomes specific in each place and there is no general formula in defining this concept in particular in Indonesia.

- b. Different types and phase of co-management from New Zealand and Philippines experiences can give an overview of implementation of co-management concept. It can diverse on its implementation due to many factors such as historical of fisheries management development, socio-economic condition, and etc. Each factor is linked to each other then it will define what the fit approach to certain areas or places is. So, it can be said that there is no one general formula of co-management for its implementation. Although there are similarities of type co-management, there must be something different to be implemented in several aspects such as concepts, content, policy goals and etc.
- c. Fisheries management must be realized that it will always be difficult tasking and expensive to put in place. From both experiences, there are lot of weaknesses in implementing fisheries co-management practices such as encouraging community involvement, leadership to govern the arrangement, monitoring effort, and graduated sanction. To engage fisher society or customary fisher community is not easy to be done and it needs an approach to allow them to more involve in the decision making and to work synergize with government or other stakeholder in the arrangements. Then, from this starting point the obstacles above will be solved in which responsibility of each arrangement member is shared appropriately. It is because each member feels responsible to the resource to be maintained better.
- d. Fisheries co-management arrangement could be effective by the presence of supportive regulation. The arrangement that is constructed by formal regulation has a legally-mandated set of institutional structures and activities to coordinate the joint resource management efforts of its members/partners. But, this parameter is not always to be the main point in term of managing enabling fisheries co-management. The voluntary effort from non-government actor

could also be as one of alternative solution for implementing fisheries co-management. Trying to more open to other solutions can reduce dependency of government's assistance and then it will overcome the problem of fisheries management.

- e. Fisheries management involves a transition and adaptive governance both in planning approach and its product. From those selected case studies, it can be seen that fisheries management have a process of transition and adaptive governance. The previous policies that allowed fisheries management by top down approach seems to be ineffective to reduce natural degradation such as over fishing, fish habitat destruction and etc. It needs a new paradigm of governance to more adaptive with the social and its environment. From New Zealand experiences, devolving the authority and responsibility to commercial stakeholder organization is significant effort in term of management transition in fisheries management. In addition, the introducing of ITQ as a planning tool to maintain fishery stock and its sustainability is supposed to be new experience to the scientific realm of fishery management. Meanwhile, from Philippines case study there is an adaptive effort from the central government to devolving the authority and responsibility to promote partnership form or collaboration between local government (LGU) and community. Synergizing work among local governments is expected to reduce maintenance cost of fisheries co-management in certain waters.

5.3 Possible and Adaptable of Policy Transfer

From the analysis of comparison of institutional arrangement in fisheries co-management of both New Zealand and Philippines case studies and its lessons learned, the overview of fisheries management in Indonesia actually has already open for the concept of co-management. This fact is based on similar historical development background of fisheries management that it changed from centralized policy or top down approach to more supportive way or decentralized policy approach by initiating collaboration among the stakeholders. Supporting formal regulation also could be taken into account as basis consideration to

possibility and adaptability to transfer policy in term of institutional arrangement in fisheries co-management practices.

Regarding to the assessment of institutional arrangement performance from those case studies, Indonesia basically has many similarities with Philippines in several aspects in particular fisheries co-management is constructed by community-based approach instead of market-based approach such as in New Zealand's case. On the other side, from New Zealand experience, there are some findings that could be interesting as inspirations. So, by considering all aspects above, there are some points that could be as transfer of knowledge for the improvement of fisheries management in Indonesia, as follows:

- a. Adopting community-based fisheries co-management and the idea of inter-Local Government Units (LGUs) partnership as a form of co-management arrangement in certain areas where there is a shared or common resource in particular fisheries sectors. This fact is based on similarities with the overview of historical background of fisheries co-management and the local potencies resource in Indonesia that support the community-based fisheries co-management as basis of development program in coastal areas. In addition, this idea is emerged when coastal problem in coastal areas in particular developing countries such as in Indonesia becomes more complex and transcend jurisdictional boundaries. One of alternative solutions can be addressed through introducing partnership management (Espectato et al., 2012). The possibility to transfer this approach is quite open for Indonesian case as the approach is rooted from decentralized policy where according to the local autonomy law in Indonesia (Law No.32/2004) allowed local government to manage over territorial water. Yet, it must be supported by formal regulation to manage the arrangement because the current law and regulation do not organize and recognize the arrangement set up. In addition, it needs strong commitment among the municipal members to bring the arrangement toward better management since each local government has own interest over their jurisdictional water boundaries.
- b. Adopting the idea of policy approach from New Zealand's experiences about given fishery industry room for participation. It can be adopted in Indonesia

but it could be done in certain zone of water in particular deep water fishery and not for inshore water fishery. It is important to prevent conflict in utilizing the resources in certain waters in particular with small-scale fishery that has big number of population. Also, the limited access for private in particular inshore water fishery is needed to preserve accessibility rights of small-scale fisher and support local wisdom that has been implementing over generations. Subsequently, the governments can do certain policy to manage fishery resources by determining certain waters for this project. In this case, the government still has an authority in issuing the fisheries enterprise license and its rights. It is because the basic law of Indonesia (*Undang-Undang Dasar* 1945) section 33 has confirmed that “Earth and water and natural resources contained therein is controlled by the state and used for the greatest welfare of the people”. It means the state has an authority to regulate the policy dealing with the fishery resources. Meanwhile, private sector could be given certain responsibility to define the planning through working together with the government on it such as the idea MQS and ITQ system as tools for maintaining fisheries stock, conservation and its sustainability. However, it needs comprehensive considerations and discussion about this subject. This initiative could be step forward in improving the fisheries management in Indonesia.

According to the analysis above, the policy transfer from institutional arrangement of fisheries co-management practices could be possible is transferring ideas to enhance the current fisheries management in Indonesia. So, the policy makers can adopt some lessons in similar problems from those case studies even though each has unique characteristics and problems.

CHAPTER 6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Marine resource and fisheries in Indonesia, like any other developing countries, face many problems to deal with. The consequences of marine and fisheries as common pool resources has confirmed commons concerned such as over exploitation and natural degradation (over fishing, fish habitat destruction, decreasing of coastal ecosystem quality and etc.). In addition, the general overview of coastal communities especially fishery society in Indonesia that live in low economic level and less touched by the concern of development needs a sustainable fishery management. It needs a management that tries to more adaptive and involves many aspects that link to each other and could address the complex problems in the fisheries sector.

Indonesia's fisheries management has been changing over decades due to dynamic problems in coastal areas. The past experiences showed that the policy approach that deal with marine resource and fisheries did not effective to promote such a way of sustainable management and its development. These weaknesses are close related to the fact that top-down mainframe cannot encourage the local initiatives and participation. In addition, the approach is more focus on the formal academic ways or technical way in response of environmental problems instead of emphasizing the community capacity and stakeholder involvement in coastal management (Sudharto, 2001). The shifting of governance during reform era (top-down style to bottom-up approach) basically could be good starting point to do many changing of fisheries management to more supportive way by accommodating community-based in decision making process.

Yet, community-based also has the weaknesses in some parts. It is because the approach tends to decrease significantly the role of government. Through some experiences, it shows that the approach is not always developed well in the coastal management for long term and large scales (Lee, 1994 in Wijanarko 2006). Furthermore, the approach is not always effective because many local communities still need supporting from government and other stakeholder to bring them more independent and sustainable in managing their life. Therefore, trying to

learn from abroad experiences in particular collaborative model in defining fisheries management is useful to increase the current implementation into Indonesia context. Collaboration of institutional arrangement in implementing fisheries management is regarded could play significant role to define appropriate approach in dealing with.

This study is aimed to seek other experiences in particular institutional arrangement of fisheries co-management arrangement to define better fisheries management in Indonesia. New Zealand and Philippines fisheries co-management practices are used as comparative study to gain better insight for Indonesian case by getting lessons learned from both of them. In this case, it proposed the IAD framework or Ostrom's design principles by providing the assessment of criteria and indicators to those selected case studies to provide the strengths and weaknesses. It is become a good tool to examine the concept of co-management in particular fisheries management and its practices. It is important to recognize this scenario as a special case rather than as a general result through a comparative study. Then, it is analyzed to get lessons learned and to what extent this comparative fisheries co-management can be applied in Indonesia's fisheries management.

From the assessment of criteria and indicator of fisheries co-management arrangement mechanism and its analysis, those selected case studies showed some interesting findings that could be as lessons learned for Indonesian context in term of improving fisheries management. In New Zealand case, fisheries co-management arrangement practice is constructed by market-based approach. Devolving authority and responsibility from the government to CSOs in managing fishery resources becomes significant step in the establishment of the arrangement to get its legitimacy. In addition, another strong point is showed by good monitoring effort undertaken by the arrangement members (the government and CSOs) to control fishery activities. However, the arrangement still has remained works in such areas. Involving community participation such as local fisher or customary fisher communities, graduated sanction and limited conflict mechanism are some aspects that still meet many difficulties in this arrangement.

Basically, from New Zealand's experience, the concept of co-management has changed from co-management regime. Co-management in New Zealand has developed from market-based approach. In the literatures, the concept usually emphasizes the degree of community and bureaucracy-based approach. In addition, the introducing of ITQ as a planning tool to maintain fishery stock and its sustainability is supposed to be new experience in adding to the scientific realm of fishery management.

Meanwhile, the overview of institutional arrangement of fisheries management in Philippines also provides some interesting findings to be learnt. The formal co-management that constructed by collaboration of inter-local government units (LGUs) and the local community such as fisherman society implies strong commitment for this arrangement. The presence of external agent (UP Visayas) as the catalyst is also obviously seen and plays an active role in the arrangement works. Yet, the arrangement also meets many obstacles in some areas such as community participation in particular fisherman's societies, leadership, graduated sanction, and monitoring effort. The arrangement needs to encourage the participation of other sector in its management process as the current implementation the LGU play dominant role in taking decision making. Thus, from Philippines case study there is an adaptive effort from the central government to devolve the authority and responsibility to promote partnership form or collaboration between local government (LGU) and community. Synergizing work among local governments is expected to reduce maintenance cost of fisheries co-management in certain waters.

According to the analysis above, the policy transfer from institutional arrangement of fisheries co-management practices that could be possible is transferring ideas to enhance the current fisheries management in Indonesia. The comparison study between New Zealand and Philippines has confirmed diverse ideas to transfer into Indonesian context. There are two possible and adaptable approaches to be transferred that could be fit with the condition and characteristic of fisheries management arrangement in Indonesia.

First, the idea of inter-Local Government Units (LGUs) partnership as a form of co-management arrangement in certain areas where there is a shared or

common resource in particular fisheries sectors. This is possible to be done due to the similarities of historical background of fisheries co-management and the local potencies resource in Indonesia. The form of arrangement is still more directed to the community-based fisheries co-management. Also, the possibility transfer to this approach is quite open for Indonesia where the current basic law of local autonomy law (Law No.32/2004) allowed local government to manage over territorial water. Yet, it must be accompanied by other local formal regulation to support this arrangement and its legitimacy.

Second, the idea of policy approach from New Zealand's case about the involvement of private fishery sector to support the fisheries co-management arrangement in Indonesia. This is could be done with some limitations due to different basic law and regulations. According to the basic law (*Undang-Undang Dasar* 1945), natural resources including fishery resources that support the livelihood of majority of citizen is belong to the state and the government as a manager has authority and responsibility to regulate the resource for the citizen welfare. From this point of view, the approach above could possible to be adopted with some modifications. In the implementation, it could be done in certain zone of water in particular deep water fishery and not for inshore water fishery. It is important to prevent conflict in utilizing the resources in certain waters in particular with small-scale fishery. Also, it takes into place to keep the presence of local wisdom that has already existed. Meanwhile, the private fishery's role is focused on the cooperation with government to more active in defining fisheries management plan such as the idea of MQS and ITQ system. However, it needs comprehensive considerations and discussion about this subject. This initiative could be step forward in improving the fisheries management in Indonesia.

According to Dolowitz and Marsh (1996), taking comparative lesson of experience from other countries is a good way to overwhelm the problems. The policy makers can adopt some lessons in similar problems from other countries even though the country has unique problems. From the analysis above, the fresh ideas of institutional arrangement in co-management arrangement that could be fit into Indonesian context is expected to adopt to improve the current fisheries management since Indonesia still struggled to manage and maintain huge potential

fishery resources for the increasing of citizen's welfare. The institutional arrangement of fisheries co-management from both New Zealand and Philippines cases might be work well as lessons learns but on the other side still have weaknesses at some points and for some context in Indonesia could be not allowed to be implemented. Most of current fisheries management in Indonesia is constructed by community-based program might be better if it is implemented with a little state-based approach in the fisheries co-management arrangement. In this case, the involving of government is still necessary to guide to the arrangement. This could be more effective instead of community-based purely.

So, by considering the advantage and disadvantage of community-based fisheries co-management approach, it could be bring good reason why Indonesia fully implemented the lessons or using full Ostrom's criteria might not necessary be better. More selected or combination of aspects is much needed, a little bit community in one aspect or lower on the other aspects could be better. These facts are based on the experiences that community-based is still not always developed well for the long term and the stated-based approach is less democratic.

6.2 Recommendations

In this part, I would like to suggest some recommendations in term of institutional arrangement of fisheries co-management initiatives for Indonesia's fisheries management. These recommendations are expected to be one of alternatives input for enhancing the development of fisheries co-management in particular the form of partnership that involve not only between government and community but also the interaction of private in the arrangement with government and community. Those recommendations are follows:

- a. Try to encourage the community participation in particular fisherman's society or customary fisher's community in the arrangement. From both New Zealand and Philippines experiences, the co-management arrangements that constructed by the government-private sector or the government-community have faced many difficulties to engage both small-fisher community and customary fishers in defining their responsibility and its rights. Lack voice of them could cause low supporting to the arrangement and it cannot reduce the transactions cost in

managing marine resource and fisheries. It can be done through some community empowerment program or trainings that could increase human capacity of fisher community both technical and non-technical skills in fishery sector. Also, it needs co-management among the stakeholders to encourage its community participation. In Indonesian context, the represented actors that should be involved are the governments (in particular marine and fisheries agency, local and national planning boards, and etc.), fishery industries (in particular both fish processing and fishing industries), and fisherman's group society. It is because the management is like a sequence where all actors above cannot be separated to each other. There is an inter-dependence relationship among the actors in the fisheries management. Share responsibility and authority among the actors to support the community participation is important to reduce the transaction cost in the fisheries management as it is difficult task and dealing with complex. Also community participation is needed to support the arrangement and its legitimacy.

- b. Give more room fishery industry for share responsibility. It is expected that fishery industry can contribute in defining fisheries management plan. In this case, the position of fishery is not just as users but as a partner with government and other stakeholders to work together and formulate what kind of fishery planning toward sustainable fishery development. Introducing MQS and ITQs could be one of alternatives for fisher industry in utilizing marine resources and fisheries in particular deep water fishery.
- c. Initiate the inter-local government partnership in the fisheries co-management arrangement. It is because inter-local government partnership in Indonesia is not defined well or lack coordination of municipal waters management. Coordination of inter-government institutions both in one municipality or region that covers some municipal boundaries is not strong enough and it has many weaknesses in other aspects. So, the idea is very interesting because for Indonesian context there are many similarities with Philippines experiences. Complex problems in coastal areas transcend jurisdictional boundaries need collaborative management and require broader partnership which inter-LGU governance structure over the municipal boundaries. This initiative is quite

relevant into fisheries management in Indonesia but it must be complement with other regulation or agreement to arrange the partnership form.

- d. Try to open for new ideas or innovations of fisheries management. It can be done by doing some research and development to improve the current implementation of fisheries management in Indonesia. This is related to lack of fishery research both published and unpublished research in Indonesia compare to other countries both regional scale (ASEAN) or broader scales . Another effort is getting lesson learned from other countries through scientific articles, journals and etc. also could improve the knowledge of fisheries development program in Indonesia
- e. These recommendations above based on the findings confirm a need of changes in Indonesia's fisheries management practices such as the way of governance and the rules/regulations. It needs adaptive way to accommodate the dynamical of such factors in fisheries management practices. From this comparative study, fisheries co-management cannot perceive as general result or fixed formula but it requires specific approach to deal with. The different of history, geography, socio-economic of a nation give us different way of co-management in practices. This result could enhance the fisheries co-management both the concepts and its practices.
- f. This comparative research is based solely on the documents and secondary data to assess and analyze the criteria and indicators determined as main resource to provide lesson learned for a country (in this case for Indonesia) without do some direct survey or research in the field. Therefore, it would be better for further research to provide direct research by studying in one or some regions to get primary data (interviews, questioners, and etc.) and then compare with other countries through selected criteria and indicator. It will be good point to look at what the current or factual situation to get better insight for the improvement of fisheries co-management arrangement practices.

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