

**VIETNAM'S COASTAL MANAGEMENT:  
GOVERNANCE, EFFECTIVENESS AND SUSTAINABILITY**

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**NATIONAL UNIVERSITY OF SINGAPORE**

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GOVERNANCE, EFFECTIVENESS AND SUSTAINABILITY**

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2015

*“Our choices at all levels - individual, community, corporate and government  
- affect nature. And they affect us.”*

**David Suzuki, Suzuki Foundation**

## Declaration

I hereby declare that this thesis is my original work and it has been written by me in its entirety. I have duly acknowledged all the sources of information which have been used in the thesis.

This thesis has also not been submitted for any degree in any university previously.

A handwritten signature in blue ink, consisting of a stylized 'T' followed by 'M' and 'H' in a cursive script.

---

Tran Thi Minh Hang

18 May 2015

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## Summary

This research is the first attempt to provide an overview of the current progress of coastal management in Vietnam using a combined quantitative and qualitative evaluation methodology. An initial review of the current status indicates that, with the assistance from international organizations, Vietnam has expended efforts in solving coastal issues including the ecosystem degradation, pollutions and resources use conflicts through the implementations of Integrated Coastal Management (ICM) and establishments of Marine Protected Areas (MPAs). These initiatives are found to adopt very different approaches in terms of the types of the originators, the sources of funds, the supporting governance framework and the management approach. The results of these efforts are also very different.

In an attempt to investigate and quantify the different results, the research adopts a theory-based evaluation approach to examine the progress of ICM and the effectiveness of MPAs in Vietnam. A cross evaluation was conducted on seven representative ICM initiatives using an indicator-based frameworks with 36 indicators for an ICM cycle. Similarly, a cross analysis and evaluation of 8 representative MPAs was performed using a score-card survey where MPAs were scored by 44 indicators in a framework recommended by the IUCN-WCPA. The research was carried out at the national and local levels of coastal governance and employed various data collection methodologies including in-depth interviews, field observations, electronic survey and secondary data mining.

To further confirm the evaluation results, a study of project stakeholders' perceptions on the factors affecting the effectiveness and sustainability of ICM and MPAs was conducted. Strong correlations between the results from the theory-based evaluations and the perception study were discovered. The most significant factors identified to improve coastal management effectiveness include political will, sustainable financing, coordination mechanism, socio-economic contribution and obvious outcome.

Regarding ICM in Vietnam, the research concludes that, despite strong technical and financial support from experienced countries and the government's commitment, ICM initiatives in Vietnam so far have been ideologically driven and only achieved a certain degree of success at the strategic level rather than at the operational level. The relatively poor performance overall of ICM in Vietnam is due to insufficient financial resources, ineffective co-ordination mechanism, and inadequate political support and stakeholders' involvement. In contrast, the MPA evaluation shows relatively stronger performance. The most significant success factors include outcome visibility, sustainable financing and strong political support resulting from the appropriate management approach at local levels.

The qualitative findings from the evaluations lead to a conclusion that ICM and MPA in Vietnam can complement each other in the sense that lessons of successes and failures of the two approaches are transferable and adaptive. Therefore, this research recommends an integrated governance framework that incorporates both the experiences of ICM and MPA in Vietnam to improve coastal management effectiveness and sustainability. Accordingly, ICM needs to adopt the success factors from MPA including the capacity to demonstrate obvious outcomes and management approach that effectively address the political structure. MPA needs to be placed in a broader context of integrated management to improve its sustainability.



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## **List of Abbreviations**

ADB	Asia Development Bank
CBD	Convention on Biological Diversity
CIDA	Canadian International Development Agency
COBSEA	Coordinating Body on the Seas of East Asia
CPUE	Catch per unit effort
CPV	Communist Party of Vietnam
CZMA	Coastal Zone Management Act
DAC	Development Assistance Committee
DANIDA	Danish International Development Agency
DARD	(Provincial) Department of Agriculture and Rural Development
DOFI	Vietnam Directorate of Fisheries
DONRE	(Provincial) Department of Natural Resources and Environment
DPSIR	Driving force-pressure-state-impact-response
EC	European Commission
EF	Perceived Effectiveness Factor
EI	Effectiveness Indicator
EPA	Environmental Protection Agency
EU	European Union
FAO	Fisheries and Agriculture Organisation
GDP	Gross Domestic Product
GEF	Global Environment Facility
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection

GIZ	Gesellschaft für Internationale Zusammenarbeit (German Federal Enterprise for International Cooperation)
GOV	Government of Vietnam
ICM	Integrated Coastal Management
IMF	International Monetary Fund
IOC	Intergovernmental Oceanographic Commission
IPCC	Intergovernmental Panel on Climate Change
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
JBIC	Japan Bank for International Cooperation
M&E	Monitoring and Evaluation
MARD	Ministry of Agriculture and Rural Development
MCD	Centre for Marine-life Conservation and Community Development
MOFI	Ministry of Fisheries
MONRE	Ministry of Natural Resources and Environment
MOSTE	Ministry of Science Technology and Environment
MPA	Marine Protected Area
MPI	Ministry of Planning and Investment
NEA	National Environmental Agency
NGO	Nongovernmental organization
NOAA	National Oceanic and Atmospheric Administration
OECD	Organisation for Economic Co-operation and Development
OED	Operation Evaluation Department
PC	People's Committee

PEMSEA	Partnerships in Environmental Management for the Seas of East Asia
PPC	Province People's Committee
PPP	Public Private Partnership
PS	Perceived Success Factor
SDS-SEA	Sustainable Development Strategy for the Seas of East Asia
SF	Success Factor
SLR	Sea-level Rise
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
VASI	Vietnam Authority for Seas and Islands
VEPA	Vietnam Environmental Protection Agency
VNICZM	Vietnam-Netherlands Integrated Coastal Zone Management Project
VVA	Vietnam Vulnerability Assessment project
WB	The World Bank
WCPA	World Commission on Protected Areas
WWF	World Wildlife Fund

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

The coastal zone is an extremely important region for humankind as it provides many resources for goods and services to sustain human life (Costanza et al., 1997; Bodungen & Turner, 2001; Wallace, 2007). However, recently, with the overexploitation and unplanned development, there are increasing problems and threats to coastal resources (Agardy & Alder, 2005). In order to solve these problems and threats, many coastal environment management approaches have been implemented including Integrated Coastal Management (ICM) and the establishment of marine protected areas (MPAs) (Chua & White, 1989; Chua & Scura, 1992; Bodungen & Turner, 2001). As a result, the evaluation of coastal management is an emerging topic that has been recently studied by many researchers around the world (Olsen et al., 1999; Vallega, 2000; Ehler, 2003; UNESCO, 2003; UNDP, 2004; Kooiman & Chuenpagdee, 2005; Jentoft, 2007). The main purpose of evaluation is to measure the management effectiveness in terms of governance, social-economic and biological values. Evaluation will define experiences and conclude lessons learned from these efforts to improve the effectiveness and efficiency of coastal resources management (Olsen, 2003; NOAA, 2004).

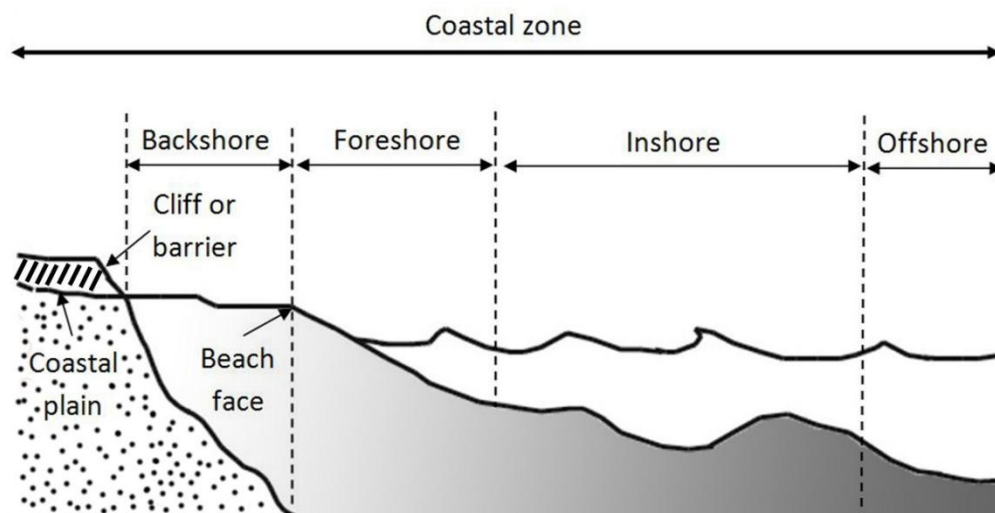
This dissertation will focus primarily on the examination of how existing arrangements of and approaches to governance affect the management of coastal resources and environment in the context of Vietnam. Governance of coastal management refers to the process by which the full range of laws, policies, plans, institutions and legal precedents address the issues affecting coastal areas (Best, 2003; Olsen, 2003; Hill & Lynn Jr., 2004).

The final part of this chapter will introduce the context of Vietnam's coastal zone as the research site for this dissertation and the reasons, scope, aims, research questions, and structure of this dissertation.

## 1.2 Coastal zone and coastal zone management

### 1.2.1 Definition of the coastal zone

The boundary between the land and ocean is generally not a clearly defined line on a map, but occurs through a gradual transitional region. The name given to this transitional region is usually ‘coastal zone’ or ‘coastal area’ (Kay & Alder, 2005). In this thesis, both terms will be used interchangeably. Many different definitions of the coastal area have been given in the literature, each with a distinctive emphasis. In terms of its geographic characteristics, it can be defined as a narrow strip of coastal lowlands and a vast area of coastal waters (Chua, 1993) and is comprised of backshore, foreshore, inshore and offshore (Figure 1.1) (Haslett, 2008).



**Figure 1.1 Coastal zone diagram (adapted from Haslett, 2008)**

With respect to its interactive nature, it is a joint area between the terrestrial environment, marine environment and human activities (Scura et al., 1992). Most notably, the coastal area is defined from the managerial perspective as “*an entity of land and water affected by the biological and physical processes of both the sea and land and defined broadly for the purpose of managing the use of natural resources*” (FAO, 2006, p. 151). From the policy orientation point of view, it is demarcated as a narrowly-defined area about the land-sea interface of the order of a few hundreds of metres to a few kilometres, or extends from the inland reaches of coastal watersheds to the limits of national

jurisdiction in the offshore (Hildebrand & Norrena, 1992). Ketchum (1972) refers to the concept of coastal zone from three aspects: function, ecology and geography. Functionally, a coastal zone is the broad interface between land and water where intensive production, consumption, and exchange processes occur. Ecologically, it is an area of dynamic biogeochemical activity but with limited capacity for supporting various forms of human use. Geographically, the landward boundary of the coastal zone is necessarily vague. Overall, delimitation of the coastal area is a very complex issue as there are no standards set and coastal area boundaries differ from country to country. Therefore, depending on the specific issues that management programmes choose to focus on, and the political boundaries or administrative boundaries (Scura et al., 1992), the practical definition of coastal areas for that particular purpose will be given.

### **1.2.2 Characteristics and the importance of coastal zone**

It is estimated that nearly 60% of the current world population live within 100 kilometres of the coast which represents 20% of the world's total land area (Bodungen & Turner, 2001). The average human population density in coastal areas is 80 persons per square kilometre, twice the global average figure (Small and Nicholls, 2003). Coastal areas are always considered as the most dynamic areas where human activities are most intensive because of the area's accessibility (Chua, 2006). Coastal cities are usually important ports, which provide access to and from the interior through a major river. In addition, they are hot spots of fisheries providing people with animal protein, and ocean-related recreation, which have been growing rapidly. Furthermore, most of the world's cities with more than 2.5 million inhabitants are in the coastal area. Coastal ecosystems are highly productive and diverse. They yield 90% of global fisheries and produce about 25% of global biological productivity (Costanza et al., 1997). The coastal zone makes up only 10% of the ocean environment, but is home to over 90% of all marine species. For example, of the 13,200 known species of marine fish, almost 80% are found in coastal areas (Costanza et al., 1997). The economic value of coastal biomes (estuaries, seagrass and algal beds, mangrove and tidal marsh, and coral reefs) is

estimated at about 60% of the total estimated value of marine biomes (Costanza et al., 1997).

The coastal zone is directly influenced by natural forces from both terrestrial environment of the land and the marine environment of the seas and oceans. The interactions between the physical, chemical and biological processes of the land, freshwater, saltwater and the atmosphere create coastal ecosystems that are closely linked with the socioeconomic systems to form resource systems for human activities. From this point of view, there are interactions between the biophysical, terrestrial and marine environments and human activities, whereby human activities include the governing institutional and organizational arrangements. Thus human activities are the third major force influencing the health and integrity of coastal areas (Chua, 1992).

Marine and coastal ecosystems are among the most productive and provide a range of social and economic benefits to human (Bodungen & Turner, 2001). The coastal zone has the most nutrients of all marine environments due to a unique combination of sunlight penetration of shallow waters above continental shelves enabling plants to grow and the sea floor acting as an anchor for many organisms. As a result, a number of extremely productive and complex coastal ecosystems have evolved including coral reefs, mangroves, sea grass beds, and other wetlands (Constanza, 1997).

Consequently, coastal ecosystems provide a wide range of goods and services such as provisioning services (e.g. food and fibre), regulating and supporting services (e.g. climate and air quality, and nutrient cycling), and cultural services (e.g. cultural diversity, recreation, and tourism) (Wallace, 2007). At a global scale, these goods and services are estimated to account for approximately 43% of the total value of global ecosystem services of \$12.6 trillion in 1997 (Costanza et al., 1997). In the 2005 Millennium Ecosystem Assessment, it is reported that 61% of the world's total GNP of approximately \$44 trillion comes from the areas within 100 kilometres of the coastline (Millennium Ecosystem Assessment, 2005).

### **1.2.3 The problems and challenges of the coastal zone**

Overall, the coastal zones around the world have been highly exploited, altered and threatened by the very human activities that directly benefit from those resources. Within 100 kilometres of the coastal zone, 29% of land is reportedly altered (in agricultural or urban uses) or semi-altered (mosaic of natural and altered vegetation) by human activities (Burke et al., 2001). The negative results include transformed shoreline, altered hydrological processes, disappearing or degraded coastal habitats, and increasing pollution. Furthermore, according to IPCC (2001) climate change exacerbates the trend of degradation in coastal systems, for example, global warming and sea-level rise will increase inundation, storm intensity, coastal erosion, sea water intrusion, encroachment of tidal waters into estuaries and river systems, and sea-surface and ground temperatures. There is a strengthening consensus among scientists that many ecosystems, including coasts, continue to degrade (Chou et al., 2002; Tun & Chou, 2004; Agardy & Alder, 2005).

This section provides an overview of the major issues, problems and opportunities in coastal management. The issues described in this part are those common to many coastal areas around the world that are also present in Vietnam.

#### *1.2.3.1 Population growth and coastal urbanization*

The economic importance of coastal zones, in the form of fisheries, tourism, mineral and oil exploitation, has resulted in unprecedented population growth, urbanization, exploitation and development of the problems associated with those issues. From 1960 to 2000, the numbers of large urban areas (population over 500,000) within 100 kilometres of the coast doubled from 119 to 216 centres while the number of megacities (population exceeding 8 million people) increased from 4 to 17, among which eight of the ten largest cities in the world are on the coast (UNEP, 2002). The first cause of this population growth is linked to rural-urban migration, especially in developing countries, while the second cause is the migration from inland areas to the coast, which



often offers people more economic, social and recreational opportunities than inland areas (Goldberg, 1994).

Population growth in the coast accelerates the rate of urbanisation. Between 1950 and 1990 the coastal population density of the US increased from 275 to nearly 400 people per square kilometre. In 1990 the population density in the coastal area from Boston to Washington DC was 2,500 people per square kilometre (Hinrichsen, 1998). Kay and Alder (2005) argued that the resulting issues such as urban residential densities, the development of high rise buildings, and public versus private access to beaches and foreshores have a clear impact on the visual landscape, and create increased pressure on coastal resources and the use of facilities such as transport, landfill and sewerage.

#### *1.2.3.2 Habitat Conversion/Loss/Degradation/Alteration*

When coastal development and marine resource use is destructive or unsustainable, the usual result is loss of habitat, even permanently in some cases. One of the most severe ways in which anthropogenic impacts degrade coastal areas is through interference with hydrology and water flows to the site (Pringle, 2000). Another major factor leading to loss of marine habitats is through conversion of wetlands, including marshes and mangrove forests, for coastal development and construction. For example, uncontrolled building of shrimp ponds and other aquaculture/mariculture sites directly and severely impact coastal areas (Woodard, 2000; WRI, 2001). Dredging of waterways also causes habitat loss. Finally, humans increasingly cause the loss of marine habitat through destructive fishing practices such as blast fishing (the use of underwater explosives) and bottom trawling (dragging of weighted nets along the sea floor) (Agardy, 1997; Chambers, 1991; Dayton et al., 2000). Inland activities, particularly upstream of river deltas, can also have a significant impact on the coast. Construction of dams, diversion of river flows, and removal of ground water or hydrocarbons can result in coastal erosion, subsidence, and shifts in the fresh and salt water interface, which are critical to the maintenance of coastal habitats and fisheries (Hassan et al., 2005).

### *1.2.3.3 Resource Extraction/Overexploitation*

Resource extraction, even not at overexploitation level, may disrupt the natural balance of the coastal ecosystems, resulting in further negative impacts. Mangrove depletion for firewood is a typical example of resource extraction that leads to the loss of its ability to support ecosystem services such as the provision of nursery habitat (de Groot, 1992). Resource extraction can also undermine the ecological function of such habitats when prey availability is reduced, such as the removal of small bait fishes from an estuarine nursery area (Kaufman & Dayton, 1997). Fishing may have cascading effects as in the case of members of the marine biological community with special roles to play in maintaining ecological interactions, such as keystone species (Agardy et al., 2003; Dayton et al., 1995). For example, the removal of fish and invertebrates that graze algae off seagrasses can cause destruction of seagrass beds when heavy algal mats subsume the seagrass meadows (Hatcher et al., 1989).

### *1.2.3.4 Coastal and marine pollution*

Over 80% of marine pollution comes from land-based activities as most of the waste produced on land eventually reaches the oceans, either through deliberate dumping or from run-off through drains and rivers. According to the US National Research Council (2012), 36% comes down drains and rivers as waste and runoff from cities and industry.

One of the greatest problems is fertilizer runoff from farms and lawns. The extra nutrients cause eutrophication - flourishing of algal blooms that deplete the water's dissolved oxygen and suffocate other marine life (Deegan et al., 2001). Eutrophication has created enormous dead zones in several parts of the world, including the Gulf of Mexico and the Baltic Sea (Deegan et al., 2001). Dead zones refer to oxygen-depleted waters caused by excessive nutrient pollution that deplete the oxygen required to support most marine life in bottom and near-bottom water (Rabalais et al., 2002). Another form of pollution caused by run-off is sedimentation that dramatically alters coastal habitats by increasing turbidity, lowering light penetration, and physically suffocating filter-feeding organisms (Burke et al., 2002).

Additional pollutants borne by rivers into coastal areas include debris, heavy metals, hydrocarbons, and other persistent organic pollutants, which have toxic effects on fish and wildlife and can rapidly build up through bioaccumulation through the food chain (Colburn et al., 1996).

According to the WWF (2014), plastic garbage, which decomposes very slowly, is often mistaken for food by marine animals, and as a result, these plastic materials have been found blocking the breathing passages and stomachs of many marine species, including whales, dolphins, seals, puffins, and turtles. Another fatal pollution is oil spill that can cause massive loss of species that live in the sea, especially birds.

#### *1.2.3.5 Climate Change/Natural hazards/ Sea-level rise*

Finally, climate change with global warming can negatively impact coastal habitats and is expected to cause dramatic changes in the future. Agardy (1997) argued that global warming changes the temperature and salinity of estuary and near-shore nursery habitats, rendering them inhospitable to species with narrow temperature tolerances. Warming can also exacerbate the problem of eutrophication, leading to algal overgrowth, fish kills, and even dead zones (Norse, 1993). Global warming also caused the melting of glaciers, raising sea level at a significant rate. Sea level rise is associated with serious shoreline recession and flooding along thousands of kilometres of coastline.

However, all of the above-mentioned issues are often overlooked by coastal nations because of the fact that economic development is placed at higher priority. Therefore, sound management of the coastal zones is required to ensure development in an economically, socially and ecologically sustainable way.

#### **1.2.4 The evolution of coastal management**

Ever since the introduction of the concept by USA's Coastal Zone Management Act (CZMA) in 1972, coastal management has evolved from single-purpose management such as coastal defence to cover more universal

issues such as conflict resolution between stakeholders, environment protection, coastal systems conservation, coastal livelihoods development, and climate change and sea level rise adaptation. Kay and Alder (2005) summarised coastal area management development over the past fifty years as a professional activity into five phases presented in Table 1.1.

**Table 1.1 Phases in the development of coastal management  
(Adapted from Kay & Alder, 2005)**

<i>Phase</i>	<i>Period</i>	<i>Key features</i>
I	1950-1970	<ul style="list-style-type: none"> <li>▪ Sectoral approach</li> <li>▪ Man-against-nature ethos</li> <li>▪ Public participation low</li> <li>▪ Limited ecological considerations</li> <li>▪ Reactive focus</li> </ul>
II	1970-1990	<ul style="list-style-type: none"> <li>▪ Increase in environmental assessment</li> <li>▪ Greater integration and coordination between sectors</li> <li>▪ Increased public participation</li> <li>▪ Heightened ecological awareness</li> <li>▪ Maintenance of engineering dominance</li> <li>▪ Combined proactive and reactive focus</li> </ul>
III	1990-2000	<ul style="list-style-type: none"> <li>▪ Focus on sustainable development</li> <li>▪ Increased focus on comprehensive environmental management</li> <li>▪ Environmental restoration</li> <li>▪ Emphasis on public participation</li> </ul>
IV	2000-2010	<ul style="list-style-type: none"> <li>▪ Focus on tangible implementation of sustainable development principles</li> <li>▪ Ecosystem-based management embedded in national legislation</li> <li>▪ Shared governance emerging</li> <li>▪ Exploration of new coastal management approaches, including learning networks and adaptive management systems</li> <li>▪ Increased impact of globalisation and the Internet on management approaches and impacts</li> <li>▪ Emerging re-analysis of the basic tenets of coastal management</li> </ul>

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V	Future	<ul style="list-style-type: none"> <li>▪ Integrated suite of theories and tools applicable</li> <li>▪ Comprehensive ecosystem-based management</li> <li>▪ Connected coastal management communities of practice</li> <li>▪ Verified set of governance models public participation</li> </ul>
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Preliminary coastal management initiatives were initiated in the United States and in European countries during the *Age of Exploration* in the second half of the fifteen century and the Industrial Revolution in the late eighteen century (Ballinger et al., 1994) with attempts to shelter properties, to claim land, and to develop ports and fishing harbours. The initial means of coastal management are allocation of claimed land, tax system (Turner et al., 1999), sea defences, and coast protection including the building of seawalls, jetties, groynes (Flemming, 1992; Clayton, 1993). In the twentieth century, the UK Land Drainage Act 1930 and UK Coast Protection Act 1949 (Flemming, 1992) were among the first national policy responses to protect the land against erosion and flooding, closely followed by the USA's CZMA (1972), Australia's Coast Protection Act 1972, and the UK's Territorial Sea Act 1987. Of these, the most comprehensive and widely mentioned initiative in the literature is the USA's CZMA in 1972 which originated the term "coastal zone" and set the foundation for coastal zone management worldwide in an attempt to resolve the issues of the coasts and oceans by means of balancing economic development with environmental conservation (NOAA, 1972).

Coastal management was then raised to regional and international levels with the introduction of initiatives such as the UNCLOS 1982, Agenda 21, and the Action Plan for the Protection and Development of the Marine Environment and Coastal Areas of the East Asian Seas Region 1981 and 1994. The approach also became more collaborative, integrative and theoretically rigorous since the introduction of Integrated Coastal Management (ICM), for example the FAO's Integrated Management of Coastal Zones (Clark, 1992), the WB's Guidelines for Integrated Coastal Zone Management (Post & Lundin, 1996), and the IUCN's Marine and Coastal Protected Areas: a guide for planners and managers (Salm et al., 2000). In the latest development, integrated coastal zone management is built upon principles of integrity, cost-

benefit, equity, and precaution (Bodungen & Turner, 2001). Despite different scientific methodologies and approaches employed, the common aim of coastal management around the world focuses on managing coastal resources, controlling the impacts of development, harnessing uncertainties and global concerns, and protecting human well-being.

### **1.3 Governance for coastal management**

Governance is a versatile term and originated from political science, where the World Bank defines it as “*the manner in which power is exercised in the management of a country's economic and social resources for development*” (The World Bank, 1992, p.3). The concept can also be expanded to the whole of public and private interactions taken to solve problems and to create opportunities for the society (Kooiman & Bavinck, 2005). Thus, governance can be carried out by the state, the private sector and civil society.

In coastal management, the governance concept has evolved from governance as structures (Olsen, 2001) to governance as processes (Ehler, 2003; Jentoft, 2007). Olsen (2001) conceptualised governance, in the context of changing coastal ecosystems, as a set of the policies, laws, and institutions responding together to the transformations of the coastal ecosystems and setting the stage for management. Recent theory of interactive governance focuses on the interactions within and between the natural and social structures (system-to-be-governed) and the social processes (governing system) (Kooiman & Bavinck, 2005).

This dissertation adopts the definition of coastal governance as both the structures and processes by which the full range of laws, policies, plans, institutions and legal precedents address the issues affecting coastal areas (Best, 2003; Olsen, 2003; Hill & Lynn Jr., 2004). In essence, governance sets the framework to include fundamental goals, institutional process and structures that are the basis of planning and decision making (Best, 2003). In other words, coastal management initiatives are determined by and depend greatly on governance structures and processes, including institutional arrangements, legislation, and decision-making processes (Ehler, 2003).

Increasingly, coastal governance has been identified worldwide as a fundamental challenge of coastal management (Turner et al., 1999; Olsen, 2001; Brown et al., 2002) since many causes of coastal management failures are considered to be related to governance, such as institutional and budgetary supports and commitments. Reviews of national coastal management initiatives of countries of different political and economic development situations since the 1980s by academics (Scura et al., 1992; Olsen, 1993; Cicin-Sain & Knecht, 1998; McGlade, 2001; Sorensen, 2002) have also shown the inadequacy of the governance system in supporting coastal management. One of the most cited criticisms is the lack of a formal coordination and integration mechanism for integrated coastal management to be fully effective. In certain cases, this is simply caused by bureaucracies that make it more difficult to effectively coordinate coastal management initiatives between different sectors or levels.

As a result, the role of governance as a critical foundation framework for coastal management has been increasingly highlighted by academics and practitioners around the world (Agenda 21, 1992; Lisbon Principles of Sustainable Governance, 1997; 4th Global Conference on Oceans, Coasts, and Islands, 2008). In the context of this dissertation, a complete coastal governance framework includes a comprehensive and integrative set of structures and processes from legislation, to institutional arrangements and the facilitating mechanisms such as decision-making and coordination processes.

#### **1.4 Evaluation of coastal management**

Since 1990s, the International Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) has urged for the need to develop and adopt evaluation methodologies for assessing the changes identified and implemented in coastal management (Olsen et al., 1997). The evaluation framework will enable management to document the trends, assess the effectiveness and draw lessons learnt for further improvements (Olsen et al., 1999). Evaluations are used as a tool to draw causal links between actions and their impacts (Baker, 2000; Hockings et al., 2004; White, 2005;

OECD/DAC, 2006a; OECD/DAC, 2006b; Todd & Brann, 2007; World Bank OED, 2009). The Organisation for Economic Co-operation and Development (OECD/DAC, 2002, p.2) defines “evaluation” as “*The systematic and objective assessment of an on-going or completed project, programme or policy, its design, implementation and results*”.

Evaluations vary across sectors and contexts depending on their objective, timing and budget parameters for example, but their overall purpose is consistent throughout the literature: to determine relevance and achievement of objectives; assess changes to and impact on individuals, households, and institutions attributable to the action; trace causes to outcomes; improve management and planning processes; and to disseminate findings and promote accountability for performance (Kleiman et al., 2000; OECD/DAC, 2002; Stem et al., 2005; Hockings et al., 2006; Lockheed, 2009).

It is observed that lessons learnt from coastal management initiatives and efforts are generally not well documented, thus compromising the transferability of effective coastal management practices. Since 1990s, the International Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) has proposed to formulate an accepted evaluation methodology for assessing coastal management changes identified and implemented (Olsen et al., 1997). An established evaluation framework will enable academics and practitioners to effectively document, analyse and draw conclusions from implemented coastal management programs, thus improving its adaptability and transferability (Olsen et al., 1999). The direct benefit of an effective monitoring and evaluation framework is the detective and corrective capability that enables timely adjustments or modifications of any aspect of the program for better results, or simply to reduce risks and negative impacts (NOAA, 2004). The indirect benefit of a well documented evaluation is the transferability and adaptability when lessons learned from a program can be used for other programs (Olsen, 2003). In fact, evaluations are used by managers for reporting to improve accountability, performance tuning to improve efficiency and forecasting to develop strategies for future programs. Ideally, evaluation should include a continuous process throughout



the lifetime of a program and a comprehensive examination after the program has concluded.

The evaluation measures and indicators for sustainable and successful coastal management efforts are extensively discussed among academics and practitioners. Typically, there are three different approaches in terms of focus whether on outputs, outcomes or integration. The first approach focuses on the coastal management programs' outputs, which are defined as the actions formed and implemented by the authority or the responsible stakeholders to obtain the desired change, mostly within a program or policy cycle, (Burbridge, 1997; Olsen, 2003; Breton et al., 2006; Gallagher, 2010). Examples of these outputs are regulations, action plans, and establishments of governing organisations. The second approach highlights the word “outcomes” which extends on the first approach as they aim to create not only direct, immediate changes but also a greater range of resulting environmental and social economic impacts and benefits towards the ultimate goal of sustainability (Kabuta & Laane, 2003; Linton & Warner, 2003; Bowen & Riley, 2003; McFadden & Priest, 2008; Tabet & Fanning, 2012). The final and most recent approach urged for the development of an integrative framework to include all management processes, outputs and relevant outcomes (NOAA, 2004; Schernewski et al., 2006; Heileman, 2006; PEMSEA, 2011).

In practice, however, evaluation of coastal management is still in its early developing stage (UNESCO, 2003; NOAA, 2004; Chua, 2006). There is not yet a widely accepted methodology or common set of criteria for the evaluation of coastal management performance due to the complexity and heterogeneity of the programmes in various coastal regions (Billé, 2007; Gallagher, 2010). It is observed that separate sets of indicators have been developed and applied for the respective specific objectives, such as environmental criteria for coastal and marine conservation, or governance performance indicators for reporting of management objectives. In spite of that, an integrated framework of all related aspects remains a real challenge for decision makers to determine the validity and effectiveness of coastal management efforts.

## **1.5 Overview of dissertation research**

This thesis describes the research work that I have conducted over five years since 2010. The main motivation and driving factor for my research is the desire to contribute to the improvement of coastal management in Vietnam as I was born and brought up in a coastal city in central Vietnam. Originally, my research focused on evaluating coastal resources management initiatives (ICM and MPAs) in Vietnam's coastal areas. Starting with an overview, my research explores the world of coastal management literature and initiatives in an effort to capture the essence of all current trends and issues, the possible roots of problems and relevant solutions. In light of the identified research areas, I conducted preliminary discussions with coastal authorities, managers and researchers in Vietnam in 2010 to understand the status of coastal management and gather viewpoints on the prevailing issues of coastal management in Vietnam. The initial investigation helped me to filter relevant issues and consequently develop specific aims and objectives. Later within the course of two years, an in-depth field study, employing various field research methodologies, was carried out at study sites to investigate further the issues raised in the preliminary fieldwork and literature review, and to gather empirical data to answer my research questions.

Unfortunately, the pilot projects that I chose as study sites showed much slower progress than planned and were still in very early stages of implementation with a small amount of observable results. This, however, prompted me to review my initial research questions and scope. The fact that those chosen pilot projects had very little outcome and slow progress appeared to me that the issues are already embedded in the early stages, specifically the governance objectives, structure, and execution. Consequently, in 2014, I developed additional surveys to study the factors leading to the slow progress of these initiatives with a focus on the evaluation of governance and its impacts upon coastal management performance in Vietnam.

This thesis is my enduring effort to present the research process, to communicate my findings and analysis in an attempt to provide insights, and

to propose recommendations to improve the effectiveness of coastal management in Vietnam by strengthening governance as a prerequisite.

### **1.5.1 Local context and rationale**

Vietnam is a relatively large marine nation in Southeast Asia, with more than 3,200 kilometres of coastline. Coastal cities have been the country's fastest economic development area, with coastal activities contributing to almost half of the country's annual GDP. Along with development, however, this area has been facing numerous problems including ecosystem degradation, overpopulation, and pollution as a result of over-exploitation and under-management status of coastal systems and resources. In response, the Vietnamese government has taken a number of efforts in conserving its coastal resources, highlighted by the implementation of integrated coastal management (ICM) and the establishment of Marine Protected Areas (MPAs).

Driven by the common commitment to global marine conservation targets, the application of MPAs was introduced to Vietnam since 1999 with 15 MPAs identified within the national system (Thu & Bourne, 2008). The former Ministry of Fishery (MOFI) was initially responsible for the master plan and management regulations for the MPA network to 2020 in cooperation with the former Ministry of Science Technology and Environment (MOSTE) and other related agencies (Bourne et al., 2008). The approval for the establishment of the 15 MPAs was only made official a few years later under Decree 43/2003/ND-CP and the enactment of the Fishery Law from July 2004 (Bourne, et al., 2008). Only in June 2010 did the Government of Vietnam finally approve the Master Plan for MPAs to 2015 and vision to 2020, with an addition of 11 new marine reserves by 2015 (Thong, 2010). Although there are still many challenges and obstacles to MPAs, according to Vietnam IUCN and DOFI (2014), Vietnam's MPA system has been strengthened and showed significant and obvious results that urge the government to further support and invest in the system. However, there has been virtually no documented comprehensive evaluation of MPA implementation in Vietnam to assess and identify the success and failure factors as well as the effectiveness of implementing an MPA network in Vietnam.

On the other hand, ICM was also introduced to Vietnam at the same time in 1996. However, in the last ten years of ICM development in Vietnam, the majority of these efforts were actually initiated by international donor-assisted programs rather than as a result of proactive strategies by the central authority. These early ICM efforts in coastal management in Vietnam were often designed to deal with certain single issues and followed a problem solving approach that focused on immediate outputs rather than long term outcomes (Tran, 2003). Moreover, on a larger scale, these attempts do not appear to be related or interconnected in a way that creates synergies, transferability or adaptability (VEPA and IUCN, 2005). In fact, many of these initiatives are still in the infancy or piloting stages, and have not shown evident outcomes.

To improve the effectiveness of coastal management initiatives, in addition to the adoption of universal concepts and best practices (Clark, 1992; Cicin-Sain & Knecht, 1998; Vallega, 1999), they should also be tailored for the specific conditions of the target country. Among many factors, governance is often cited as the most challenging as it is the foundational framework for all other factors of coastal management to function on (Turner et al., 1999; Olsen, 2001). In the context of Vietnam, the political and legislative structures have a particularly strong influence on the initiation and implementation of coastal resources management initiatives (e.g. ICM, MPAs) due to the nature of hierarchical governance with dominant centralised decision making and coordination in Vietnam. The strong presence of hierarchical governance structure has been considered to be a limiting factor in coastal management as it hinders collaboration and coordination (ADB, 2003; Sekhar, 2005).

This dissertation will therefore attempt to analyse the status and evaluate the governance of coastal resources management initiatives (ICM and establishment of MPAs, specifically) and identify the opportunities and prerequisites to improve coastal management governance. The research will also identify key factors which contribute to the sustainability of coastal resources management in Vietnam.

### 1.5.2 Aims and objectives

The research investigates Integrated Coastal Management and Marine Protected Areas in Vietnam, with a focus on the evaluation of governance as a critical factor contributing to the success or failure of coastal resource management efforts. The central hypothesis of the research is that *“The implementation of ICM in Vietnam did not have the adequate conditions to be successful, particularly in terms of governance factors. In contrast, the establishment of MPAs has appeared to achieve most of its desired goals in coastal resource management. As a result, an approach that integrates MPAs into ICM can be the answer to solving problems and improving coastal resource management in Vietnam.”*

Specifically, the objectives of the research are to:

1. Investigate the current status of the coastal area in terms of issues, challenges and threats.
2. Investigate the status of coastal management in Vietnam and analyze the different approaches implemented in Vietnam.
3. Analyze and assess the performance of ICM and effectiveness of MPA in Vietnam.
4. Identify the success and failure factors attributing to the sustainability of ICM and MPA in Vietnam.
5. Formulate recommendations that effectively integrate MPAs into ICM.

### 1.5.3 Outline of the thesis

**Chapter 1 - Introduction:** This chapter introduces the research and also provides the literature background to it. It addresses three conceptual constructs of the research: the importance and issues of coastal zone and the evolution coastal zone management concept; the governance for coastal management; and the evaluation of coastal management initiatives. In the last section of this chapter, I briefly introduce the context of Vietnam, the rationale and objectives of this research and the outline of my dissertation.

***Chapter 2 – Materials and Methodology:*** This chapter methodologically addresses the methods and analytical framework employed to examine the research subjects. It proposes the field study methods, which include field observation, collection of secondary data, and selection of case studies, design of qualitative in-depth interviews, qualitative and quantitative surveys, and database management. It also discusses the scoring methodology I chose to examine the performance of ICM initiatives and the effectiveness of MPA in Vietnam. The chapter also explains the rationale for the selection of my study sites with their brief descriptions. An analytical framework for the research is developed to critically analyse the research issues and answer the research questions.

***Chapter 3 - The Coast of Vietnam and management efforts:*** This chapter introduces the coast of Vietnam with its distinctive geographic and geomorphologic characteristics, its opportunities in terms of goods and services offered by the coastal systems, its interactions with the coastal population, and the issues to be managed. In this chapter, I also analyse and compile a historical development of coastal management practices in Vietnam. In the last section of this chapter, current governance hierarchy in Vietnam is analyzed and synthesized.

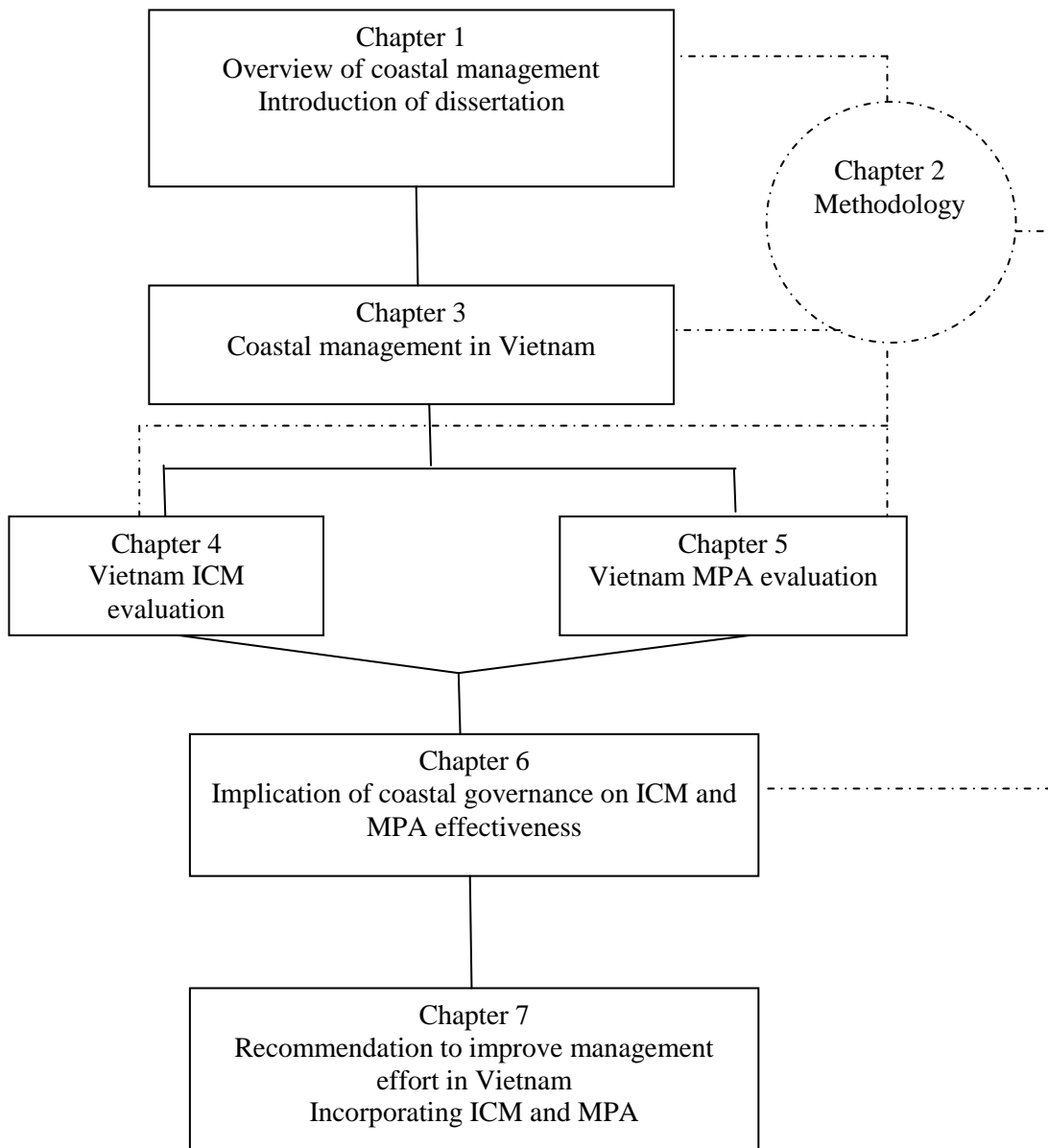
***Chapter 4 - Analysis of the effectiveness of integrated coastal management in Vietnam:*** The chapter first reviewed the indicators used in existing ICM evaluation, and constructed an adapted system for the measurement of success of Vietnam's ICM initiatives. By applying the system to 7 ICM projects in Vietnam, the chapter then analyses the performance of ICM in Vietnam, its achievement, limitations as well as challenges for effective ICM programs in Vietnam. The chapter also analyses the factors that limit or encourage the implementation and sustainability of ICM in Vietnam.

***Chapter 5 - Analysis of the effectiveness of marine protected areas in Vietnam:*** The chapter first introduces the survey used to assess the MPA effectiveness in Vietnam. It then discusses the survey results and analyses the

key factors contributing to the significant outcomes achieved by MPAs in Vietnam.

***Chapter 6 - Implication of coastal governance on ICM and MPA effectiveness:*** This chapter presents the findings of the study on factors affecting the sustainability of ICM and MPAs in Vietnam. It also provides insights into the roots of these factors and suggests solutions to sustain and proliferate coastal resources management efforts.

***Chapter 7 - Conclusions and recommendations:*** The thesis is concluded by this final chapter which recapitulates the empirical findings and conceptual arguments in the previous chapters. Policy recommendations for further improving the effectiveness of coastal management in Vietnam will also be proposed in this chapter. Finally it outlines some limitations of the research and suggestions for further study.



**Figure 1.2 The framework of chapter organization in this thesis**

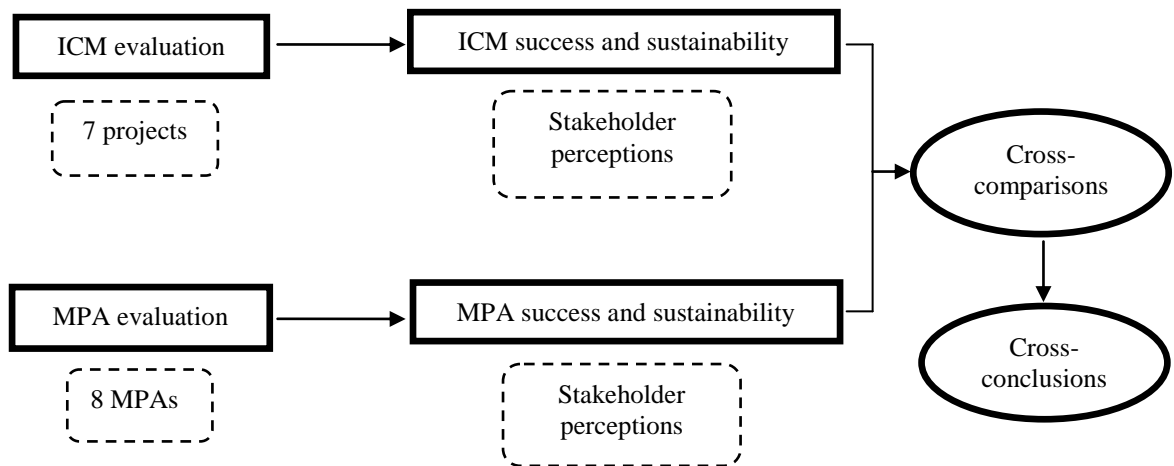


## CHAPTER 2

### MATERIALS AND METHODOLOGY

#### 2.1 Research design

In this dissertation, the research process can be divided into four major sections (Figure 2.1). Firstly, a review of the secondary data that aims to investigate the status of coastal management in Vietnam and analyze the different coastal management approaches that have been implemented in Vietnam. Secondly, using the theory-based evaluation approach, the progress of ICM and the effectiveness of MPAs in Vietnam were examined. ICM initiatives in Vietnam can be categorized into 3 types: (i) externally funded with the PEMSEA (Partnerships in Environmental Management for the Seas of East Asia) regional approach, (ii) externally funded with the Netherlands bilateral approach, and (iii) the Vietnamese government's initiative. A cross-group evaluation was conducted on seven representative ICM initiatives in Vietnam using a theory-based evaluation methodology with indicator-based frameworks (Weiss, 2000; Weiss, 2001; Carvalho & White, 2004; Schweigert, 2006; Todd & Brann, 2007; Vaessen & Todd, 2008). Similarly, MPAs in Vietnam can be grouped into three categories: (i) externally funded from the time of their establishment, (ii) existing MPAs within National Parks, and (iii) newly established by the government. Cross-group analysis and evaluation of 8 representative MPAs in Vietnam were performed using an electronic scorecard survey (Couper, 2000; Andrews et al., 2003; Staub, 2004). Thirdly, the research presented the surveyed stakeholders' perceptions of success and sustainability of ICM and MPAs in Vietnam, and then measured its statistical relationship with the relevant results from the prior theory-based evaluations of ICM and MPAs. Finally, based on the results of these analyses, a recommendation on a governance framework that effectively integrates MPAs into ICM is provided.



**Figure 2.1 Overview of the dissertation's research design**

A preliminary fieldtrip was conducted to identify research problems, construct hypotheses, and select appropriate research methodologies to be used in the investigation of the status of coastal management in Vietnam. The fieldtrip was carried out from June to August 2010 in three provinces Hanoi, Hue and Khanh Hoa. The preliminary field trip was targeted at the national level managers and coastal management experts based in state agencies, research institutions and non-governmental organizations in the three provinces. Table 2.1 provides brief information on the agencies visited. At each agency, meetings and interviews were set up with the relevant people. The interviews took place in an informal and open-ended manner, during which respondents were asked questions about present issues and challenges of coastal environment management in Vietnam.

From the analysis of information gathered, I devised methodologies comprising data collection and data analysis strategy to study the research hypotheses which are further elaborated in the following sections.

<b>Agency</b>	<b>Description</b>
Vietnam Authority for Seas and Islands (VASI) - Ministry of Natural Resources and Environment (MONRE)	An agency of MONRE responsible for integrated management of Vietnam seas and islands
Department of Capture Fisheries and Resources Protection – Directorate of Fisheries (DOFI)	An agency of DOFI leading the process of establishing Marine Protected Areas in Vietnam
Centre for Marine-life Conservation and Community Development (MCD)	A local non-governmental organization working in marine resources conservation and community development. They established the first locally-managed marine reserve in Khanh Hoa Province.
Vietnam International Union for conservation of nature (IUCN)	The international organization conducting many projects on marine and coastal conservation in Vietnam
Thua Thien Hue Department of Natural Resources and Environment (DONRE)	The DONRE in Thua Thien Hue is one of the five provincial departments involved in pioneer piloting ICM in Vietnam. The department is responsible for formulating provincial ICM strategy and coordinating ICM related programmes in the province
Nha Trang Institute of Oceanography	A leading institute in marine research involving in the establishment of the first MPA in Vietnam

**Table 2.1 Agencies visited in the preliminary fieldtrip in Vietnam in 2010**

## **2.2 Evaluation methodology**

The data gathered during preliminary fieldtrip showed that most of ICM projects and MPAs in Vietnam did not have adequate monitoring programs. Many of ICM projects implemented very few activities. These lead to lack of outcome and impact data of these initiatives. Hence, the valuation

methodology for Vietnam should be able to assess the projects regardless of their incompleteness and lack of impact-monitoring.

In the context of this research, a theory-based evaluation approach is used to evaluate both ICM and MPA projects and initiatives. The different evaluation designs for ICM and MPAs are discussed in detail in Chapters 4 and 5 respectively. The following section will justify the reasons for applying the theory-based approach for the research.

Over the past two decades, theory-based evaluation has increasingly become a key part of evaluation theory and been frequently applied in international development (Weiss, 2000; Weiss, 2001; Carvalho & White, 2004; Schweigert, 2006; Todd & Brann, 2007; Vaessen & Todd, 2008). Theory-based approaches have a number of advantages which can be adopted at an institutional level, as in the case of the WCPA “Framework for assessing management effectiveness of protected areas” (Hockings et al. 2006), or used as a major part of a suite of evaluative options by organizations (GEF, 2002; Vaessen & Todd, 2008). The fundamental idea of these approaches centres on the concept that interventions follow a logical sequence of causes and effects based on the specific assumptions and expectations that guided the design of the intervention (Schweigert, 2006). Evaluations adopting this “intervention” (Vaessen & Todd, 2008) or “program” (Weiss, 2000) theory attempt to test the relationships between what programs assumed their activities would accomplish with what is actually happening along the program’s route to success/impact (Weiss, 2000; Vaessen & Todd, 2008). In effect, an evaluation will query and test: if the assumed goal is outcome Y, and the program delivers input X, what is the causal chain, or set of assumptions, how the project designers believed that X will affect Y (White, 2005).

As assumptions underlying project design are examined and recommendations resulting can clarify or propose changes to the assumptions (Todd & Brann, 2007), this approach is very useful from the adaptive management perspective. Furthermore, this evaluation approach can help to determine where a sequence of events has broken down, its causal factors and impacts (Carvalho & White, 2004). Thus, the approach can be a significant tool from the best practice

learning and adaption point of view. Based on the existing data from the project and relevant sources, the evaluation approach can reconstruct the intervention and analyze how the reported achievements are affected positively or negatively by which factors (Todd & Brann, 2007). A representative example of this approach is the WCPA's framework for assessing management effectiveness of protected areas based on a "management cycle" consist of 6 managerial elements including context, planning, inputs (resources), process (management actions), outputs (goods and services) and outcomes (Hockings, 2003; Hockings et al., 2006). As a result, the WCPA's approach provides a comprehensive and integrated framework to determine the key factors that contribute to or constrain achievement of management objectives or, in other words, the success or failure factors. Importantly the approach provides an evaluation standard that allows systematic comparison across multiple protected areas at any stage of their organizational history (Hockings et al., 2006).

Theory-based evaluation is also an important tool where outputs and outcomes are not observable either because they have yet to occur or are not easily measured (Carvalho & White 2004). A particular case in point is the assessment of sustainability using theory-based evaluation. As the Operations Evaluation Department (OED) of the World Bank adopts a sustainability measure by assessing "the resilience to risk of net benefit flows over time" (World Bank, 2008), it signifies a strong link between sustainability and risk analysis. Since risk analysis in sustainability assessment largely involves the investigation of causal relationships between inputs and outputs, the theory-based evaluation is an ideal tool to evaluate sustainable outcomes that are yet to show observable effects.

In summary, the theory-based evaluation approach is adopted for the following reasons:

- It is a comprehensive and complete assessment tool that provides a systematic comparison of multiple projects at any stage;
- It can be used to investigate project sequence or flow to track and assess any unexpected results along the line;

- It can be used to evaluate projects where outputs and outcomes are not observable or accessible at the time of evaluation
- It can be used to identify success or failure factors; and
- It is ideal for the evaluation of sustainability.

## **2.3 Data collection**

For the case study approach, the importance of multiple sources of data to the reliability of the study is well established (Stake, 1995; Yin, 2002). Yin (2002) identified the following six primary sources of evidence for case study research:

- *Direct observation*: site visit to gather data, using multiple observers
- *Interviews*: the most important source of case study information, including several forms: open-ended, focused, or structured (formal survey)
- *Documentation*: letters, memoranda, agendas, study reports
- *Archival records*: service records, maps, charts, lists of names, survey data
- *Physical artefacts*: tools, art works, notebooks, computer output
- *Participant observation*: researchers may actually participate in the events being studied

In this research, the following data sources are utilized: (i) field observations, (ii) secondary data collection (documentations, archival artefacts), (iii) in-depth interviews; and (iv) electronic survey with project stakeholders.

The following sections provide brief details of each data collection methods employed in my research. More detailed information for the scientific data sources is presented in Chapters 4, 5 and 6.

### **2.3.1 Field observations**

In the field research, observation was employed at the beginning in order to record preliminary information from the field prior to taking further steps such as designing questionnaires and preparing in-depth interview strategy.

Particularly, in the field visits to ICM sites and MPAs, observation of the sites was conducted with the support of field collaborators. Direct observation notes are more reliable narratives in the sense that they are a collection of descriptions of what had been observed from the field, and from conversations with the informants (local people and local authorities). Observation data are also used to compare and verify data collected from different sources, i.e. reports provided by the local authorities.

### **2.3.2 Collection of secondary data**

To support the primary information from interviews and observations, a wide range of secondary data was collected including documentations (memoranda, agendas, study reports), archival records (maps, survey data) and physical artefacts (brochure, booklet, leaflet, poster). Documentation is an important source of information in addition to observations and interviews. A common problem for collecting documentation in Vietnam is that data are often not well documented and stored. Another issue is accessing these data, especially where the data are kept by the local authorities. Due to the lack of a formal, consistent system of data storage and indexing, some local officers were not sure if they had the data or where they had stored them. The fact that formal data, such as statistics, were mainly kept within the government institutions made it difficult for outsiders to attain. Relevant documentation including project's reports, publications and data records about the programs was also collected from the projects' office, the internet, and the informants. Data and information collected were organized as a programs/projects' profile and served as basis for evaluation and analysis of ICM progress and MPAs effectiveness in Vietnam (Appendix 4).

### **2.3.3 In-depth interviews**

In-depth interviews as recommended by Yin (2002) were used to expand the depth of data gathering, and to increase the number of sources of information. Within the research context, it is very important to yield a holistic picture of ICM at the local and national level portraying socio-economic settings, particular situations that have happened, and personal opinions towards the

situations and management issues, which cannot be achieved by solely employing observations and secondary data. Therefore, in-depth interviews using a structured questionnaire were employed to study the effectiveness and sustainability of ICM in Vietnam.

The questionnaires used in the ICM evaluation were constructed as a semi-structured combination of both close-ended and open-ended questions (see Appendix 1). The informants in the questionnaire were managers, local officers and scientists who were involved directly in conducting the ICM initiatives. Characteristics of correspondents are shown in Appendix 5.1. The details of the questionnaire are discussed in Chapter 4.

Before the interview, the informants were informed in advance by email or telephone about the contents of the questionnaire, intentions, and logistics issues such as time and place. Information given by informants was tape recorded and transcribed right after the interview. One of the limitations was to be aware of the inconsistency between what the respondents answered and what they actually did. Another constraint was the representativeness of the informants, which may result in subjectivity of their responses (Bogdan & Taylor, 1998). Therefore, studies on the informants and his/her agency were carried out to learn prior knowledge about them and to ask appropriate questions. Other methodologies to avoid misinformation and reduce subjectivity were also applied in this situation, such as confirming the responses by repeating the answers and re-addressing the question differently.

#### **2.3.4 Electronic survey**

In the evaluation of effectiveness and sustainability of MPAs, an electronic survey approach is employed. The survey was conducted in collaboration with IUCN Vietnam to maximize site coverage. Electronic surveys provide a way to conduct studies when it is impractical or financially unfeasible to access certain populations (Couper, 2000; Andrews et al., 2003). Electronic surveys are increasingly common (Lazar & Preece, 1999) and results from electronic surveys can be treated the same as postal survey content results, with the



advantages of speedy distribution and response cycles (Taylor, 2000; Yun & Trumbo, 2000).

The MPA effectiveness evaluation survey adopted a score-card design, open-ended and close-ended questions (see Appendix 2). Details of and rationale for designing the survey are discussed in Chapter 5. The survey was sent through email to stakeholders in all 9 MPAs in Vietnam. The survey correspondents' profiles are attached in Appendix 5.2. During the course of the survey process, I kept close communication through email with all the MPA offices to explain and elaborate on any questions raised. Upon collection of all responses, IUCN Vietnam organized a workshop to present a quick analysis to all 9 MPAs representatives. During the workshop, the responses of each MPA was run through to confirm that they understood the question correctly and answered accordingly. This method was employed to eliminate the disadvantages of “ambiguous question” in comparison to face-to-face survey (Fowler, 2009).

## **2.4 Selection of indicators for evaluation**

The use of indicators has been effectively applied in assessing the performance and success of management initiatives in relation to the representative goals and objectives (NOAA, 2004; Breton et al., 2006; Heileman, 2006; PEMSEA, 2011). Evaluations go some way to answering how a management effort can achieve success through defining indicators for success, based on the original goal of the intervention (Ellis, 2004). For the purpose of this thesis, using a theory-based approach, expert opinions are synthesized to validate the assumptions of cause and effect along a project's path to success. This allows the evaluation to be conducted across multiple projects at different stages of their organizational history, with different objectives, and implemented at multiple sites. In order to achieve this, the lessons from projects in the literature have been synthesized into a set of indicators for each stage of the management cycle. Indicators are taken from global conservation and development lessons in the literature, and also from specific experiences in Vietnam. Despite the diverse contexts from which each

lesson has been derived, commonalities exist. Details of indicators for evaluation of ICM and MPA are presented in Chapters 4 and 5 accordingly.

The following general guiding principles are used to the development and selection of suitable indicators:

- *Theoretically well defined*: indicators are based on widely accepted scientific theories.
- *Interpretable and understandable*: indicators should be clear and easily understandable by a broad audience.
- *Readily measurable and comparable*: indicators should be clearly defined to be assessed.
- *Reliable*: indicators should reflect the effects of management programs to provide reliable feedbacks.
- *Cost effective*: Indicators should be cost-effective based on the data that are acquirable.

## **2.5 Data analysis**

Data analysis consists of the examination, categorization, tabulation, and recombination of the evidences to address the initial propositions of a study (Yin, 2002). The Pearson's correlation coefficient is used to calculate the strength of relationships of indicators to the performance and sustainability of management efforts throughout the management cycle. Projects and indicators were also given a performance rating. Both the quantitative data from the statistical analysis, and the qualitative information from the secondary and primary data collection stages, were then analyzed and form the basis for the discussion of results and recommendations.

## CHAPTER 3

# THE COAST OF VIETNAM AND MANAGEMENT EFFORTS

### 3.1 Vietnam's coastal area

#### 3.1.1 Geographic and geomorphologic characteristics of the coast

Vietnam is located in the Southeast Asia region, bordering China to the north, Laos and Cambodia to the west and the South China Sea to the east and south. The country's mainland stretches from 8°10' to 23°24' north latitude and from 102°09' to 109°30' east longitude (VEPA, 2006b). The total mainland area is 331,690 square kilometres with 700,000 square kilometres of continental shelf. The country is largely exposed to the sea due to its thin and narrow shape. The coastline from the north to the south is estimated at 3,260 kilometres, excluding the offshore islands.

The coast can be divided into three parts: the north coast, the central coast, and the south coast due to the latitudinal diversity of climate, geological, and geomorphologic conditions (Figure 3.1). The formation and evolution of the north coast is influenced by the Red River (or “Song Hong” in Vietnamese) and a sub-tropical climatic regime characterised by a cold winter and the north-east wind. Rich fluvial sediment supply from the Red River makes up an accreting coast (horizontal accretion rate up to 100m per year) and a wide shallow continental shelf (Le et al., 2004). Tides and waves play an important role in reshaping the coastal landforms and creating alternating patterns of severe erosion and rapid accretion. The northern tributary delta features funnel-shaped estuaries and complex tidal flats (e.g. Bach Dang estuary), whereas the southern delta bear the characteristics of wave-dominated barrier-spit systems (e.g. Ba Lat estuary) (Maren & Hoekstra, 2004).

Similarly, the south coast is primarily influenced by the Mekong River system and a humid tropical climatic regime of two seasons: the rainy season and the dry season. As the Mekong River Delta is a tide-dominated delta (Nguyen et

al., 2000), the tidal regime plays an important role in controlling the deposition process of the coastal area. The coastal area comprises many broad plains which are formed by successive alluvial sediments from the river during the rainy season from May to November (Nguyen et al., 2000). The coastline is dissected by many relict beach ridges and occupied by mangrove and salt marshes. Along the coast, only the cape of Camau peninsula has a continuous coastline and the largest area of mangrove stand in Vietnam.

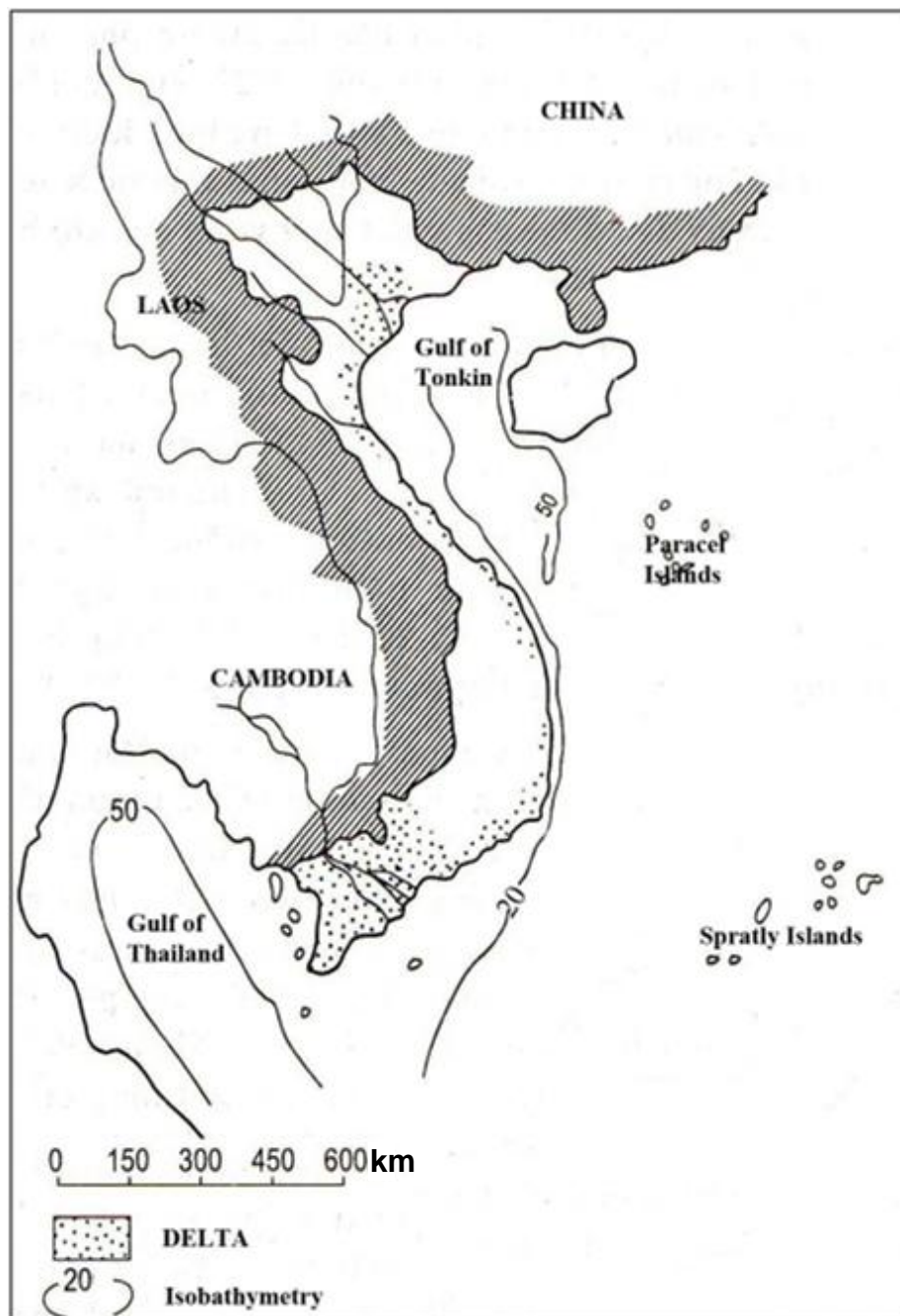


Figure 3.1 Map of Vietnam (adapted from Le, 1990)

Demarcated from the two deltas, the central coast is formed by the interaction of numerous relatively smaller rivers and marine processes and a much harsher weather characterised by dryness and prolonged heat caused by the Foehn wind (the south-west wind after crossing the Annamite Range, which is known as “Truong Son” in Vietnamese) (Le, 1990). In contrast to the other coasts, the central coast consists of rocky capes, sandy beaches, lagoons and smaller estuaries. Formed by the drifting of alluvial materials by sea currents, the coastal plains are thin and narrow and are separated from the South China Sea by a sand zone with a width of around 8 kilometres (Le, 1990).

### **3.1.2 The coastal zone - the importance and challenges**

The coastal zone in Vietnam is often described in coastal management initiatives as the area bounded landward by coastal district boundaries and arbitrary seaward boundaries. The landward boundaries of the coastal zone are administratively set at the district level for the purpose of fisheries and aquaculture management, whereas the seaward limit is vaguely defined. Alternatively, coastal geomorphology experts advocated the limit according to the level of interaction between the land and the sea to include coastal dynamics and geomorphologic processes. In view of this, Le et al. (2004) proposed a seaward limit of the coastal zone which is the -20m depth contour for the South and North coast and the -30 to -50m depth contour for the central coast (see Figure 3.1). This limit covers almost all important islands and marine ecosystems. Within this limit, 116 districts are classified as coastal districts, 23 districts are strongly influenced by the sea, and 12 are island districts. They belong to 28 coastal provinces and 2 strongly-sea-influenced provinces out of 64 provinces in Vietnam (VEPA, 2006b).

#### ***3.1.2.1 Coastal and marine ecosystems***

The Vietnam’s coastline extends for 3,260 kilometres through more than 14 degrees of latitude shows a wide variation in climate and biodiversity along this broad north-south clime (Nguyen, 2002a). The range of the country’s physical environments creates a number of distinct coastal ecosystems that present different characteristics and potential for economic development and

resource usage. Vietnam's coastal areas also support more than 20 types of tropical ecosystems with high biological productivity, such as mangrove forests, coral reefs, seagrass, coastal lagoons, tidal marshes, mudflats, and sandy areas (MONRE, 2003a) (Table 3.1). These ecosystems have distinctive characteristics that offer a variety of potential economic development and resources usage.

Approximately 11,000 species of marine organisms have been recorded in Vietnam's marine and coastal waters including over 2,038 species of fish. Commercial fish stocks are estimated at about 3 million tons per year distributed across 15 large fishing grounds (MOFI & WB, 2005). In addition, coastal waters and intertidal zones are also known to support 2,458 fish species, 653 seaweed species, 657 zooplankton species, 537 phytoplankton species, 94 mangrove plant species, 225 shrimp species, 43 seabird species, 15 sea snail species, 14 seagrass species, 12 marine mammal species, and 5 marine turtle species (Nguyen, 2009a).

Home to about 400 species of hard corals, coral reefs are the richest marine habitats in the country. There are about 7,532 hectares of coral reef in Vietnam and all reefs in the north are fringing reefs (NEA, 2005). Development of fringing and platform reefs is preferred in the south due to the more complex coastline and insignificant effect of rivers. The Spratly Islands enclose atoll reefs hundreds of metres long and present very high species diversity and high coral cover percentage (Arceo et al., 2002).

Before the Vietnam War (1954-1975), mangrove forests occupied a total area of up to 400,000 hectares, mainly in the south. Over the past five decades, Vietnam has lost more than 60% of its mangrove forests, which now cover less than 160,000 hectares (UNEP/COBSEA, 2010). Because of the significant economic impact, there was a strong rehabilitation effort to replant mangroves. At present, of 160, 000 hectares left, almost three-quarters of which were planted, rather than naturally regenerated (Hawkins et al., 2010)

A number of surveys carried out between 1995 and 2001 in 23 places across 12 provinces revealed 15 species of seagrass distributed over a total area of

5,583 hectares (MONRE, 2002). The most extensive tracts of seagrass (about 800 hectares) are located in the Thuy Trieu lagoon of Khanh Hoa province. The offshore islands of Con Dao and Phu Quoc also have extensive tracts of seagrass beds of 200 and 300 hectares, respectively (Nguyen, 2009b). Seagrasses in Vietnam have been over-exploited mainly for fertilizers and animal feed. Seagrass beds have also been severely degraded due to inappropriate fishing methods, aquaculture production, and pollution from waste discharges (MONRE, 2002).

### ***3.1.2.2 The dynamics of the coastal zone***

Vietnam's coast is one of the most densely populated regions in Southeast Asia; consequently, the area has been heavily exploited. About 31% of the country's total population (about 25 million) is located in coastal areas and generates more than 80% of the nation's wealth (Le and Nguyen, 2008). Four of the five largest industrial cities (Hai Phong, Da Nang, Binh Duong and Ho Chi Minh City) and 50% of urban centres are located by the coast. The livelihoods of about 20 million Vietnamese people directly depend on coastal and marine resources (Nguyen, 2009b).

The slogan for economic development "*Moving to the sea*" was put forward in Resolution 03 NQ/TW in 1993 of the Vietnamese Politburo on Developing Marine Economy in The Next Few Years. Additionally, under the targets of the 10 year Socio-economic Development Strategy 2001-2010 (Ministry of Planning and Investment – MPI) which aims to overcome the situation of low developing and build the foundation in order to becoming a modern industrial country in 2020, the seas and the coastal areas are recognised as a major catalyst for economic development. Consequently, industrialisation has intensified in these areas, resulting in a high concentration of urban areas, ports, harbours, tourism resorts, and industrial zones along the coast.

This accelerated process of industrialisation has significantly improved the performance of the national economy, contributed to the remarkable economic growth in the late 1990s and early 2000s, and led to significant poverty reduction in coastal communities. In 2005, 18.8 million tonnes of oil and more

than 6.5 billion metric tonnes of gas were produced earning US\$ 7.5 billion. Oil production exploited increased by about 30% annually (Nguyen, 2009b). The marine and coastal zone contributes 48% of the Vietnam's GDP (VNICZM, 2006).

Unfortunately, the negative impacts of development have also become more prominent, such as coastal environment pollution, depletion of coastal resources, and unpredicted changes in coastal dynamics. For example, coastal water has been polluted by untreated waste and sewage from industrial areas and upstream agriculture activities (Nguyen, 1996; Nguyen, 2002b). Intensive coastal aquaculture has caused increasing salinity of estuaries and salt water intrusion. Thousands of hectares of coastal wetlands and mangrove forest have been destroyed by the rapid reclamation for industrial zones and human settlements, or have been converted to agriculture and aquaculture areas.



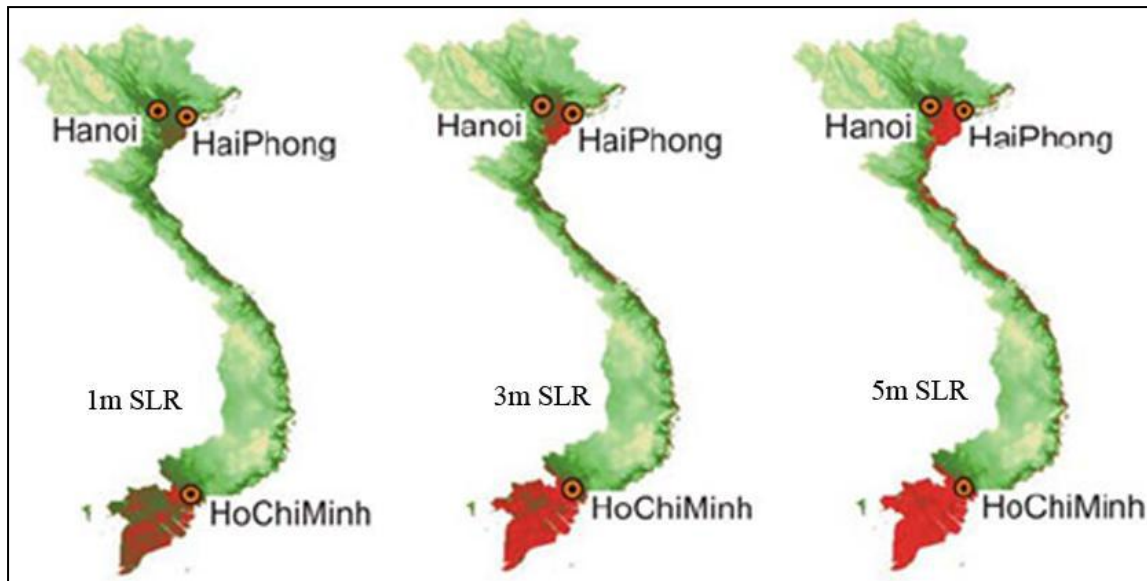
**Table 3.1: Coastal and Marine Ecosystems in Vietnam (Source: Vietnam National Pollution Control program, 1996)**

<b>Ecosystems</b>	<b>Distribution</b>	<b>Characteristics</b>	<b>Ecosystems</b>	<b>Distribution</b>	<b>Characteristics</b>
<b>Agro-system</b>	Mekong Delta and Red River Delta	<ul style="list-style-type: none"> <li>- Reclaimed from tidal flats, deltas, mangroves</li> <li>- Paddy fields for wet rice cultivation</li> <li>- Acid sulphate and saline soil</li> </ul>	<b>Mangroves and Nipa (in the south)</b>	Estuaries, sheltered bays, and along river mouths	<ul style="list-style-type: none"> <li>- Brackish water, high productivity and biodiversity</li> <li>- Converted to aquaculture land</li> <li>- Important for coastal erosion protection</li> <li>- Host to birds and many aquatic species</li> </ul>
<b>Aquaculture systems</b>	Along the entire coastline	<ul style="list-style-type: none"> <li>- Brackish water fish and shrimp farming</li> <li>- Reclaimed from tidal flats, mangrove wetlands</li> </ul>	<b>Sea-grass beds</b>	Central and south coast, some in the north	<ul style="list-style-type: none"> <li>- Well-lit, shallow waters</li> <li>- Provide habitats for many species</li> <li>- Extremely high productivity</li> </ul>
<b>Estuaries</b>	Quang Ninh, Hai Phong, Nam Dinh, Sai Gon	<ul style="list-style-type: none"> <li>- Semi-enclosed, brackish water</li> <li>- High biodiversity, high productivity</li> <li>- Important for ports and shipping industry</li> <li>- Important for fish/shrimp spawning, nursery and feeding</li> </ul>	<b>Coral reefs</b>	North to south, onshore and offshore	<ul style="list-style-type: none"> <li>- High biodiversity, fragile and sensitive</li> <li>- Important for many invertebrates, fish and sea turtles</li> <li>- Degraded by destructive fishing and pollution</li> </ul>
<b>Lagoons</b>	Central coastal areas (Hue to Vung Tau)	<ul style="list-style-type: none"> <li>- Enclosed and semi-enclosed with sand bathers and shallow brackish and salt waters; Important for aquaculture</li> </ul>	<b>Upwelling areas</b>	9 strong upwelling centres	<ul style="list-style-type: none"> <li>- Source of nutrients</li> <li>- Fishing grounds</li> </ul>
<b>Deltas</b>	Red River, Mekong River	<ul style="list-style-type: none"> <li>- Brackish water, high productivity and biodiversity</li> <li>- Important for aquaculture and apiculture</li> <li>- Densely populated</li> </ul>	<b>Islands</b>	Near shore and some offshore within the EEZ	<ul style="list-style-type: none"> <li>- Unique and isolated ecosystems</li> <li>- Important for seabirds and sea turtles</li> <li>- Potential for tourism development, and petroleum</li> </ul>
<b>Beaches</b>	Along the coastline	<ul style="list-style-type: none"> <li>- Important for tourism industry</li> </ul>	<b>Near shore</b>	Less than 50-70 metre deep	<ul style="list-style-type: none"> <li>- Very productive, serves as fish and shrimp grounds, and over utilised</li> </ul>
<b>Oceanic waters</b>	> 75-100 metre deep	<ul style="list-style-type: none"> <li>- Lower productivity</li> <li>- Shipping and transportation</li> <li>- Potential for offshore fishing</li> </ul>			

### ***3.1.2.3 Coastal zone vulnerability***

Apart from the problems induced by human development which require careful planning and management, the coastal zone of Vietnam is also very vulnerable to natural hazards and changes in the environment. For example, the high occurrence of typhoons, storm surges, and coastal flooding has damaged coastal infrastructure and severely impacted the lives and livelihoods of coastal communities (Nguyen, 2002a). As coastal processes are very dynamic, many coastal areas in Vietnam experienced coastal erosion. For example, in some severely eroded coasts (in Bach Dang - Hai Phong and Hai Hau - Nam Dinh), the erosion rate is calculated at 25m per year, causing significant losses of agriculture land and settlements (Tran et al., 2004).

Vietnam is one of the five most vulnerable countries to climate change and sea-level rise in Asia, according to a World Bank's research (Dasgupta et al., 2007). This analysis has placed Vietnam as the country most likely to be seriously impacted by a rise in the sea level. Up to 16% of its area is estimated to be impacted by a 5m sea-level rise scenario, most of which would centre on the two deltas of the Mekong River and the Red River (the darker coloured areas in Figure 3.2). As Vietnam's population and economic activities are largely dependent on the coast, especially on the two deltas, the impact is considerable. Even in the least severe scenario of 1m sea-level rise (SLR), 10.8% of the Vietnam's population would be impacted (Dasgupta et al., 2007). Vietnam's GDP would also be impacted by 10% and 37% respectively in the 1m and 5m sea-level rise scenarios. Besides, a rise in the sea level would inundate the coastal wetlands and lowlands, erode the shorelines, exacerbate coastal flooding, increase the salinity of estuaries, and therefore impact water quality and coastal ecosystems on a wider scale and scope (Nguyen et al., 2007).



**Figure 3.2: Inundation zone in Vietnam under different scenarios of SLR (adopted from Dasgupta et al., 2007)**

Recent studies have shown evidence that the level of the sea has already risen along the coast of Vietnam. Consecutively collected data over 30 years at 4 gauging stations placed in the north and the south coast (Hon Dau, Da Nang, Qui Nhon, and Vung Tau) show rising rates of 1.75mm per year to 2.56mm per year (Nguyen, 2001). In another study, sea level in Vietnam has increased 5cm in the past 30 years and is expected to rise up to 9cm by 2010, 33cm by 2025, 45cm by 2017, and maybe up to 1m by 2100 (MONRE, 2003b). The most serious impacts of sea-level rise on the coastal zone of Vietnam are and will be land loss, increased flooding, shifting coastal erosion-accretion, and increasing salinisation and salt water intrusion into freshwater systems (Pham and Furukawa, 2007).

## **3.2 Coastal development issues**

### **3.2.1 Socio-economic development**

Vietnam's coastal zone provides a number of development opportunities for different economic sectors and coastal communities. In 2005, coastal and marine economies contributed to 48% of national GDP, with 22% derived mainly from oil and gas, fisheries, navigation, and tourism activities (VNICZM, 2006). It is estimated that the key coastal ecosystems in Vietnam

provide returns of about US\$60 million to US\$80 million per year (ADB, 2002).

Fisheries contribute a significant share in the economic structure along with aquaculture. Marine capture fisheries production has increased from 1.64 million tonnes in 2003 to 2.41 million tonnes in 2012 (FAO, 2014), and most of the production was from inshore (from the shoreline to the 50m depth contour) and inland capture fisheries. Biologists estimate that Vietnam's total annual marine production is between 3 million and 4 million tons, while the annual allowable catch is between 1.2 million and 1.4 million tons (Nguyen & Ho, 2003). Further, the number of Vietnamese people involved in the fisheries sector was about 730,000 in 1996, and estimated to reach 2-3 million in 2000 (Pho, 2007).

Vietnam is one of four Southeast Asian countries in the top 10 exporters of aquaculture products (MOFI, 2005). According to General Statistic Office of Vietnam, in 2012, the country exported 3.11 million tonnes of aquaculture products contributing 5 billion dollars to Vietnam's economic. The potential for aquaculture production in Vietnam is reflected by the government's intention to increase production to 5 million tons in 2020.

Oil and gas are important natural resources found on Vietnam's continental shelf, with total reserves of about 10 billion tons of oil and 300 billion cubic metres of gas. In 2005, 18.8 million tons of oil and more than 6.5 billion metric tons of gas were produced, contributing US\$7.5 billion to national exported GDP. Oil production is increasing by 30% per year. Besides oil and gas, coastal areas also provide many heavy mineral deposits, construction materials, and about 50,000 hectares of salt fields (Nguyen, 2009b). Coal exploitation activities in the coastal provinces are concentrated in Quang Ninh province; in 2003, coal output was about 18.3 million tons (VNICZM, 2006).

In addition, Vietnam has great potential to develop seaports and a navigation sector along its long coastline. At present, there are 106 large and small ports comprising nearly 24,000 metres of quays and 10 trans-shipping zones. The total land area for storage and other activities at the ports is up to 10 million

square metres, and there are currently eight national multi-function coastal ports, including Cai Lan, Hai Phong, Cua Lo, Da Nang, Quy Nhon, Nha Trang, Vung Tau, and Dung Quat (VNICZM, 2006).

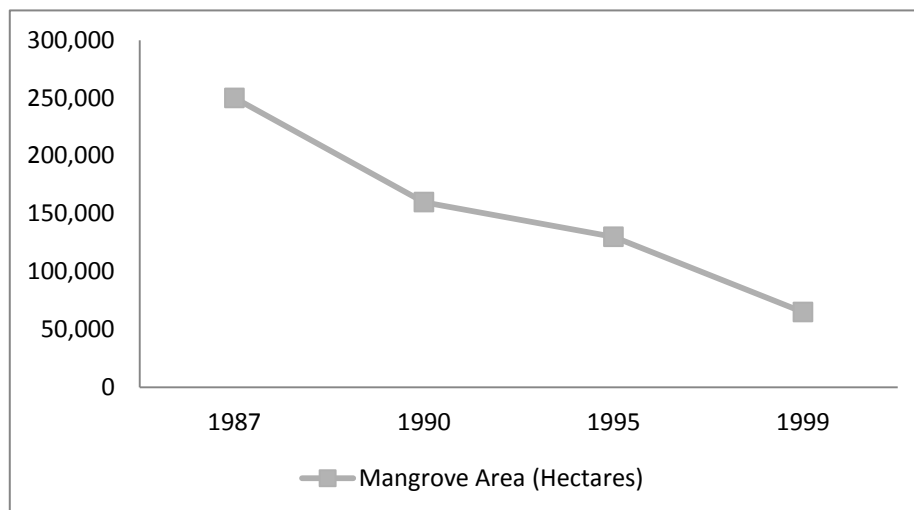
Vietnam's coastal areas have experienced rapid tourism sector growth since the 1980s. According to the Annual Statistic Book of 2004, the number of tourists visiting coastal areas doubled from 10,000 in 2000 to 20,000 in 2005. More than 70% of the leisure and tourist destinations in Vietnam are located in the coastal areas, attracting 80% of visiting tourists. Annually, the increasing rate of coastal tourism is about 10% to 15% (NEA, 2005).

In spite of their economic contribution, Vietnam's coastal districts also represent about 14% of the country's poorest communities, totalling a population of about 1.8 million. Coastal areas are vulnerable to annual flooding and typhoons that affect the lives of millions of inhabitants. Living conditions in these coastal communities are worsened by poor infrastructure and limited access to social facilities and markets. Households in these poor communes depend mainly on inshore fishing, agricultural activities in sandy coastal soils, or low-yielding aquaculture for their livelihoods. Since the regulations and enforcement necessary to protect and manage productive coastal natural resources are still inadequate and inappropriate, these inhabitants tend to use environmentally and economically unsustainable methods of exploiting resources. As a result, coastal natural resources are severely reduced and overexploited. Poverty remains the most serious problem in coastal communities (ADB, 2003).

### **3.2.2 Environmental problems of the coast**

Economic development in Vietnam's coastal areas has been contributing significantly to national GDP. However, fast economic development, together with unplanned and unsustainable utilization and exploitation, can cause severe damage to coastal resources and the environment, creating many social problems.

The trend of natural resource degradation has shown a dramatic increase recently. Vietnam has lost more than 80% of its mangrove forests due to the high demands of shrimp farming development (Figure 3.3). Other causes include conversion to agricultural and construction land and fuel wood collection. Mangrove forest losses are highest in the Quang Ninh and Hai Phong provinces. Between 1960 and 1995, these two provinces witnessed the disappearance of 40,000 hectares of mangrove forest. It was estimated that the annual loss in terms of fore-gone benefits of mangrove functions (e.g. fishery, forestry, and erosion) could be in the range of US\$10 million to US\$32 million per year (MONRE, 2002). Seagrass areas continue to be degraded and reduced in total area, with 63% (6,774 hectares) lost since 1997. The hot spots of seagrass degradation are Ha Long Bay and Tam Giang – Cau Hai Lagoon (VNICZM, 2006).



**Figure 3.3 Mangrove area loss in Vietnam from 1987-1999**

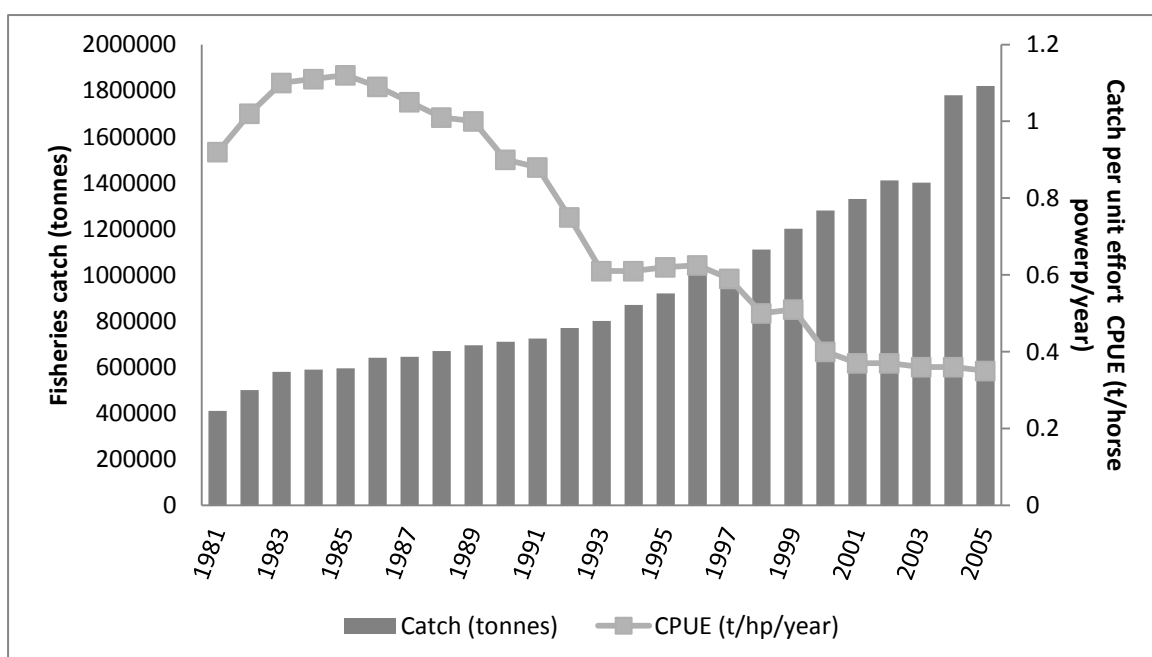
The condition of coral reefs is also declining; 96% of Vietnam’s reefs are severely threatened by human activities, and of this, 75% are extremely threatened. Studies conducted between 1994 and 1997 in 142 sites conclude that only 1% of the country’s reefs are in excellent condition (Vo, 2005) (Table 3.2). The main threats to the reefs are destructive fishing methods, overfishing, sedimentation, and pollution from terrestrial sources. Destructive fishing practices, such as the use of poison and dynamite, threaten as much as 85% of the country’s reefs. Overfishing is a pervasive threat to more than 60%

of the reefs, while sediment from upland sources is estimated to threaten 50% (NEA, 2005).

**Table 3.2 Status of Vietnam’s coral reef health between 1994 and 1997**

Category	Definition	% Area
Excellent	>75% live coral	1
Good	50-70% live coral	26
Medium	25-50% live coral	41
Bad	<25% live coral	31

Although marine catch doubled from 700,000 tons in 1991 to 1.5 million tons in 2001, qualitative evidence indicates that fishery resources within Vietnam’s exclusive economic zone (EEZ) are on the decline. While catches increased over the past 15 years, the overall catch-per-unit effort declined steadily over the same period. There has also been a shift in the catch size distribution towards smaller fish (MOFI, 2005) (Figure 3.4).



**Figure 3.4 Fisheries catch and catch per unit effort (CPUE) in Vietnam from 1981-2005**

Coastal water quality has been deteriorating rapidly. Urbanization, port and marine transport development, coastal tourism expansion, excess nutrient

discharge, and oil spills are all factors contributing to the deterioration of coastal water quality and threatening Vietnam's marine ecosystems. The oil concentration in some areas of coastal water exceeds the national limit standard, as does the pesticide content in northern seawater. Some cases of red tide due to eutrophication of harmful algae with a concentration of  $39.5 \times 10^9$  cells of algae per litre of seawater have been reported (Tang et al., 2004). These lead to massive losses of aquaculture and affect the health of coral reefs and many other marine species. Decreases in abundance and even local extinctions of some species have been reported. Eighty-five marine species are at endangered status, of which 65 are now listed in the Vietnam Red Book; nevertheless, they continue to be exploited intensely (Nguyen, 2002b).

More appropriate approaches to coastal and marine management are required to address the above-mentioned problems. Policies must be developed at the national level and implemented at the local level, and the Vietnamese government has been putting efforts into reaching technical, financial, and legislative solutions to improve coastal and marine management.

### **3.3 Vietnam's coastal management efforts**

Located on the Eastern Indochina peninsula, with 3,260 kilometres of coastline stretching from the North to the South, Vietnam has an enormous need for marine and coastal management. The Vietnamese people have expended much effort in exploiting the sea and reclaiming coastal areas for agriculture and aquaculture development. Coastal environments and natural resources have direct importance for millions of people, especially those living in coastal districts or on near-shore islands. Vietnam has therefore undertaken a number of protective measures to manage its coastal areas. The country's coastal management development can be divided into three phases: before 1986, 1986 to 2008, and 2008 to present (Tran, 2011). Details of milestones for each coastal management stages are presented in Table 3.3.



### 3.3.1 Stage 1: Before Doi Moi (renovation) 1986

Vietnam was under colonial occupation for almost 200 years. Fishing has always been the main activity along the coast, and in pre-colonial times, local governments were empowered by the king to manage fisheries. Under these arrangements, many fishing grounds became the quasi-private property of families, with rules transmitted orally down through generations. Fishery management tasks were performed by the *van* (village) administration (Ruddle, 1998); because the impact of central governance was weak during this period, local communities essentially managed the fisheries.

The period of French colonial rule (1859 to 1954) had little impact on the governance of coastal management and fisheries. Although decrees issued in 1904 and 1905 stripped Vietnamese kings of their supreme ownership of national properties, including coastal waters, traditional community-based fisheries management continued to dominate (Nguyen, 1995).

During the post-colonial era (1954 to 1975), conditions differed in the former Democratic Republic of Vietnam in the north and the Republic of Vietnam in the south. In the former, coastal waters belonged to the state, low-level communes governed local waters, and fishery production was collectivized. In the south, ownership rights remained unchanged, and fisheries were taxed by village governments. With reunification in 1975, the government initially extended the northern system nationwide (Ruddle, 1998).

**Table 3.3 Summary of Vietnam coastal management through the development of legislation and organization structures**

<b>Time scale</b>	<b>National initiatives</b>
1977	- Ratified UNCLOS
1981	- Establishment of Ministry of Fisheries (MOFI)
1986	<b>The sixth Party Congress introduced a new strategy of reform, including:</b> - <b>Development of the legal system</b> - <b>Reduce bureaucracy</b>

1988	- Promulgated the First Land Law
1991	- Law of Forest Protection and Development - First national plan of Environment and Sustainable Development
1992	- 92' Constitution of Socialist Republic of Vietnam
1993	- Establishment of the National Steering Committee for East Sea and Archipelago - Establishment of Ministry of Science Technology and Environment (MOSTE) and National Environment Agency (NEA) - Revised Land Law
1994	- Law of Environmental Protection issued - First ICM project initiated (preliminary)
1995	- Promulgated the National Action Plan of Biodiversity - Joined ASEAN - Establishment of Ministry of Agriculture and Rural Development (MARD)
1998	- Law of Water Resource - Revised Land Law
2000	- First ICM project established at the national level (VNICZM) - Establishment of the Division for Integrated Basin and Coastal Zone Management (under MONRE)
2001	- Establishment of first official MPA in Vietnam (Hon Mun MPA)
2002	- Establishment of MONRE and Vietnam Environmental Protection Agency (VEPA)
2003	- Law of Aquaculture and Fisheries - Land Law (2003 amended)
2004	- Law of Forest Protection and Development - MONRE's Environmental Protection Plan period 2004-2010 - Promulgation of MONRE's action plan for conservation and development of wetlands
2005	- Law of Environmental Protection (amended) - Maritime Law
2006	- Establishment of National Steering Committee of Marine Resources

	<p>and Environmental Survey</p> <ul style="list-style-type: none"> <li>- National Strategy of Environmental Protection until 2010 and vision to 2020</li> </ul>
2008	<ul style="list-style-type: none"> <li>- <b>Establishment of Vietnam Administration of Seas and Islands</b></li> <li>- <b>Merging of Ministry of Fisheries into Ministry of Agriculture and Rural Development</b></li> <li>- <b>Establishment of Vietnam Directorate for Fisheries (DOFI)</b></li> <li>- <b>Law of Biodiversity enacted</b></li> </ul>
2009 - present	<ul style="list-style-type: none"> <li>- Government of Vietnam approved the Strategy of Vietnam coastal integrated management to 2020 and vision to 2030 (2014)</li> <li>- Law of Marine Resources and Environment (drafted)</li> <li>- Law of the Sea (2012 enacted)</li> <li>- Law of Water Resources (2012 amended)</li> <li>- Government of Vietnam approve the Master Plan for MPAs to 2015 and vision to 2020 (in 2010)</li> </ul>

Although Vietnam is a maritime nation, the formulation of its policies for coastal and marine management started relatively late, and society had little awareness of the role of national policies for sustainable coastal and marine development. In the beginning, due to a lack of infrastructure and manpower and a limited knowledge of sea and coastal areas, policies focused mainly on developing a framework for Vietnam's jurisdiction and sovereign rights over its sea area and for the investigation and assessment of ocean and coastal resources for economic development. Some of the policies are mentioned in the 1977 government statement on sovereignty and sovereign rights over the territorial sea, contiguous zone, 200-nautical-mile exclusive economic zone, continental shelf, and the Spratly and Paracel archipelagos in the South China Sea (GOV, 1982).

However, together with increasing international awareness of environmental protection, the Vietnamese government has started to recognize the importance of protecting and enhancing the quality of its marine environment. In 1980, the government enacted two important decisions - Nos. 30-CP and 31-CP - related to monitoring the activity of foreign ships. Articles 16 and 17

mentioned the prevention of sea pollution from ships using nuclear power or transporting toxic chemicals. These decisions are considered Vietnam's first marine policies related to environmental protection (NEA, 2004).

### **3.3.2 Stage 2: 1986 to 2008**

The Doi Moi (renovation) policy began implementation in 1986, marking an important turning point in Vietnamese history: the country began a change towards a market-oriented economy. A new era of development started, characterized by changes in perspectives on the sea, coastal area, and environment. While the coasts and sea were recognized as important factors in national economic development, at this stage, government policies focused more on spurring economic growth rather than environmental protection, resource conservation, and sustainable development (CPV, 2001; MPI, 2004). Though major economic sectors such as fisheries; aquaculture; agriculture; marine transportation; port, oil, and gas exploration; and coastal tourism boomed without appropriate management, the need for effective policies around coastal and marine development became very urgent.

#### ***3.3.2.1 Policies and strategies***

Vietnam started formulating and enforcing environmental protection policies and regulations at the beginning of the 1990s. The first environmental protection regulations relating to coastal areas were established in 1989 - the Ordinance on Aquatic Resource Protection and the Ordinance of Resource Tax - and addressed tax collection from resource users, including Vietnamese and foreign fishers. The importance of coastal and national socioeconomic development was specifically emphasized in the Coastal and Marine Development Policy Directive of 1997, which acknowledged the need to build a strong coastal- and marine-related economy (Hoang, 2005).

A number of policies relating to natural resource use and environmental management, including some specific policies relating to the coastal zone, have also been enacted by central, provincial, and local governments. Vietnam enacted the Law of Environmental Protection in 1994 and amended it in 2005.

In 1998, the government issued Order No. 36 CT/TW on Strengthening Environmental Protection in the Period of Industrialization and Modernization, stating that environmental protection was the responsibility of authorities and citizens at all levels and sectors. The Penal Code of 2003 also contained 10 general crimes against the environment (Nguyen, 2009b).

National strategies for environmental protection for 1991 to 2000 and 2001 to 2010, national action plans on the environment, and a biodiversity action plan (BAP) have been also developed and enacted. With an eye on sustainable development, Vietnam prepared Agenda 21, which included sections on coastal and marine environments and fisheries. Further, the General National Marine Development Policy was formulated in 1997 to ensure the efficient exploitation of renewable and non-renewable coastal and marine resources (Sekhar, 2005).

In 2003, the Vietnamese government enacted the Law of Fisheries, which replaced the former Ordinance of Aquatic Living Resources Protection (1989). The 1993 Law of Oil and Gas was also amended in 2000. These laws provide the legal framework for developing the two key marine economic sectors of the country (Hoang, 2005).

In order to regulate the navigation and tourism sectors, the government enacted the Code of Navigation (1990), with an amendment in 2005, and the Ordinance of Tourism (1999), which focused on coastal tourism and ecotourism as important economic services. Further, it linked tourism with coastal and marine conservation activities (Nguyen, 2009a).

At the international level, Vietnam has signed a number of treaties that bind the state to protecting coastal resources and the environment. These include the Ramsar Convention (Convention on Wetlands of International Importance), the UN Convention on the Law of the Sea, the MARPOL Convention (International Convention for the Protection of Pollution by Oil from Ships), the Convention of Heritage, the Convention of Biodiversity Conservation, and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. However, in practice,

most of these agreements remain unimplemented for various socio-political reasons (Sekhar, 2005).

Besides policymaking, many research activities have been undertaken in marine and coastal areas by different agencies, particularly under national programs on marine science, natural resources, and the environment. These programs, especially the National System on Marine Environment Monitoring (1995), were established at the local level and have provided valuable data for coastal zone management (NEA, 2005).

On the whole, the legislation system in Vietnam improved significantly after Doi Moi. Although national marine policies reflect Vietnam's attempts to overcome the current serious constraints of coastal and marine management, it is still lacking integrated policies and laws to manage its coastal and marine areas effectively. Coastal development activities are occurring spontaneously and rapidly despite a lack of coastal resource planning across and within sectors. Planning and management policies have been unable to keep up with the demands of economic development and market forces. Moreover, conflicts over the right to use coastal resources are increasing with no framework serving as a solution. It should also be mentioned that there is insufficient investment for management activities in coastal areas. Finally, limited knowledge and perspectives as well as inappropriate management mechanisms are among the most significant constraints in coastal resource management and environment protection. Communities and policymakers alike continue to be vague about the value, character, and dynamics of coastal areas (Nguyen, 2009b).

### ***3.3.2.2 Institutional hierarchy***

The National Law on Environmental Protection establishes an institutional framework for environmental management from the central level down to the local level, and also identifies the role of local communities in the coastal resource and environmental management process, including coastal area management.

Vietnam's decentralized administration system has four levels: central, provincial, district, and commune. The strength of this multi-layer system is its flexibility and resilience with the replication of structure at every level. Each level has the ability to operate and make independent decisions (ADB, 2003). There exists a three-dimensional management paradigm at the central level for coastal and marine management: the Party Central Committee is responsible for defining political will and forming strategic directions and macro policies for national development; the National Assembly supports development strategies by making them legal at each national development period; and the government is responsible for implementing the strategies within legal limits. At the provincial level, the management paradigm belongs to the Party Provincial Committee, Provincial People Council, and Provincial People's Committee, represented by a chairman (Nguyen, 2009a).

The Sea and Islands Commission is a consultative organization belonging directly to the prime minister and headed by a vice-prime minister. The members of the commission are representatives from ministries and sectors at the central and provincial levels. Additionally, coastal management and marine management are segmented within a number of central ministries and sectors, where their functions and missions overlap. Hence, coastal and marine policy, enforcement, and collaboration are still weak and limited (VNICZM, 2006).

### ***3.3.2.3 ICM introduction to Vietnam***

The ICM approach was introduced in Vietnam in the early 1990s by the first initiative called Vietnam Vulnerability Assessment project (VVA 1994-1996). This project identified the vulnerabilities of the Vietnamese coastal zone to sea-level rise and suggested main priorities for responses which included ICM (Nguyen, 1996). Since then, there have been a few coastal management initiatives at both national and local scales focusing on particular issues such as sea dyke construction and rehabilitation, coastal resources protection, marine conservation, coastal hazard mitigation, livelihood development, and aquaculture and fisheries management (Nguyen, 2002a; 2005). These initiatives towards coastal management were financially and technically

supported by international donors such as the United Nations Development Programme (UNDP), Development Banks (ADB, WB, and JBIC), DANIDA (Denmark), and CIDA (Canada). The Ministry of Nature Resources and Environment (MONRE) was the focal point to facilitate all ICM effort in Vietnam. Some of these projects are summarized in Table 3.4.

Although many ICM efforts have been conducted in Vietnam, coastal areas are still inadequately managed and protected (Nguyen, 2009a), and the current institutional arrangements for coastal resource management are incomplete and insufficient. For example, while several central and local government agencies are involved in coastal resource management, their responsibilities have not been clearly identified. The enforcement of existing regulations continues to be weak due to a lack of personnel, equipment, and facilities. The planning process is driven by sector and centrally oriented, often resulting in planning conflicts at the provincial level and with little recognition of actual needs at the district level. There is still a lack of environment and mechanism for information sharing among stakeholders (Nguyen, 2009a; VNICZM, 2006; Sekhar, 2005). Until 2008, there was no agency solely responsible for marine and coastal management.



**Table 3.4 List of ICM initiatives in Vietnam**

<b>Name of projects</b>	<b>Support by</b>	<b>Implementation by</b>	<b>Sites</b>	<b>Time</b>
Vietnam Vulnerability Assessment project (VVA)	Netherlands Government	MONRE & Provincial DONRE	Nam Dinh, Thua Thien Hue, Vung Tau	1994 - 1996
National project to develop a conceptual ICM framework to maintain ecological safety and environmental protection in the Vietnamese context	Vietnam Government	MONRE	Quang Ninh, Da Nang	1996 - 2000
Vietnam-Netherlands project on integrated coastal zone management (VNICZM).	Netherlands Government	MONRE & Provincial DONRE	Nam Dinh, Thua Thien Hue, Vung Tau	2000 - 2005
Building Capacity for Integrated Coastal Management in the Ton Kin Gulf, Viet Nam	NOAA	IUCN	Quang Ninh, Hai Phong	2002 - 2009
Vietnam-PEMSEA project on marine pollution and integrated coastal management—regional demonstration site in Da Nang City	PEMSEA	Danang DONRE	Da Nang	2001 - 2008
Management of Natural Resources in the Coastal Zone of Soc Trang Province	GIZ	Soc Trang DONRE	Soc Trang	2007 - 2013
Application of ICM to Quang Nam coastal management	Vietnam Government	Quang Nam DONRE	Quang Nam	2005 - 2007
Project on integrated coastal management - PEMSEA parallel sites in Quang Nam and Thua Thien Hue	Vietnam Government PEMSEA (technical support)	Quang Nam DONRE Thua Thien Hue DONRE	Quang Nam, Thua Thien Hue	2004 – present 2009 - present
National program on ICM in 14 provinces in central Vietnam	Vietnam Government	Provincial DONRE	14 central coastal provinces	2007 - present

#### ***3.3.2.4 Starting point of marine protected area history in Vietnam***

Acknowledging the importance of ecosystems as well as the need to manage and safeguard them, a network of protected areas was set up according to Ordinance No. 18/LCT of the Government Council of the Socialist Republic of Vietnam in 1962 (Rambaldi et al., 2001). This network covers National Parks, Nature Reserves, Habitat Conservation Areas, and Landscape Conservation Areas, all of which are managed by the Ministry of Agriculture and Rural Development (MARD). Wetlands and marine ecosystems were not included in this category, except for the mangrove forests within the boundaries of national parks or nature reserves. Wetlands and marine systems were only given more adequate attention in 1989, when the Ramsar Convention was ratified. Since 1999, the application of MPAs was introduced to Vietnam with 15 MPAs identified within the national system (Thu & Bourne, 2008). The former Ministry of Fishery (MOFI) was given initial responsibility for the master plan and management regulations for the MPA network to 2020 in cooperation with the former Ministry of Science Technology and Environment (MOSTE) and other related agencies (Bourne et al., 2008). The approval for the establishment of the 15 MPAs was only made official a few years later under Decree 43/2003/ND-CP and the enactment of the Fishery Law from July 2004 (Bourne, et al., 2008). From 2001 to 2008, with the support from international organization such as The Danish International Development Agency (DANIDA), World Bank-Global Environment Facility (WB-GEF) and The International Union for Conservation of Nature (IUCN), Vietnam successfully established 5 pilot MPA sites. The first official MPA in Vietnam is Hon Mun which was established in 2001.

In 2007, the MOFI was merged into MARD (Ministry of Agriculture and Rural Development) and Vietnam Directorate of Fisheries was established under MARD. The transition period with the rearrangement of organization and reassignment of staff capacity had a negative impact on the management of MPA network due to confusions and potential conflicts of interest. The management responsibilities of these MPA have not been settled between MONRE and MARD since they are both involved in the management of wetland areas without clear division of authority and responsibility between them.

### **3.3.3 Stage 3: 2008- present**

#### *Towards integrated management of Vietnam's coast*

In 2008, recognizing the importance of managing marine and coastal areas in an integrated manner, the Vietnamese government established the Vietnam Administration of Seas and Islands (VASI) to integrate and unify state management for seas, coasts, and islands in Vietnam. It oversees all marine and coastal concerns, especially those related to national sustainable development. At the central level, VASI is also a national coordinating agency for all ICM projects and all international cooperation marine activities. At the local level, the Department of Natural Resources and Environment (DONRE) is a focal point for coordinating ICM and marine initiatives (Nguyen, 2009b).

Besides institutional rearrangement, the Vietnamese government has also approved and enacted a number of policies and laws related specifically to ICM. Governmental Decree No.25/2009/ND-CP on Integrated Marine Resources Management and Environmental Protection - dated March 6, 2009, and enforced in May 2009 - was the first integrated governance policy for coasts, seas, and islands in Vietnam. The policy provides guidelines for ICM implementation, coastal function zoning, and marine spatial planning.

The Law of Marine Resources and Environment Protection and Law of ICM were prepared and submitted to the government and National Assembly in 2011 for consideration and approval (Nguyen, 2009b). A national strategy on sustainable development of marine resources and environmental protection is also in preparation. A national program on ICM in 14 provinces in central Vietnam toward 2010 and a vision toward 2020 has also been implemented following Decision No 158/2007/QĐ-TTg of the prime minister dated October 2007. The projects were implemented at the local level and financially supported by the Vietnamese government (Nguyen, 2009a). In addition, a national programme on integrated coastal management for Vietnam is being implemented with the first stage of intensive involvement of seven coastal provinces. These efforts show the commitment of the Vietnamese government in adopting and scaling up ICM and mark a new stage in VASI's development

as a focal organization in managing ocean and coastal areas in an integrated and sustainable way.

However, the marine protected area system is seen to stand out of the integration trend. MPA network is still under the management of MARD, not VASI. Also, the external support from international organizations for MPA network have been halted. This resulted in a slowdown in MPA establishment and low management effectiveness of these MPAs (DOFI, 2014). In June 2010, the Government of Vietnam finally approved the Master Plan for MPAs to 2015 and vision to 2020, with an addition of 11 new marine reserves by 2015 (Thong, 2010). Although there are still many challenges and obstacles to the implementation of MPAs, according to IUCN and DOFI (2014), Vietnam's MPA system has been strengthened and showed significant and obvious results that urge the government to further support and invest in the system. A list of all MPA sites in Vietnam is given in Table 3.5.

The analysis of ICM trend and MPA implementation in Vietnam in stage 2 and 3 will be the core component of this research. It is to study how far and effective Vietnam has progressed towards an integrated management of the coast; and how the Vietnam MPA network is performing considering that they are not managed by the agency that is supposed to manage the coast and marine environment (VASI). The research also studies the possibility of integrating MPA into ICM progress of Vietnam and how the governance including institutionalization, legislation, and mechanism of cooperation should be addressed to achieve a more effective management of the coastal zone in Vietnam.

**Table 3.5 List of proposed and existing MPAs in Vietnam**  
(Source: DOFI, 2014)

No.	Name of MPA	Year of establishment	Support of establishment	Implementation by	Total area (ha)	Sea area (ha)
1	Cat Ba *	1986	MARD	DARD	16,196	9,800
2	Con Dao*	1993	MARD	Provincial People's Committee	19,998	14,000
3	Hon Mun	2001	DANIDA/IUCN	Provincial People's Committee	16,000	12,000
4	Nui Chua*	2003	DANIDA/IUCN	Provincial People's Committee	29,865	7,352
5	Cu Lao Cham	2005	DANIDA/IUCN	City People's Committee	5,175	1,544
6	Phu Quoc	2007	DANIDA/IUCN	DARD	26,863	18,700
7	Con Co	2009	DANIDA/IUCN	DARD	5,532	2,140
8	Hon Cau	2011	DANIDA/IUCN	DARD	12,500	12,390
9	Bach Long Vy	2013	MARD	DARD	20,700	10,900
10	Phu Quy	Future	MARD	n/a	18,980	16,680
11	Ly Son	Future	MARD	n/a	7,925	7, 113
12	Hai Van - Son Cha	Future	MARD	n/a	17,039	9,305
13	Nam Yet	Future	MARD	n/a	35,000	20,000
14	Co To	Future	MARD	n/a	7,850	4,000
15	Dao Tran	Future	MARD	n/a	4,200	3,900
16	Hon Me	Future	MARD	n/a	6,700	6,200

*\*National Park having marine component*

## **CHAPTER 4**

### **ANALYSIS OF THE EFFECTIVENESS OF INTEGRATED COASTAL MANAGEMENT IN VIETNAM**

#### **4.1 Introduction**

##### **4.1.1 ICM development**

In the early 1990s, the continuing trend of substantial population increase in coastal areas, together with the scenarios of impending climate change impacts including sea-level rise highlighted the need for more effective decision-making systems that can help to secure coastal and island communities (Vallega, 1999). To deal with this, Agenda 21 of the Rio Declaration (United Nations Conference on Environment and Development, UNCED, 1992) elected to pursue sustainable coastal development by employing integrated coastal management. This was explicit in the document's Chapter 17, which recommended ICM as a core program to be implement at all scales, from global to local.

Despite different ICM concepts being adopted, the management system itself has been acknowledged worldwide to be a universal approach and is now practiced in over 100 countries (Murawski et al., 2008). ICM is considered as a management process (Cicin-Sain, 1993; Ehler et al., 1997; Richter, 2001), a set of management tasks or instruments (Turner et al., 1998; Bower & Tuner, 1998), a conceptual framework for coastal development (GESAMP, 1996; FAO, 1998), a resource use management system (Chua, 1993; Sorensen, 1997; Vallega, 1999), or the mix of more than one of the above. This dissertation adopts the ICM concept of PEMSEA, which defines ICM as the governance of human activities that affects the sustainable use of goods and services generated by the coastal and marine ecosystems through integrated planning and management (Chua, 2006). When the efforts by government, civil society and private sector stakeholders are integrated and coordinated, the governance of the coastal and marine areas can be more effective and efficient. ICM can overcome the weakness of the conventional single-sector management

approach because it shows that different sectors are involved in ensuring the coastal areas' sustainability since all their activities affect its ecosystem. ICM, unlike the single-sector management approach, considers the cross-sectoral impacts of the multiple uses of coastal areas. ICM is recognized as the instrument to achieve sustainable development for marine and coastal areas (Cicin-sain, 1993; Chua, 2006; Cumins & Mckenna, 2010).

For nearly half a century, ICM has been promoted and developed by international organisations, for example the FAO's (Food & Agriculture Organisation) Integrated Management of Coastal Zones (Clark, 1992), the WB's (World Bank) Guidelines for Integrated Coastal Zone Management (Post & Lundin, 1996), and the IUCN's (International Union for Conservation of Nature) Marine and Coastal Protected Areas: a Guide for Planners and Managers (Salm et al., 2000). Accordingly, ICM has been practiced extensively in many countries and regions, particularly in the USA (Knecht, 1979), the UK (French, 2004; Ballinger, 2005), the Baltic and Mediterranean Sea countries (Ballinger et al., 1994; Belfiore, 2000) and some East and Southeast Asia countries (Chua & White, 1989; Chua & Scura, 1992). More recently, ICM, which is based on the principles of integrity, cost-benefit, equity, and precaution (Bodungen & Turner, 2001) has been implemented by many countries pursuing protection and sustainable development of their coastal area (Cicin-sain & Knecht, 1998; Sorensen, 2002; Chua, 2006).

However, according to Ye (2014), among almost 700 ICM initiatives recorded during the 1990s, only a limited number of initiatives were considered successful and sustained. Tampa Bay Estuary of U.S.A (Lewis et al., 1999), Sri Lanka (Hettiarachchi & Samarawickrama, 2005), Batangas, Philippines (The Provincial Government of Batangas, 2008), and Xiamen, China (Ye et al., 2013) are examples of successful and sustained ICM initiatives. The success of the ICM implementation in these regions came from many factors such as sufficient financial resources, effective coordination mechanisms, strong government commitments, adequate scientific database support, as well as successful public involvement (Chua, 2006). A number of ICM initiatives

failed to enter the implementation stage or continue to run a new cycle due to a synthesis of root causes which are elaborated in the next section.

#### **4.1.2 Issues of integrated coastal zone management**

Since the 1990s, assessments of various ICM initiatives in the world by renowned coastal management scholars (Scura et al., 1992; Ballinger et al., 1994; Sorensen, 1997; Belfiore, 2000; Olsen & Christie, 2000; Sorensen, 2002) have provided significant critiques on the design, the implementation process, the outcomes of ICM, and the issues in evaluating and progressing ICM.

From the design aspect, the main issue arises from the fact that there is no single, proven blueprint of a successful ICM model for coastal countries to replicate. ICM literature has shown that many western models of ICM failed when they were applied in developing countries (Richter, 2001; Masalu, 2003). Each coastal nation, therefore, should develop its own management model to address their specific coastal problems, and to fit with their physical, socio-economic and political contexts.

One of the main challenges in designing an ICM programme is how to integrate it with the existing culture of policy formulation and decision making (Sorensen, 1997), and internationally agreed principles. This creates a dilemma for many countries, especially the developing ones, where economic development objectives are often given more priority than the concerns about coastal environment and ecosystem quality (Olsen, 1993), and the political structure may resist the adoption of new management principles. Additionally, the pace of development in developing countries is fast, hence coastal management is prone to short-term solutions to the problems that are at the same time cost effective and easier to convey to local stakeholders and policy makers, leading to the single sectoral, single-issue nature of many ICM initiatives adopted in developing countries (Richter, 2001)

Another issue in designing ICM is a neglect of the local focus as existing literature on ICM is more concerned with the national scale, such as



formulation of a national strategy for ICM, institutionalising ICM, national legal and economic mechanism (Vallega, 1999). Accordingly, most ICM initiatives only prioritise the institutionalisation of ICM at the national level despite the fact that national and local resource management institutions are equally important in controlling coastal utilisation (Cheong, 2008). In developing countries especially, it is noticeable that the higher level (national) governmental agencies have much greater authority and responsibility to manage coastal resources rather than the local level institutions who, at most, participate passively in some partial management activities as required by the central government level and are often unaware of the wider context of ICM. Therefore, while most coastal problems are local and need localised solutions, the local institutions often cannot obtain the power and legitimacy to exercise their practices (Scura et al., 1992) whereas national authorities are less capable in terms of gaining thorough understanding of the local problems to identify proper response action. Although ICM initiatives have attempted to broaden the community-based, bottom-up approaches to coastal management, participation from local institutions and societal actors is still insufficient (Scura et al., 1992).

Other issues include: lack of management instruments, integration and coordination mechanisms (Chua & Pauly, 1989), weak enforcement of existing laws and regulations, and low governance capacity to facilitate ICM (Fischer, 1990). Among these, integration has been at the centre of discourses in the coastal zone management literature (Chua, 1993; Cicin-Sain, 1993; GESAMP, 1996). It is believed that comprehensive integration should be adopted by all parties in the management including sectors of the economy, public and private sectors, geographic components of the coastal zone, and other disciplines of coastal management (Ehler et al., 1997). However, in practice, it is very difficult to achieve effective integration, even in ICM experienced countries (Kenchington & Crawford, 1993; Knecht & Archer, 1993; Ballinger et al., 1994; Turner et al., 1998) especially when it requires political and institutional reforms to restructure and redistribute authority, responsibility, and power.

Evaluating the progress of ICM is another issue as its outcomes require a long time to observe and the frameworks and indicators have only been recently developed (Olsen, 2003; Stojanovic et al., 2004). Olsen (2003) suggested the adoption of the ICM policy cycle and four orders of outcomes in the evaluation. The ICM policy cycle is a well-known learning-based framework for grouping the ICM activities into five phases within a generation of coastal management (GESAMP, 1996): issue identification and assessment; programme preparation; formal adoption and funding; implementation; and evaluation. Progress is made when completed cycles of management build upon each other and are expressions of purposeful learning (Olsen, 2003). The four orders of outcomes is an outcome-based framework of assessment based on: (i) the conditions enabling the implementation of an ICM initiative; (ii) changes in behaviour required to achieve desired social and environmental improvements; (iii) the improvement in social and/or environmental qualities; and (iv) achieving sustainable coastal development. Using these frameworks, Olsen examined ICM initiatives in 95 nations and concluded that the majority of these initiatives' outcomes are found only in the first and second order. He concluded that the primary factor limiting progress in coastal management is the capacity of the institutions involved in instigating and sustaining integrated and adaptive management, and that creating or enhancing governance capacity is the key to effective integrated coastal management.

#### **4.1.3 Coastal governance role in enhancing ICM**

In the reality of ICM implementation, many problems are not caused by the ICM framework itself but by the physical, socio-economical, and political contexts influencing the adoption and the progress of ICM (Olsen, 1993, 2003; Sorensen, 2002). Among them, the political situation has the most substantial influence, as ICM is innately a management process underpinned by governance structures and processes (Olsen, 2003), which are socio-politically constructed (Kooiman, 1993). The ICM literature, however, has not adequately discussed the issue of governance except the initiatives in regional ocean governance (Knecht, 1997; Costanza et al., 1998) or governance in fisheries (McGlade, 2001; Kooiman & Bavinck, 2005; Gibbs, 2008).

Reviews of ICM initiatives show that many well-tailored and technically sound ICM programmes have failed to meet their management objectives because of the lack of institutional and budgetary supports and commitments (Hildebrand & Edward, 1992; Scura et al., 1992). ICM efforts tend to be successful if there is collaboration between central and local government, and between state and non-state actors (Kay & Alder, 2005). The inability of existing institutions and governance procedures is identified as a hindering factor in ICM implementation (Olsen & Christie, 2000). Recent approaches in ICM governance (Rhodes, 1996; Kooiman & Chuenpagdee, 2005) extend the concept from fundamental institutions, legislation and political relations to more specific factors such as the multitude of actors involved in the process; the sharing of roles, responsibilities and opportunities between government and other societal stakeholders; and the importance of societal development as a result of good governance. These approaches have been applied widely to fisheries and aquaculture management but not to coastal zone management, which is comparatively a more complex system. Therefore, the purpose of this ICM study in Vietnam is to evaluate the degree of significance of Vietnam coastal governance to the formulation and implementation of ICM initiatives, and to recommend the adoption of a new notion on governance to strengthen the sustainability of the coastal systems in the country.

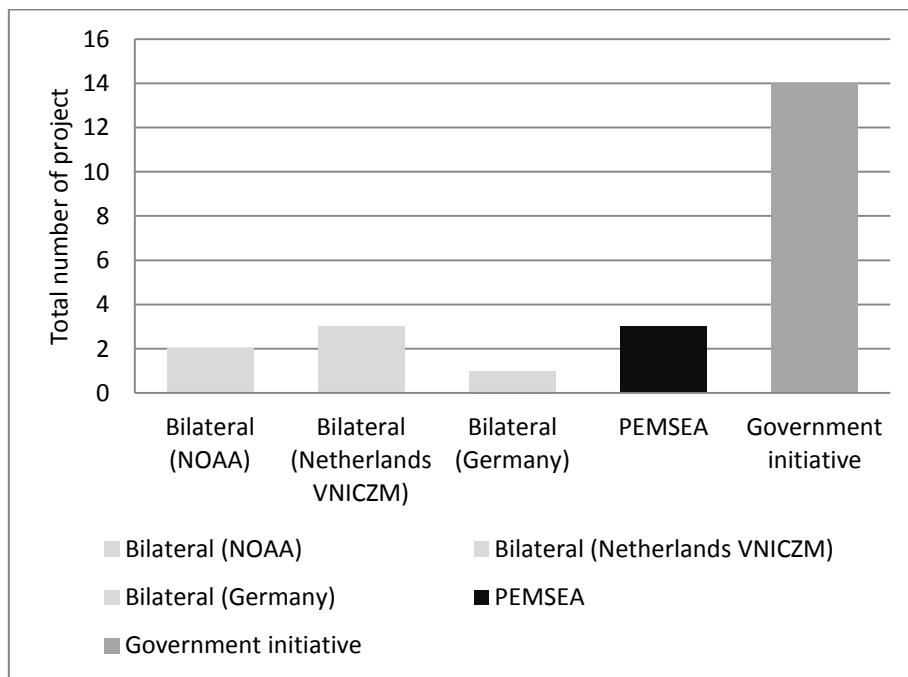
## **4.2 Evaluation of ICM initiatives in Vietnam**

As discussed in Chapter 3, the ICM approach was introduced in Vietnam in the early 1990s with the first initiative called Vietnam Vulnerability Assessment project (VVA 1994-1996). This project identified the vulnerabilities of the Vietnamese coastal zone to sea-level rise and suggested main priorities for responses which included ICM (Nguyen, 1996). Since then, many initiatives towards ICM have been implemented with the assistance of international organisations and development organisations. These initiatives, however, either focused on specific problems of coastal management at a specific locality or very generally address the institutional issues at the national level without a clear link established. According to a study under the framework of the Vietnam-Netherlands Integrated Coastal Zone Management

project (VNICM), these projects were not well coordinated in an institutional frame and consequently were less effective when they reached a higher level beyond that of a pilot case study (Tran, 2003).

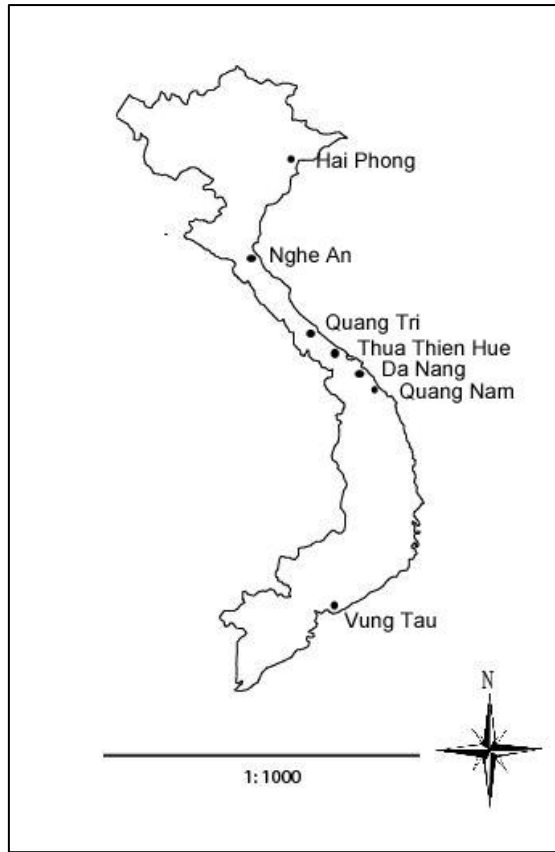
#### 4.2.1 Choosing study sites

ICM initiatives in Vietnam can be categorized into 3 types: (i) externally funded with the PEMSEA (Partnerships in Environmental Management for the Seas of East Asia) regional approach, (ii) externally funded with the different bilateral approach, and (iii) the Vietnamese government's initiative (Figure 4.1). A cross-group evaluation is conducted on seven ICM initiatives in Vietnam using a theory-based evaluation methodology with indicator-based frameworks.



**Figure 4.1 Types of ICM projects in Vietnam since 1996**

Of all ICM projects in Vietnam, seven sites are chosen from all three types. The selected sites are from all geographical regions of Vietnam (Figure 4.2). All these 7 sites have considerable results of ICM project to be evaluated. The details of 7 sites are summarized in Table 4.1.



**Figure 4.2** Map of selected ICM sites

**Table 4.1 Summary of projects selected for evaluation**

<b>Site</b>	<b>Category</b>	<b>Implemented by</b>	<b>Time</b>	<b>Land area (square kilometres)</b>	<b>Population (2012) (billion)</b>	<b>Major coastal economic activities</b>
Vung Tau (P1)	VNICZM	MONRE & Provincial DONRE	2000 – 2005 (5 years)	1,987	1.039	Fisheries, Oil industry, port, aquaculture, tourism
Thua Thien Hue (P2)	VNICZM/PEMSEA	MONRE & Provincial DONRE	2000 – 2005 (5 years)	5,063	1.114	Fisheries, aquaculture, tourism
Hai Phong (P3)	NOAA	IUCN	2002 – 2009 (7 years)	1,508	1.858	Port, fisheries, aquaculture, tourism
Da Nang (P4)	PEMSEA	Provincial DONRE	2001 – 2008 (7 years)	1,256	0.926	Port, fisheries, aquaculture, tourism
Quang Nam (P5)	Government/PEMSEA	Provincial DONRE	2005 – present (9 years)	10,408	1.461	Fisheries, aquaculture, tourism
Quang Tri (P6)	Government	Provincial DONRE	2007 – present (7 years)	4,746	0.608	Fisheries, aquaculture, tourism
Nghe An (P7)	Government	Provincial DONRE	2007 – present (7 years)	16,487	2.925	Port, fisheries, aquaculture, tourism

#### 4.2.2 Choosing the indicator-based framework for theory-based evaluation

Significant efforts have been made to develop the indicators to measure the progress of ICM (Burbridge, 1997; Chua, 1998; Olsen, 2003; Ehler, 2004; Pickaver et al., 2004; Stojanovic et al., 2004; Heileman, 2006; Billé, 2007; Fontalvo-Herazo et al., 2007; Gallagher, 2010). The indicators can be categorized into process indicator, state indicator, pressure indicator, response indicator, sustainability indicator, impact indicator and success indicator (Burbridge, 1997; Henocque, 2003; Olsen, 2003; Pickaver et al., 2004; Chua, 2006; PEMSEA, 2011).

The approaches used to develop these ICM indicators vary from a DPSIR (Driving force-Pressure-State-Impact-Response) developed by OECD (Heileman, 2006), to Orders of Outcomes (Olsen, 2003), to ICM policy cycle (Olsen & Christie, 2000) and Logical Framework approach by World Bank (Chua, 2006). Table 4.2 summarizes different success factors from literature (Wilcox, 1994; Stajanovic et al., 2004; Christie et al., 2005; PEMSEA, 2011).

**Table 4.2 Factors for successful ICM from literature**

<b>Wilcox (1994)</b>	<b>Stajanovic et al. (2004)</b>	<b>Christie et al. (2005)</b>	<b>PEMSEA (2011)</b>
Community participation	Co-ordination collaboration	Stakeholder participation in ICM decision making process	Shared vision and strategy
Project design	Representative	Improved economic returns and income generation	Local government commitment
Education	Harmonisation	Equitable sharing of economic benefits	Institutional arrangements
Research	Training	Supportive legal and policy framework	Legislation
Institutional relationships	Political support	Inter-governmental coordination mechanisms	Availability of financial resources
	Public awareness	Capacity for law	Public awareness

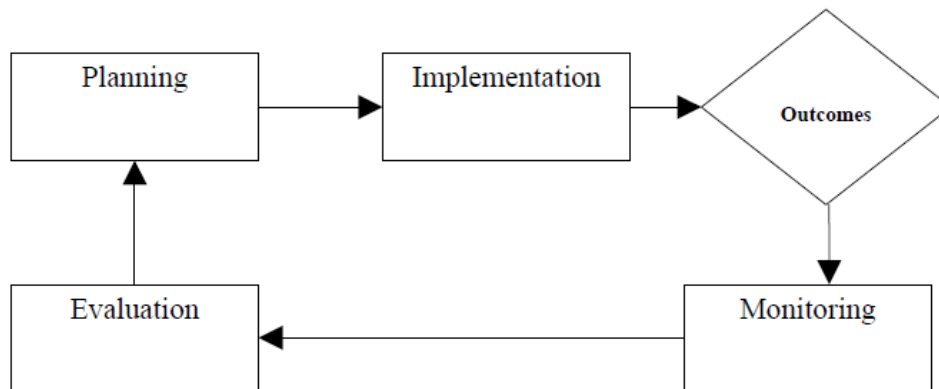
		enforcement	
	Governance capacity	Institutional continuity beyond leadership change	Local capacity
	Innovation	Conflict resolution Mechanisms	Local ICM champion
	Pluralism implementation	Education and awareness level raising	Scientific support
	Maintenance	Long term monitoring information management systems	
		Stable financial support	

Stojanovic et al. (2004) also studied the frequency of success factors being cited in the ICM literature. The most frequently cited success factors included Participation (with 22 citations), Integration (19), Comprehensiveness (17), Co-ordination (15), Education (14) and Adaptability (11), ICM Goals (9), Scientific Input (9) and Efficiency (8).

For the purpose of this thesis, I do not set out to define new indicators. Instead, using a theory-based approach, I synthesised expert opinions to validate assumptions of cause and effect along a project's path to success. This allows the evaluation to be conducted across different projects at different stages of their history, and with different objectives. In order to do this, the lessons from projects in the literature have been synthesised into a set of criteria and critical success factors on which the evaluation will be conducted.

The criteria are grouped into the three stages of the ICM policy cycle adopted from Ehler (2003): planning, implementation (including monitoring and evaluation) and sustainability (repeat of cycle) (Figure 4.3).





**Figure 4.3 The ICM policy cycle (Ehler, 2003)**

Each criterion comprises many success factors accordingly. Details of the criteria are summarized in Table 4.3. In keeping with the program theory, each stage of the cycle is a continuum of multiple objectives and factors required for the project to move along its path to anticipated success. The structure allows for consideration of: project processes, substance, outcomes and sustainability; the evaluation of multiple projects concurrently; and the capture of impact through perceptions and experiences of project participants.

**Table 4.3 Criteria for ICM project effectiveness**

Criteria of effectiveness	Success factors
<b>Project planning phase</b>	
Criterion 1: Planning process is adequate	1. Sufficient resources used to determine project need 2. Stakeholders participated and contributed 3. Good baseline data & understanding of local conditions 4. Planning time is adequate in comparing to total ICM cycle
Criterion 2: Project design is appropriate	5. Reflects a long-term commitment 6. Builds recurrent cost funding into design 7. Builds capacity of project implementer
Criterion 3: Objectives are appropriate	8. Measurable, clear and feasible 9. Focused and shared vision
Criterion 4: Scientific support	10. Good understanding of current condition of bio-physical conditions of project site (coastal profile) 11. Good understanding of local socio-economic status
Criterion 5: Legal support	12. Local government development plan, including coastal and

	<p>marine areas</p> <p>13. Coastal strategy and action plans</p> <p>14. Governmental legislation support strongly the formulation of ICM project</p>
Criterion 6: Institutional arrangements	<p>15. Clear organisational structure in place to manage project</p> <p>16. Coordinating mechanism is in place to implement project</p>
<b>Project implementation phase</b>	
Criterion 7: Project's function	<p>17. Funding size is reflected by realistic timeframes</p> <p>18. Resources used efficiently and activities are likely to be completed on schedule</p> <p>19. Has ability to mobilise additional financial, technical and other resources</p>
Criterion 8: Co-ordination	<p>20. Implementing agency &amp; partner organisation have a productive working relationship through clear coordinating mechanism</p> <p>21. Maintains a network with relevant agencies information sharing</p>
Criterion 9: Public involvement	<p>22. Encourages involvement of local people in an active capacity</p> <p>23. Publicity of project information</p>
Criterion 10: Education	<p>24. Has focus on staff capacity building through training and through daily work</p> <p>25. Public awareness raising activities are substantial</p> <p>26. Decision-maker awareness is enhanced</p>
Criterion 11: Local government capacity	<p>27. Implementation organization are well organised and functioning well</p> <p>28. Strong support from key senior officials</p> <p>29. Local staff have knowledge and skill in ICM</p> <p>30. Local government utilize local budget for ICM project</p>
Criterion 12: Legalizing ICM	<p>31. ICM strategy is incorporated into local development plan</p>
Criterion 13: M&E is effective	<p>32. Project has a clear and adequate M&amp;E framework</p> <p>33. M&amp;E is used effectively throughout implementation</p>
<b>Sustainability of the action for next cycle</b>	
Criterion 14: Benefits are sustainable	<p>34. Stakeholders have sufficient knowledge and resources to maintain project</p> <p>35. Project can continue to exist without external project finance /Project has sustainable finance-scheme</p> <p>36. Implementation institution has high-level officials committed to maintain project</p>

### **4.2.3 Conducting the evaluation**

#### ***4.2.3.1 Secondary data collection***

Secondary data collection began with an online desk study of all ICM projects and research implemented in Vietnam. Once online sources of information had been exhausted, contact was made with the relevant implementing agencies, donors, and government counterparts. Through this, I was able to visit NGO libraries, project offices, and donor representatives to gain additional information for each project.

Many documents tended to be unpublished project reports, internal reviews, and research studies, which were unlikely to be found outside the organisations. Access to funding proposals and other internal documents allowed me to develop a further understanding of both the substance of the projects and the processes used to achieve the desired impact. An important aspect of this stage of data collection was to meet with and begin developing rapport with the various stakeholders relevant to the study. The donors, NGO staff, relevant government agencies became key sources of information, and without their support this research would not have been possible.

The additional project information allowed me to compile more detailed accounts of project histories, their implementation, any overlap with other projects, and the impacts beyond project completion. This information was vital in the building of the lists of all project counterpart organisations, sites, and beneficiaries. The project information and the stakeholder list were now sufficient to formulate survey questions for semi-structured interviews. Due to the need to explore different aspects and perceptions of projects according to each stakeholder's specific involvement, questionnaires were tailored to the three broad categories of project stakeholder: scientists at provincial research institute involved in the project; project local staff; and national in-charge agencies/donor staff (Questionnaire templates are shown in Appendix 1). Questions were designed to address each stage of the project cycle: design, implementation, monitoring and evaluation, and sustainability of benefits beyond completion.

From the detailed stakeholder list, a sample of the total number involved on projects was then selected for interview. Selection was based on the inclusion of a minimum of 1 scientist, 1 project local staff, and 1 national agencies staff per project. Since the completion of some projects, contact with direct representatives from each stakeholder category was not always possible. Many NGO and donor staff had already been relocated to other countries or organisations. For these cases, contact was made with the current program/project staff with access to past project information. Whenever possible, present project managers, and senior representatives of both national and international organisations were selected to be interviewed.

#### ***4.2.3.2 Primary data collection***

Throughout many fieldtrips in Vietnam, 19 semi-structured interviews were conducted for the 7 selected ICM sites. Where possible I sought extra informal meetings with other key informants throughout the process, and where face to face meetings could not be conducted, I communicated via email or phone. Of the 19 informants interviewed, 7 were project local officers, 7 were local scientists, and 5 were representatives from national in-charge organization/donor agencies. Generally, 1 project local officer, 1 local scientist and 1 national in-charge officer were interviewed for each site. Some national in-charge officers involved more than one project. A comprehensive coverage of each project was possible due to respondents' participation on multiple projects, especially interviewees from MONRE. All the particulars of interviewees are kept confidential hence each interviewee was given a coding number according to categories of respondents (SC for scientist, LS for local staff and NS for national/donor staff) (See Appendix 5.1). The average number was 4.42 respondents per project.

At the completion of all interviews and informal meetings, the secondary and primary data were synthesised against the criteria for success compiled in Table 4.3. The Evaluation Sheet for each project is given in Appendix 3.1. Each project was then scored using the project evaluation sheets, and all project scores then collated using a matrix of projects versus the Success Factors (SFs). Scores were based on a 0, 0.5, and 1 rating system that reflects

a project's application of the SF (i.e. knowledge from the literature), and its performance of that SF (desired/undesired). Where a SF was not applicable to a project, no score was given. The scoring system was as follows:

- “0”: No application of the SF; poor/undesired impacts of actions overall
- “0.5”: Application of the SF was average overall; desired and undesired impacts were balanced overall
- “1”: Strong application of the SF; positive overall performance with impacts in the desired direction

#### ***4.2.3.3 Analysis of results***

Basic statistical analysis of all projects was conducted, and the strength of relationships between Criteria of Effectiveness and SFs were calculated using Pearson's correlation coefficient. Correlations with project performance and sustainability and also between Criteria and SFs were also calculated. Projects and SFs were also given a performance rating. Both the quantitative data from the statistical analysis, and the qualitative information from the secondary and primary data collection stages, were then analysed and form the basis for the discussion of results in this chapter.

This analysis answers the following questions:

1. How have ICM in Vietnam performed?
2. Are there relationships or dependencies between the factors that affect ICM success in Vietnam?
3. What can be learnt from ICM in Vietnam?
4. What do stakeholder perceptions tell us about ICM project success and sustainability?
5. What are the overarching constraints and enabling factors to project success and sustainability?

## 4.3 Evaluation of project - statistical analysis

### 4.3.1 What do the scores and ratings represent?

Total project and SF scores lie on a performance continuum between zero and one, and rated from Poor to Good. The rating system is explained as follows (Figure 4.4):

#### *0: Poor*

Most actions had either no impact on the desired outcome, undesired impact or the impact is in negative direction.

#### *0 – 0.33: Relatively Poor*

Impact on desired outcome was minimal. Some actions had an impact in the desired direction, but the majority is not desired or insignificant overall.

#### *0.33 – 0.67: Fair*

Impact on desired outcomes was average. The majority of actions had an impact in the desired direction.

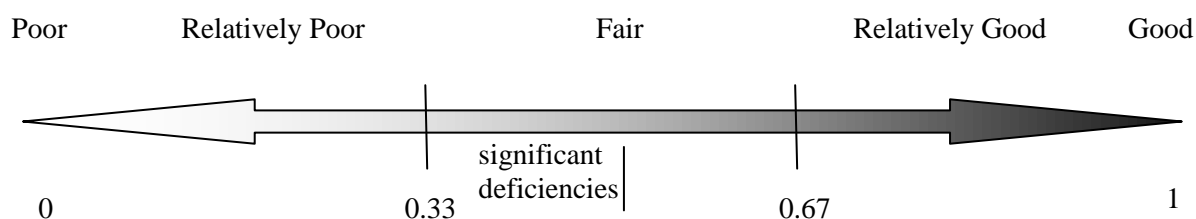
#### *0.67 – 1: Relatively Good*

Progress toward desired outcomes was superior. Almost all actions were significant, and had the desired impact.

#### *1: Good*

Impacts were demonstrated and progress was highly superior. All actions had the desired impact.

As most scores fall in between 0.33 and 0.67, we further split this range into those between 0.33 and 0.5 (basic but with major deficiencies) and those between 0.5 and 0.67.



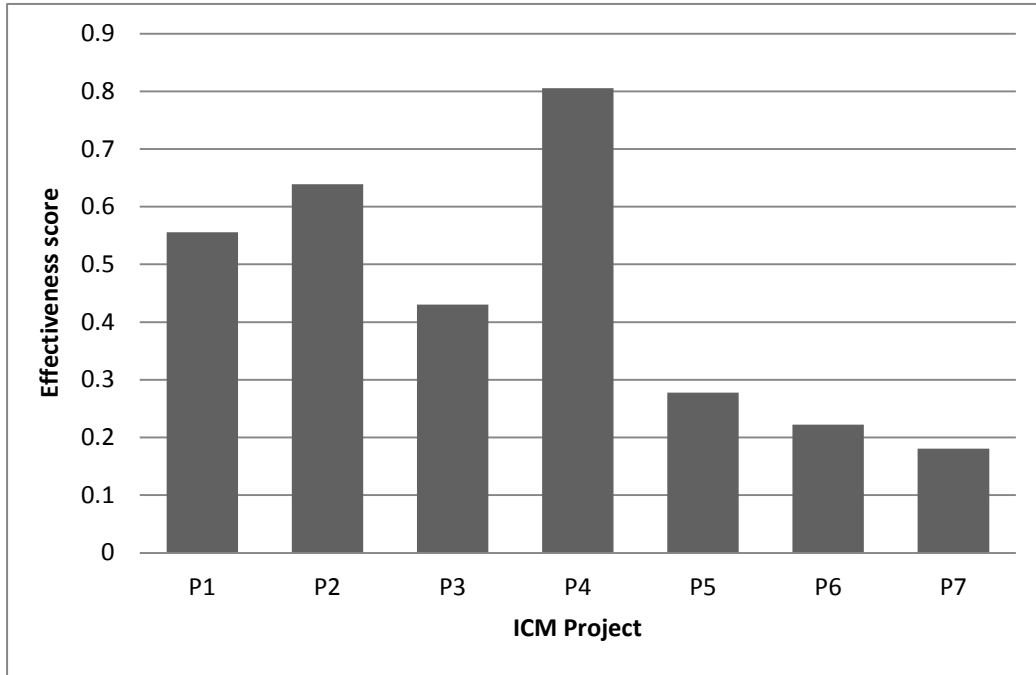
**Figure 4.4 The rating system for ICM evaluation**

### 4.3.2 Project performance

The results of the evaluation demonstrate that the majority of projects showed inadequate progress towards desired outcomes. Overall project effectiveness, which takes into account the design phase, implementation and sustainability of the action beyond completion, was judged to be on the lower end of “Fair” (0.44) (Table 4.4, and Figure 4.5). Only P4 (ICM with PEMSEA approach in Da Nang) was rated as Relatively Good. Therefore, with the exclusion of P4, the average score of the remaining selected projects drops to 0.38, moving closer to the Relative Poor mark. All three projects with external funding (P1, P2, and P3) were rated as “Fair” for performance. Most significantly, all three ICM government initiatives (P5, P6, and P7) performed “Relatively Poor” with an average score of 0.23 (Figure 4.5). This is in considerable contrast to the average score of all externally funded projects of 0.61.

**Table 4.4 Overall ICM performances**

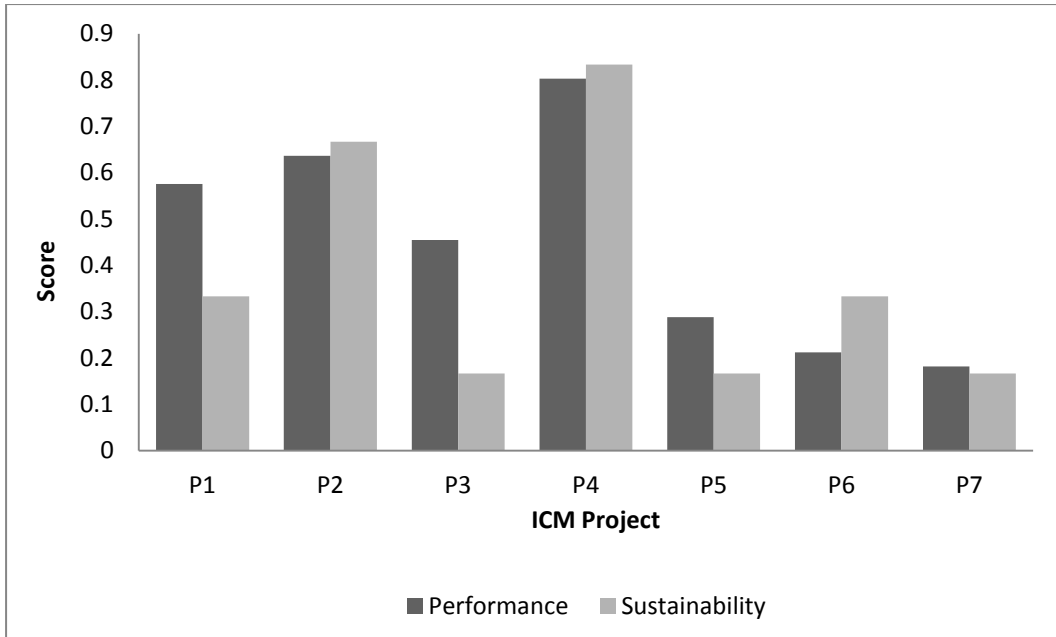
Code	Effectiveness (All 3 stages)	Performance (Stage 1 & 2)	Sustainability
P1	Fair	Fair	Fair
P2	Fair	Fair	Relatively good
P3	Fair	Fair	Relatively Poor
P4	Relatively Good	Relatively Good	Relatively good
P5	Relatively Poor	Relatively Poor	Relatively Poor
P6	Relatively Poor	Relatively Poor	Fair
P7	Relatively Poor	Relatively Poor	Relatively Poor



**Figure 4.5 Overall effectiveness of each project**  
*(Mean 0.44; St. Dev 0.23; Min 0.18; Median 0.43; Max 0.81)*

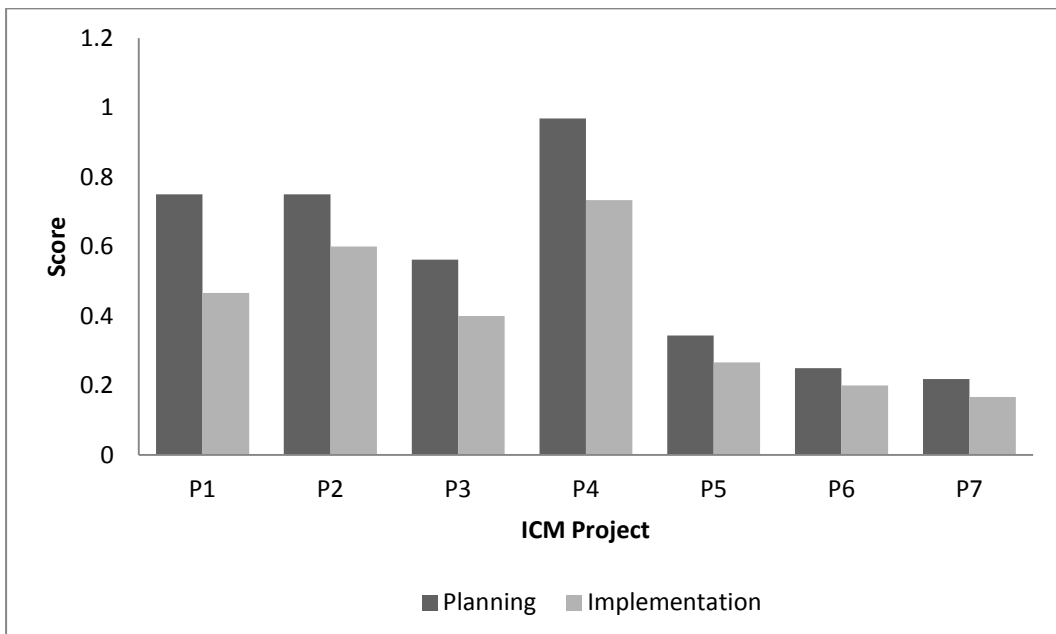
Separating project performance (which accounts for design and implementation phases), from sustainability is instructive. Project performance remains as lower 'Fair' but rises slightly to a 0.45, while the sustainability of projects drops to 0.38. The majority of projects have therefore not had the desired impact beyond completion. Only two projects P4 (Da Nang) and P2 (Thua Thien Hue) had 'Relatively Good' sustainability. Two projects (P1 and P3) showed significant difference between performance and sustainability. Disentangling project performance and sustainability also highlights perhaps a weak link between good project performance and sustainability, as two of the four projects that had 'fair/relative good performance were scored low when it came to sustainability of the project (Table 4.4). The contrast between a good performance but followed by weak sustainability can be seen clearly in Figure 4.6.





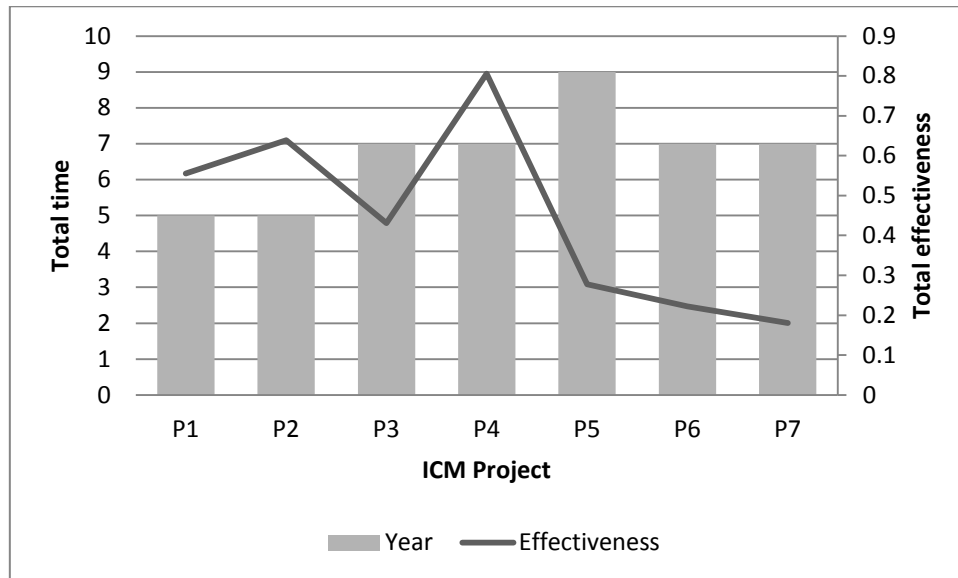
**Figure 4.6 Project scores for performance and sustainability**

Figure 4.7 shows that the performances of the planning stage of all 7 projects are higher than the performances of the implementation stage. This is a significant implication that ICM in Vietnam have so far mainly been at the planning stage and hardly led to effective implementation.



**Figure 4.7 Project scores at planning and implementation stages**

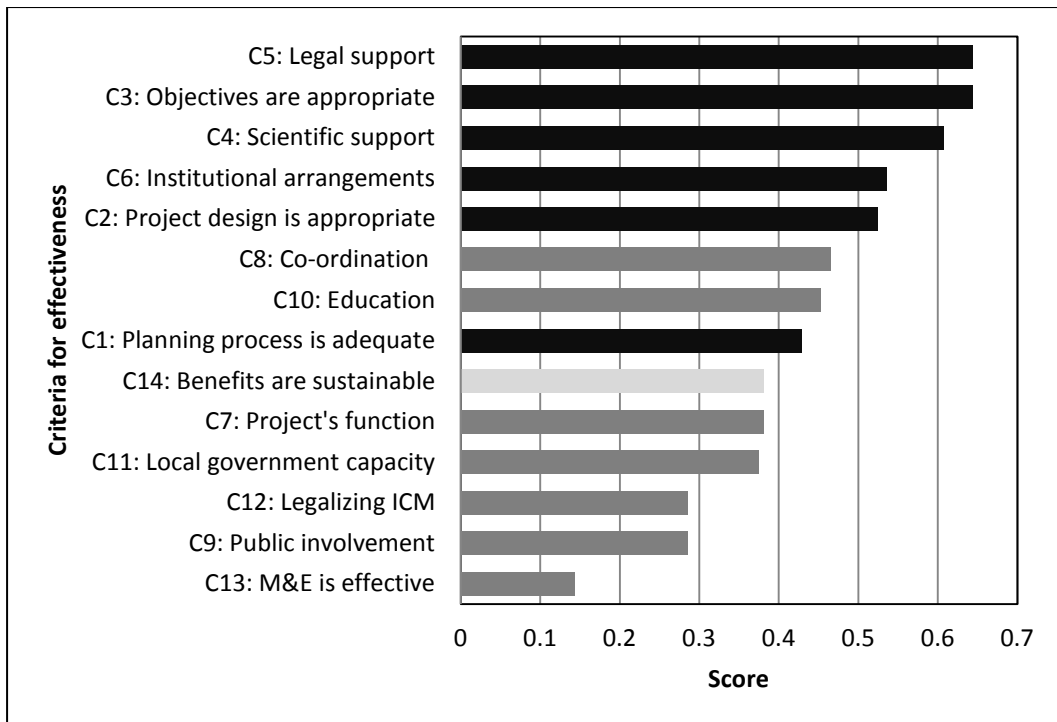
The timescale of each project varied. Figure 4.8 shows the relationship of effectiveness and the total duration of the project. The government initiatives P5, P6 and P7 show very low efficiency. The total time of these projects are among the longest but produced the lowest effectiveness score.



**Figure 4.8 Effectiveness compared with total time of each project**

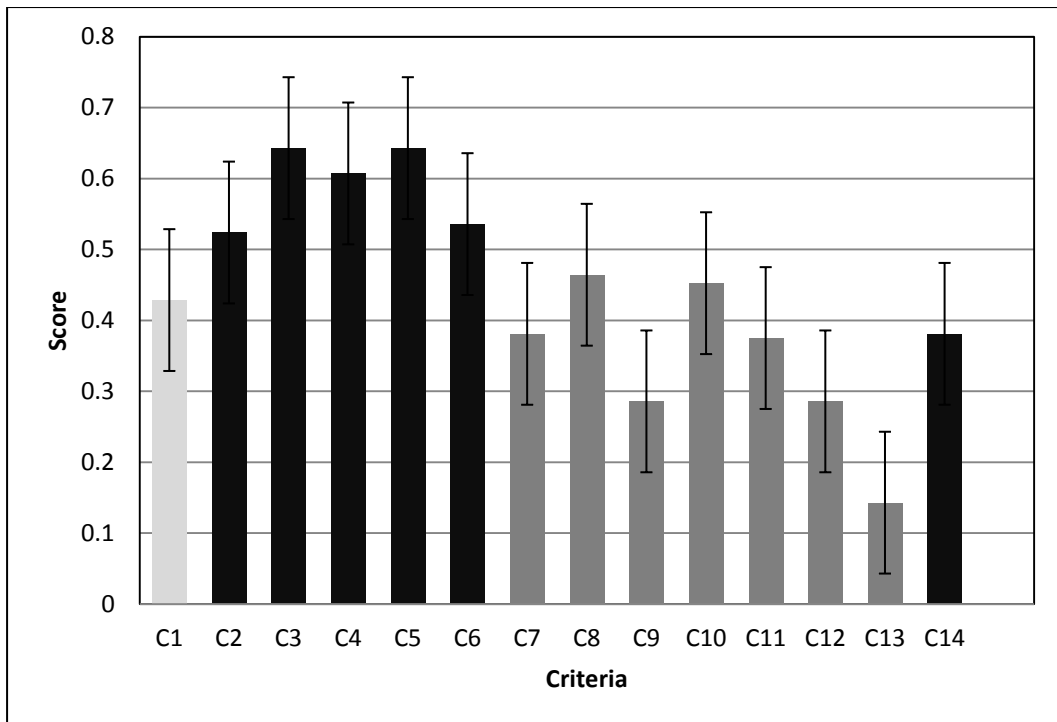
### 4.3.3 Which criteria for success were performed most effectively?

The evaluation highlights clear patterns in the strengths and weaknesses throughout the implementation of all projects (Figure 4.9). Average scores of each Criterion for Effectiveness (C1-C14) ranged from 0.14 (Relatively Poor) to 0.64 (Fair), with top five criteria being from the “planning” phase of projects. The five criteria that rated the lowest across all projects were from the “implementation” phase, where effective monitoring and evaluation (M&E) (C13) is the lowest.



**Figure 4.9 Average scores of Criteria for Effectiveness across all projects**  
*(Colours are used to indicate what stage of the project cycle: black is Design, grey is Implementation, and light grey is Sustainability)*

Figure 4.10 shows a clear pattern of overall performance of projects throughout the project cycle (Design phase (C1 - C6), implementation (C7 - C13), and sustainability beyond the project (C14)). The results suggest that there was a significant variation between the performance of each project, but on average, projects performed well during the planning phase.



**Figure 4.10 Average criteria for success scores across project cycle**  
*(Colours are used to indicate what stage of the project cycle: black is Design, grey is Implementation, and light grey is Sustainability)*

#### 4.3.4 Which Success Factors were performed most effectively?

The average performance of projects for each SF is shown in Appendix 6. The top six most effective SFs are listed below along with their project stage and SF score:

1. SF14 (0.71): Governmental legislation support strongly the formulation of ICM project
2. SF12 (0.71): Local government development plan, including coastal and marine areas
3. SF8 (0.71): Visions and objectives of projects are measurable, clear and feasible
4. SF7 (0.71): Builds capacity of project implementer
5. SF24 (0.64): Has focus on staff capacity building through training and through daily work
6. SF10 (0.64): Good understanding of current condition of bio-physical conditions of project site

Two of the top 5 SFs (SF7 & SF24) relate to capacity building. This implies that the ICM in Vietnam focuses more on capacity building of staff. SF14 and SF12 are the top two, showing the importance of legislation support from both local and national level as very critical to the success of ICM in Vietnam. SF8 has a high score showing that the positive point of ICM in Vietnam is that most of the projects clearly defined their objectives and visions. SF10 was fair indicating that ICM in Vietnam has focused more on baseline studies for most projects.

#### **4.3.5 Which Success Factors were performed most poorly?**

All of the six most poorly performed aspects of the projects are from the implementation phase factor while one is from sustainability of the effort (SF35) (Appendix 6).

Rank 36. SF33 (0.07): M&E is used effectively throughout implementation

Rank 35. SF19 (0.21): Has ability to mobilise additional financial, technical and other resources

Rank 34. SF22 (0.21): Encourages involvement of local people in an active capacity

Rank 33. SF30 (0.21): Local government utilize local budget for ICM project

Rank 32. SF31 (0.21): ICM strategy is incorporated into local development plan

Rank 31. SF32 (0.21): Project has a clear and adequate M&E framework

Rank 30. SF35 (0.21): Project can continue to exist without external project finance /Project has sustainable finance-scheme

First, ICM overall failed or have not developed M&E plans, and where they were developed they were weak and local partners were not trained to conduct those plans. Projects therefore had very little scope to monitor project progress, identify issues or make any changes if required. Second, projects

overall had no financial sustainability. The poor performances of SF19 and SF35 show that projects had very low budget and financial resources. Finally, ICM in Vietnam have not focused on the involvement of the local community and although most of the projects have devised their strategy, they are not incorporated into local development plans.

#### **4.3.6 Which factors promote effectiveness, performance and sustainability?**

Table 4.5 highlights the strongest correlations between individual SFs and project effectiveness. Pearson's correlation coefficient between individual Success Factor and the overall project effectiveness score was calculated. It is observed that 5 of the top eight factors are during the project planning phase that strongly correlates with good project performance and effectiveness.

**Table 4.5 Top eight factors most strongly correlated with overall project performance**

<b>Success Factor</b>	<b>Project stage</b>	<b>Pearson's coefficient</b>	<b>Performance Rank</b>
SF13: Coastal strategy and action plans	Planning	0.941	16
SF9: Focused and shared vision	Planning	0.913	9
SF11: Good understanding of local socio-economic status	Planning	0.913	8
SF28: Strong support from key senior officials	Implementation	0.910	11
SF12: Local government development plan, including coastal and marine areas	Planning	0.889	2
SF14: Governmental legislation support	Planning	0.889	1

strongly the formulation of ICM project			
SF22: Encourages involvement of local people in an active capacity	Implementation	0.889	34
SF32: Project has a clear and adequate M&E framework	Implementation	0.889	31

The results indicate that projects performed best when they have focused and shared their vision that embeds a good understanding of the local context. The formulation of coastal strategy and ICM action plans is also important to the success of ICM. SF14 and SF12 ranked in the top 10 most effective SF implies that these are the most significant factors contributing to the success of ICM. Interestingly SF28, which is strong support from key senior officials, is strongly correlated with overall performance.

#### **4.3.7 Which criteria promote effectiveness, performance and sustainability?**

Table 4.6 highlights the strongest correlations between individual Criterion for Effective and project effectiveness. It is observed that 4 out of top 7 factors are during the project planning phase that strongly correlates with good project performance and effectiveness. The other three are from the implementation stage.

The results again indicate that the success of ICM correlates well with project design and planning, local government capacity to conduct ICM, the capacity building of project stakeholders as well as strong legal support. M&E is also an important factor to ICM effectiveness.

**Table 4.6 Top seven criteria most strongly correlated with overall project performance**

<b>Criteria</b>	<b>Project stage</b>	<b>Pearson's coefficient</b>	<b>Performance Rank</b>
Criteria 2: Project design is appropriate	Planning	0.962	5
Criteria 1: Planning process is adequate	Planning	0.952	8
Criteria 11: Local government capacity	Implementation	0.947	11
Criteria 10: Education	Implementation	0.944	7
Criteria 13: M&E is effective	Implementation	0.932	14
Criteria 5: Legal support	Planning	0.929	2
Criteria 3: Objectives are appropriate	Planning	0.928	1

#### **4.3.8 Summary**

The statistical results revealed important information regarding ICM performance in Vietnam. The importance of active stakeholder participation during the project design, clear objectives, a good understanding of the project context, all appear to be key determinants of project effectiveness and are common themes in the results.

Projects performed well when it came to the participation of the local people, high level of capacity building, and high support from local officers. The formulation of local development strategy as well as legislation support is also key factors. The weakest aspects of the projects include monitoring and evaluation; building sustainable financing into projects; encouraging local stakeholder involvement and local legislation of ICM.



Key observations from data analysis:

- The overall ICM performance in Viet Nam is typically rated as relatively poor to fair. All projects with foreign participation performed far better than government initiatives. All projects performed better in planning compared to implementation.
- Legal support, institutional arrangements, scientific support, and capacity building have high scores, implying their adequacy.
- Public involvement, legalizing ICM, monitoring and evaluation (M&E), local government capacity, and financial support are hindering the ICM performance.
- Support from national government, involvement of local stakeholder, sustainable financing, political will/support of local government, and clear objectives are among the most important factors affecting the success of ICM projects.

#### **4.4 Local perception of success and sustainability of ICM**

This section explores the local perception of the success and sustainability of ICM projects in Vietnam. Local perception about success and sustainability were compared to those obtained from empirical and project data in the previous section.

##### **4.4.1 Methodology**

An extra questionnaire was sent again to 19 interviewees that were involved in the prior semi-structured interviews regarding to their perception on the success and sustainability of ICM in Vietnam. The respondents were asked to rank factors contributing to the low performance of ICM in Vietnam according to their perception. The score ranges from 1 to 12 scale (1: least important; 12: most important) with a list of success factors from literature (Table 4.7). The full questionnaires are provided in Appendix 1.

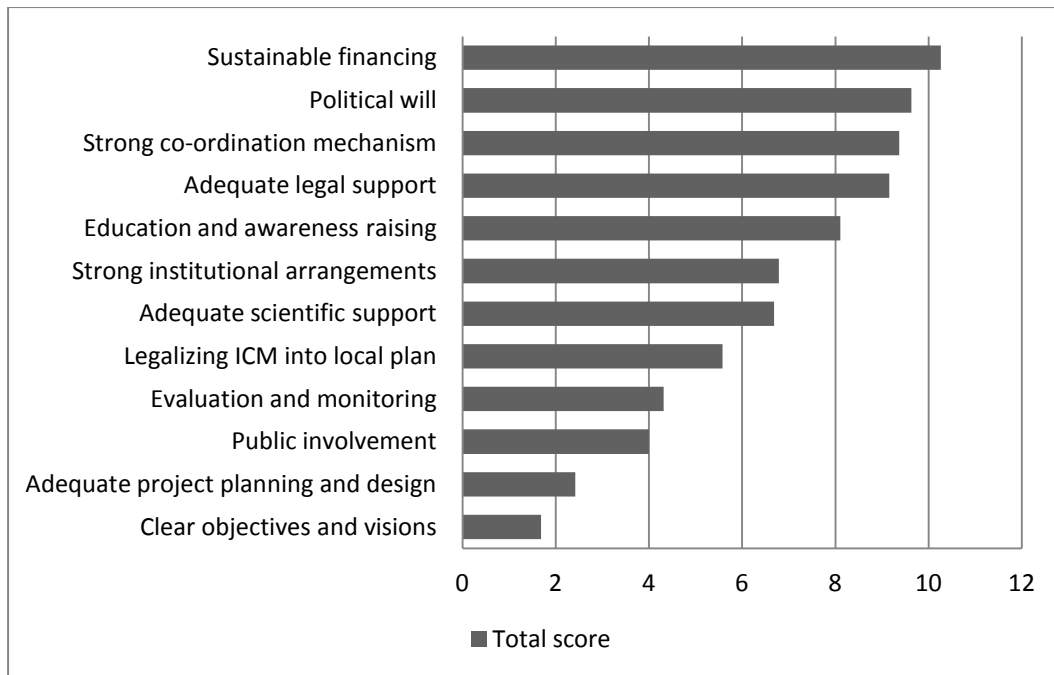
**Table 4.7 List of success factors to be ranked**

<b>Code</b>	<b>Success factor</b>
PS1	Adequate project planning and design
PS2	Clear objectives and visions
PS3	Adequate scientific support
PS4	Adequate legal support
PS5	Strong institutional arrangements to conduct ICM
PS6	Strong co-ordination mechanism
PS7	Public involvement
PS8	Education and awareness raising
PS9	Legalizing ICM into local plan
PS10	Sustainable financing
PS11	Political will
PS12	Evaluation and monitoring

#### **4.4.2 Statistical data analysis**

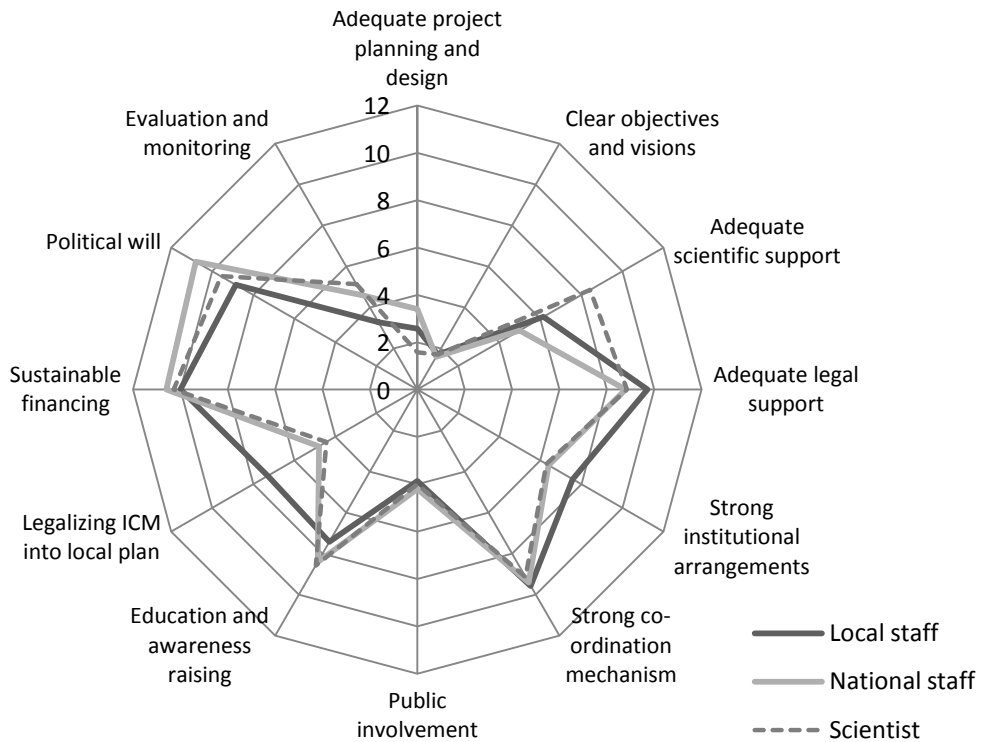
Figure 4.11 summarises scores of all perceived critical success and sustainability factors by 19 respondents. The top 5 factors (scoring above 8) are:

- PS10: Sustainable financing
- PS11: Political will
- PS6: Strong co-ordination mechanism
- PS4: Adequate legal support
- PS8: Education and awareness rising



**Figure 4.11 Ranking success factors according to all respondents**

Figure 4.12 presents the ranking of success factors perceived by local project officers, national officers and local scientists accordingly. The top factors according to national officers, local project staff and scientists are the same as total score result which include PS10, PS11, PS4, PS6 and PS8. While the local staff perceived that PS9 (Legalizing ICM into the local plan) is important, national officers and scientists gave a lower rank. This may be due to the belief that if ICM is legalized into the local plan, local officers will be able to conduct their work with greater authority. Local staff also emphasized on the institutional arrangements to conduct ICM as they are the direct implementer. A strong institutional arrangement with clearly defined responsibilities will enable them to work more effectively. Similarly, scientists rank PS3 (Adequate scientific support) significantly higher compared to the other two stakeholders, which is reasonable given their work nature.



**Figure 4.12 Ranking success factors according to local project officers**

#### 4.4.3 Discussion of results

The results of the perception study reflect well on the results obtained from the ICM evaluation. The key factors that affect the success of ICM in Vietnam are legal support, political will, capacity building and sustainable financing and a co-ordination mechanism. Low investment in these parameters results in poor performance of ICM. However, the results of the evaluation clearly show that planning and designing of the project are important in contributing to the success of ICM. This is not reflected in the perception of the local stakeholders. The planning and design is ranked as least important according to results of perception ranking.

#### 4.5 Discussion and conclusions

The results showed that the overall performance of ICM in Vietnam is typically in the fair to relatively poor range. Only ICM Da Nang performed well. The government initiatives performed most poorly although they have the longest time scale. All of the ICM projects performed better during the planning stage and degraded during the implementation stage.

It seems that ICM projects in Vietnam have adequate legal support from the government and were carefully designed with a clear and shared vision. Institutional arrangements and co-ordination mechanisms were in place for implementing ICM. However, an effective monitoring and evaluation program did not feature in many ICM projects. The lack of financial support and local community involvement affected the performance of ICM. The fact that ICM has not been legalized into the local development plan also hindered the effectiveness of the ICM effort.

The evaluation of ICM also revealed factors that strongly correlate with ICM success. The results of the study of local perceptions on factors affecting the success of ICM are also similar to the evaluation results. Factors contributing to the success of ICM projects include legal support, capacity building, local government capacity (co-ordination mechanism, political will), and sustainable financing mechanism. The design of projects with clear objectives, a shared vision and public involvement also contributed to the performance of ICM. These factors are, however, not reflected in the local perception study. This shows the gap between reality and perception that needs to be further analysed.

## CHAPTER 5

### ANALYSIS OF THE EFFECTIVENESS OF MARINE PROTECTED AREAS IN VIETNAM

#### 5.1 Introduction

##### 5.1.1 Marine Protected Areas in coastal resource management

Since the 19<sup>th</sup> Century, scientists have paid particular attention towards conservation and sustainable use of natural resources in the light of extensively increasing population and resource consumption (Kenchington, 1990; Agardy, 1995b; Gubbay, 1995; Dudley & Stolton, 1999). One of the primary solutions to this was the creation of legally protected and managed areas dedicated towards the conservation of biological diversity, and natural and associated cultural resources (IUCN, 1992). However, compared to terrestrial area protection, marine conservation biology was estimated to lag behind by about two decades (Murphy & Duffus, 1996) as active consideration of marine area protection did not emerge until the 1950s and 1960s (Kelleher & Kenchington, 1992).

Marine Protected Areas (MPAs) is defined by the IUCN as “*Any area of intertidal or sub tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment*” (Kelleher & Kenchington, 1992). In its MPA guideline (1998), IUCN also stated that the definition essentially means that a marine protected area should cover the marine terrain and possibly adjacent terrestrial terrain such as the coastal land area and islands. It is commonly called an MPA when the total area of marine component exceeds the area of land within its boundaries, or the marine part of a large protected area is sufficient in size to be classified as an MPA in its own right (Kelleher, 1999).

There were 118 MPAs in the world initially in 1970 increasing steadily to 430 MPAs by 1985 (Kelleher & Kenchington, 1992). By 2006, the number

multiplied tenfold to 4,435 MPAs either statutorily or non-statutorily declared at both, national and local levels. However, this represented only 0.65% of the world's oceans and 1.6% of the total marine area within exclusive economic zones (Wood et al., 2008). In October 2010, a target of 10 per cent of coastal and marine areas to be conserved by 2020 was established in the Tenth meeting of the Conference of the Parties for the Convention on Biological Diversity (COP 10) in Nagoya, Japan (Convention on Biological Diversity, 2011).

Protected areas have gained widespread acceptance around the world as an effective and important approach in conservation (Kenchington, 1990; Gubbay, 1995; Kramer et al., 1997; Dudley & Stolton, 1999). The approach has been acknowledged as a crucial planning tool that simultaneously accomplishes a broad spectrum of objectives (Alexander, 1993; Alder, 1996; Agardy & Wilkinson, 2003). These include local community accommodation, nature-based tourism, recreational usage, and management of fisheries (Agardy, 2000a; Cadwallader et al., 2000; Kenchington, 2000; Alcala et al., 2003), key habitat protection (Crowder et al., 2000; Graham et al., 2003), reef-based enterprise development control (Davis & Tisdell, 1995; Agardy, 2000b), water quality protection (Chadwick & Green, 2000) and user conflict resolution (Agardy, 1993; Bohnsack, 1993). The more objectives set to be accomplished, the more diverse management approaches needed to be adopted.

### **5.1.2 Issues of MPAs around the world**

In the last few decades, there has been a significant increase in the number of new MPAs implemented (Cheung, 2002; Pomeroy et al., 2004; UNEP-WCMC, 2008). However, success is limited in many cases, especially in developing nations, where most programs failed to move to the implementation stage (McClanahan, 1999). Zann (1996) cited a number of major obstacles toward successful marine resource management such as the high cost of research and management, poor understanding, and lack of support from communities and authority. In addition, as the marine environment has been traditionally considered as open access area, many

relevant stakeholders often oppose the idea of enforcement of boundaries and restricted reserves (Perera & Vos, 2007).

According to Kelleher et al. (1995), only 9% (117) of the total number of MPAs globally achieved high management effectiveness while 29% apparently failed to meet their management objectives. This has indicated that despite widespread acceptance and adoption, MPA management needs to be well assessed and improved in order to achieve its desired effectiveness. Jones (2001) cited commonly recurring issues in MPA management as follows:

- Inadequate financial, technical and human resources, to develop and implement management plans.
- Insufficient data for management decisions, including information on resource usage and on biological resource status.
- Lack of public support and unwillingness of users to follow management rules, often because relevant users are not involved in establishing such rules.
- Lack of commitment to enforcing management rules and plans.
- Unsustainable use of resources occurring within MPAs.
- Impacts from activities in land and sea areas outside MPAs, such as pollution and over-exploitation.
- Lack of clear responsibilities for management and ineffective coordination between relevant agencies.

## **5.2 Evaluation of MPAs in Vietnam**

As discussed in Chapter 3, since 1999 the application of MPA was introduced to Vietnam with 15 MPAs identified in the national system (Thu & Bourne, 2008). The first official MPA in Vietnam named Hon Mun was established in 2001 with the support of The Danish International Development Agency (DANIDA). Despite the many challenges and obstacles to the implementation of MPAs, according to IUCN and DOFI (2014), Vietnam's MPA system has been strengthened and showed significant and obvious results that, in turn, encouraged the government to further support and invest in the system. Currently, Vietnam has successfully established 9 MPAs and plan to establish



7 more in the near future. This commitment is set in the Government Master Plan for MPAs to 2015 and vision to 2020 (Thong, 2010).

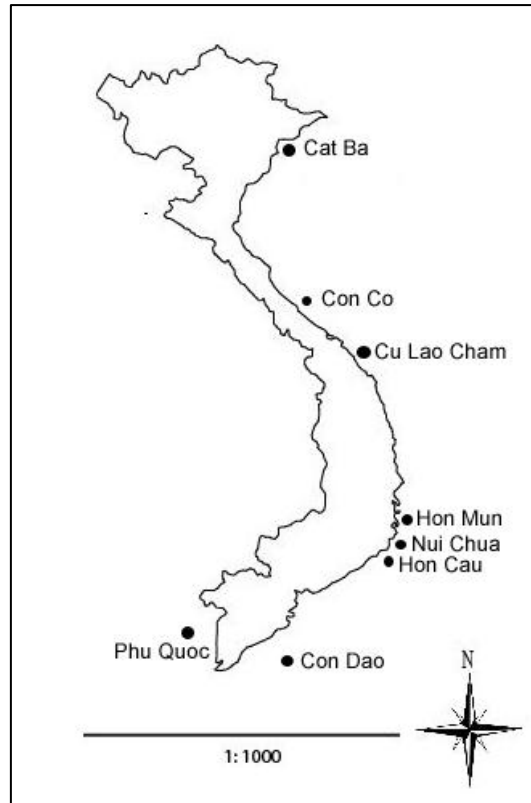
### 5.2.1 Choosing study sites

Of the 9 MPAs established, the Bach Long Vi site was established only recently in 2013 and had insufficient data to be assessed. The remaining 8 MPAs will be evaluated using an electronic score-card survey to provide an extensive overview. The details of 8 sites are summarized in Table 5.1.

**Table 5.1 Summary of MPAs selected for evaluation**

Name of MPA	Year of establishment	Support of establishment	Implementation by	Total area (ha)	Sea area (ha)	ICM in place
Cat Ba * (MPA1)	1986	MARD	DARD	16,196	9,800	VNICZM
Con Dao* (MPA2)	1993	MARD	Provincial People's Committee	19,998	14,000	VNICZM
Hon Mun (MPA3)	2001	DANIDA/IUCN	Provincial People's Committee	16,000	12,000	Gov.
Nui Chua* (MPA4)	2003	DANIDA/IUCN	Provincial People's Committee	29,865	7,352	Gov.
Cu Lao Cham (MPA5)	2005	DANIDA/IUCN	City People's Committee	5,175	1,544	Gov.
Phu Quoc (MPA6)	2007	DANIDA/IUCN	DARD	26,863	18,700	No
Con Co (MPA7)	2009	DANIDA/IUCN	DARD	5,532	2,140	Gov.
Hon Cau (MPA8)	2011	DANIDA/IUCN	DARD	12,500	12,390	Gov.

*\*National Park having marine component; Gov: Government initiative ICM; VNICZM: Bilateral ICM*



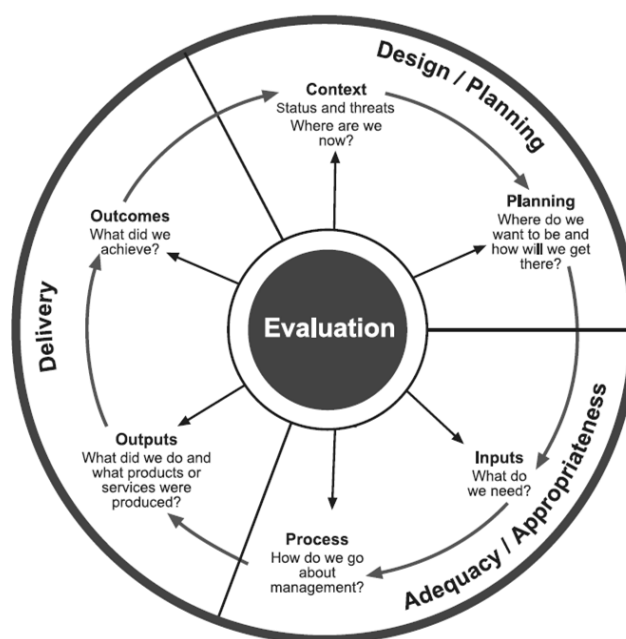
**Figure 5.1 Map of selected MPAs**

### **5.2.2 Choosing score-card framework for evaluation**

A number of methodologies and indicators have been developed at different levels to assess the management effectiveness of protected areas (Corrales, 2004; Pomeroy et al., 2004; Staub & Hatzios, 2004; Hockings et al., 2006; Leverington et al., 2008). The first published materials on protected area management evaluation was in Venezuela (Blanco & Gabaldon, 1992).

The Framework and guidelines for assessing the management of protected areas was first published by IUCN-WCPA in 2000 (Hockings et al. 2000) and then revised in 2006 (Hockings et al. 2006). The central idea of the Framework is that protected area management follows a cyclical process with six distinct stages, or elements (Figure 5.2). Thus, an evaluation that individually assessed each of the elements and collectively evaluated the links between them will provide a comprehensive measurement of the management effectiveness. One of the most important advantages of the Framework is that it enables the use of a similar evaluation approach with a proven common set

of criteria to evaluate and compare different projects or programs (Leverington et al., 2010).



**Figure 5.2 The framework for assessing management effectiveness of protected areas (Hockings et al., 2006)**

Since the first publication of a draft of this Framework in 1997, it has been used to develop specific management effectiveness evaluation methodologies, which are being applied extensively around the world (Table 5.2).

**Table 5.2 List of some common protected area management evaluation methodologies (Adapted from Leverington et al., 2010)**

Methodology name	Organisation/ Affiliation and/or reference
Rapid Assessment and Prioritisation of Protected Area Management	WWF (Ervin 2003b)
Management Effectiveness Tracking Tool	World Bank/WWF Alliance (Stolton <i>et al.</i> 2007)
Enhancing our Heritage	UNESCO (Hockings <i>et al.</i> 2007)
How is Your MPA Doing?	NOAA/National Ocean Service/IUCN/CPA Marine, WWF (Pomeroy <i>et al.</i> 2004)
Conservation Action Planning	TNC (The Nature Conservancy 2007)
WWF-World Bank MPA score card	WWF-World Bank (Staub and Hatzios 2004)
Conservation International Management	Conservation International

Effectiveness Tracking Tool	
Important Bird Area Monitoring	(www.birdlife.org)
Governance of Biodiversity Survey Greifswald	University of Greifswald (Schliep <i>et al.</i> 2008)
Stockholm Biosphere Reserves Survey	Stockholm University (Schultz <i>et al.</i> in review)

Leverington et al. (2010) conducted a review of cross-analysis of data from various evaluation methodologies using a set of indicators. One of their conclusions is that the most useful evaluation approach is to organise indicators according to the framework elements (cyclical process). Accordingly, they designed a “bottom-up” compilation of “headline indicators”, which was derived from reviewing over 2000 questions and indicators from more than 40 different protected area management effectiveness evaluation methodologies (Table 5.3). Each of the “headline indicators” was then scored and added up. The total score reflects the overall effectiveness of the protected area.

**Table 5.3 Common headline indicators analyzed by Leverington et al. (2010)**

Element	Summary indicator set	Common reporting format headline indicators
Context	Value and significance  Threats and constraints	Level of significance <i>Five important values</i> Level of extent and severity of threats Trend of threats <i>Five important threats</i> Constraint or support by external political and civil environment
Planning	Site design and establishment  Management planning	Park gazettal Tenure security and issues Appropriateness of design Marking and security/ fencing of park boundaries Adequacy of p.a. legislation and other legal controls Management planning
Input	Management resources  Information base	Adequacy of current funding Security/ reliability of funding Adequacy of infrastructure, equipment and facilities Adequacy of staff numbers Adequacy of relevant available information for management
Process	Internal management	Staff morale

	systems and processes	Effectiveness of governance and leadership Model of governance Effectiveness of administration including financial management Management effectiveness evaluation undertaken Adequacy of building and maintenance systems
	Visitor management	Staff/ other management partners skill level Adequacy of staff training Adequacy of HR policies and procedures <i>Character of visitor facilities and services</i> Visitors catered for and impacts managed appropriately
	Natural and cultural resource management systems	<i>Level of visitor use</i> Threat monitoring Natural resource and cultural protection activities undertaken Sustainable resource use - management and audit Research and monitoring of natural/ cultural management
	Stakeholders relations	Communication program Involvement of communities and stakeholders Appropriate program of community benefit/ assistance <i>List community benefit/ assistance program</i>
	Law enforcement	Adequacy of law enforcement capacity <i>List (up to) five main issues for law enforcement</i>
Output	Achievement of work program	Achievement of set work program
Outcome	Conservation outcomes	Results and outputs have been produced Proportion of stated objectives achieved Conservation of nominated values – conditions
	Community outcomes	Conservation of nominated values – trend Effect of park management on local community

Similarly, Staub & Hatzios (2004) adopted a scorecard approach to evaluate the effectiveness of marine protected areas. The scorecard adopts different questions for MPA managers to score each of the “headline indicators” throughout the cyclical process of management. Examples of questions for the element “Context” are presented in Table 5.4.

Context	1	Legal status - Does the marine protected area have legal status?
	2	Marine protected area regulations - Are unsustainable human activities (e.g. poaching) controlled?
	3	Law enforcement - Can staff sufficiently enforce marine protected area rules?
	3a	There are additional sources of control (e.g. volunteers, national services, local communities)

	3b	Infractions are regularly prosecuted and fines levied
	4	Marine protected area boundary demarcation - Are the boundaries known and demarcated?
	5	Integration of the MPA in a larger coastal management plan - Is the MPA part of a larger coastal management plan?
	5a	a. The MPA is part of a network of MPAs which collectively sustain larger marine ecosystem functions
	5b	b. The MPA is part of a network of MPAs which collectively represent the range of bio-geographic variation in a marine eco-region
	6	Resource inventory - Is there enough information to manage the area?
	7	Stakeholder awareness and concern - Are stakeholders aware and concerned about marine resource conditions and threats?

**Table 5.4 Indicators and questions in Staub & Hatziolos (2004) scorecard methodology**

For the purpose of this research, I combined the approach proposed by Leverington et al. (2010) and Staub & Hatziolos (2004) to evaluate the effectiveness of MPAs in Vietnam. I synthesised the proposed indicators and chose the ones most appropriate to the local context of Vietnam. Each indicator was scored using a scorecard with questions relevant to it. The selected criteria are listed in Table 5.5. The details of questions used to score each indicator can be found in the full scorecard in Appendix 2 and Appendix 3.2.

**Table 5.5 Indicators for MPA effectiveness**

Criteria of effectiveness	Indicators	
<b>Context</b>		
Criteria 1: Legal status	1	Park gazette
	2	MPA regulations and mechanism for controlling inappropriate activities
	3	Support by political and civil environment
Criteria 2: Integration	4	Integration of the MPA in a larger coastal management plan
<b>Planning</b>		
Criteria 3: Management planning	5	Marine protected area objectives agreed
	6	Management plan exist
	7	The planning process involves stakeholder
	8	The socioeconomic impacts of decisions are considered in the planning process
	9	Periodic review and updating of the management plan
	10	Management plan is tied to the development and enforcement of regulations
<b>Input</b>		

Criteria 4: Management resources	11	Adequacy of staff numbers
	12	Adequacy of staff on marine conservation
	13	Adequacy of infrastructure, equipment and facilities
	14	Adequacy of funding
	15	External funding from NGO contributions, taxes, fees, etc
	16	Additional support from volunteer programs, local communities, etc
Criteria 5: Information base	17	Adequacy of relevant, available information for management
	18	Adequate program of research
<b>Process</b>		
Criteria 6: Capacity Building	19	Staff/ other management partners skill/knowledge level up
	20	Adequacy of staff training
	21	Awareness raising for local government authority
Criteria 7: Stakeholder involvement	22	Communication platform between stakeholders and managers
	23	Education and awareness program
	24	Stakeholders involve actively in MPA activities
	25	Stakeholder awareness and concern about marine resource conditions and threats
Criteria 8: Benefit sharing	26	Clear financial contributions agreements between MPA and local community
Criteria 9: Co-ordination	27	Productive working relationship through clear coordinating mechanism
	28	Maintains information sharing platform
Criteria 10: Law enforcement	29	Adequacy of law enforcement capacity
Criteria 11: M&E is effective	30	Clear and adequate M&E framework
	31	M&E is used effectively throughout implementation
<b>Output</b>		
Criteria 12: Achievement of work program	32	Achievement of management plan
	33	Results and outputs have been produced obviously
<b>Outcome</b>		
Criteria 13: Conservation outcome	34	Proportion of conservation objectives achieved
	35	Have threats been reduced
	36	Resource conditions improved
	37	Resource use conflicts have been reduced
	38	Compliance
Criteria 14: Community outcome	39	Stakeholder satisfaction with the process and outputs of the MPA
	40	Community welfare improved
	41	Community environmental awareness improved
Criteria 15: Governance	42	Political support increase
	43	Local government utilize sufficient local budget for MPA
	44	Fee mechanism for tourism formulated

### **5.2.3 Conducting the evaluation**

#### ***5.2.3.1 Secondary data collection***

Secondary data collection began with an online research of all MPA sites in Vietnam. As IUCN is a key international organization supporting the establishment of many MPAs in Vietnam, contact with Vietnam IUCN was necessarily made. I had an opportunity to be an intern with IUCN. During that internship period, I made several visits to MPA sites in Vietnam, attended many workshops, seminars and meetings with MPA officers, local scientists and international MPA experts. Data were collected from MPA sites during the visits. I was also able to visit the Vietnam Directorate of Fisheries, who is in-charge of MPA management and extract substantial information from their database of Vietnam MPAs.

Access to a variety of information sources from IUCN and government institutions allowed me to have a broad view of MPA status in Vietnam. At the same time, contact with them formed the foundation of a professional relationship that facilitated the interview and survey conducted afterwards.

#### ***5.2.3.2 Primary data collection***

In cooperation with Vietnam IUCN, a preliminary survey was sent to all MPA sites in Vietnam. The survey consisted of open-ended questions. Detail of the survey can be seen in Appendix 2.

After getting back the responses from all MPAs. A preliminary analysis of the data obtained was then presented in a one-day MPA workshop held in Hanoi. Attendees included representatives of each MPA, officers, scientists and experts from government agencies and research institutes. The workshop began with a presentation of the results of the MPA evaluation followed by group discussions. The discussions provided additional confirmation, feedback and cross referencing of results prior to the final analysis. Each MPA was then briefly scored using simple scorecard provided (Appendix 2).



At the completion of all discussions, the secondary and primary data were re-synthesised against the indicators compiled in Table 5.5. Each MPA was then scored using the evaluation sheets (Appendix 3.2). Scores were based on a 0, 0.5, and 1 rating system that reflected an MPA's application of the indicator and its performance of that indicator (desired/undesired). Where an indicator was not applicable to an MPA, no score was given. The scoring system is as follows:

- “0”: No application of the indicator; poor/undesired impacts of actions overall
- “0.5”: Application of the indicator was average overall; desired and undesired impacts were balanced overall
- “1”: Strong application of the indicator; positive overall performance with impacts in the desired direction

### ***5.2.3.3 Analysis of results***

Basic statistical analysis of all selected MPAs was conducted, and the strength of relationships between their performance and indicators were calculated using Pearson's correlation coefficient. Each MPA and indicator were also given a performance rating. Both the quantitative data from the statistical analysis, and the qualitative information from the secondary and primary data collection stages, were then analysed to form the basis for the discussion of results in this chapter.

This analysis answers the following questions:

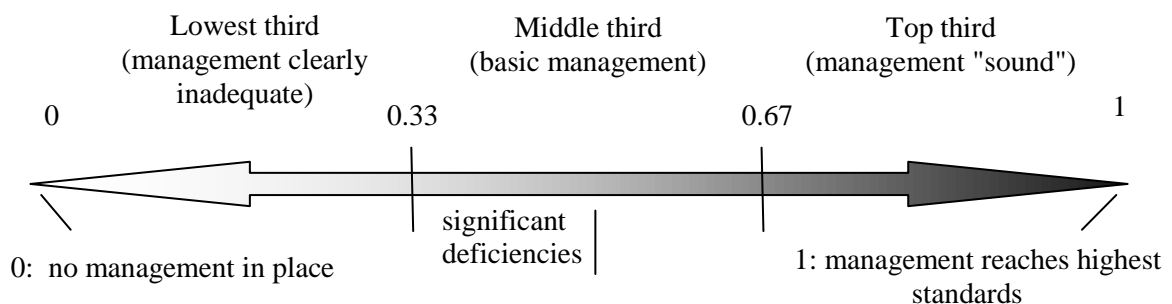
1. How have MPAs in Vietnam performed?
2. Are there relationships or dependencies between the factors that affect MPA success in Vietnam?
3. What can be learnt from MPA management in Vietnam?
4. What do stakeholder perceptions tell us about MPA success and sustainability?
5. What are the overarching constraints and enabling factors to MPA success and sustainability?

## 5.3 Evaluation of MPA - statistical analysis

### 5.3.1 What do the scores and ratings represent?

As the mean scores are based on indicators rated between zero and one, they reflect a continuum from “no management at all” to “high management standards”. As shown in Figure 5.3, the lowest third of this continuum (below 0.33) means that overall MPA management is clearly inadequate. Scores between 0.33 and 0.67 indicate that while basic management is in place, considerable improvement is still needed.

As most scores fall in this category, we further split this into those between 0.33 and 0.5 (basic but with major deficiencies) and those between 0.5 and 0.67. Generally a “sound” level of management would begin at a score of around two-thirds (0.67). Scores above this mean that the area is being managed relatively well.



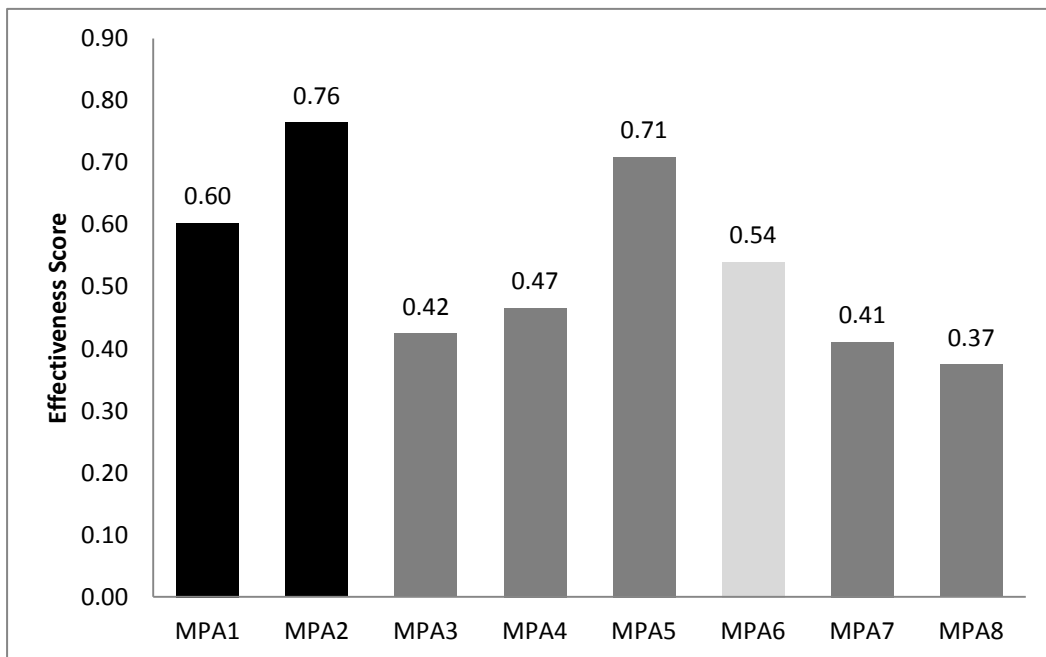
**Figure 5.3 Rating system for MPA management (adapted from Leverington et al., 2010)**

### 5.3.2 How effective is MPA management?

On balance, MPA management in Vietnam achieved the basic standard of management, with no score lower than the 0.33 mark. The arithmetic mean score is 0.54, out of a maximum of one. Scores for individual protected areas measured vary from 0.37 to 0.76. The top three strong performing MPAs are Cu Lao Cham, Cat Ba and Con Dao with two of them being National Parks

with marine components. The fact that all of the MPAs are scored above the “inadequate” zone is a positive indication of the effectiveness of Vietnam’s MPA system. The least effective MPA is Hon Cau. This is the newest MPA among the 8 selected for analysis and it is comprehensible that its degree of achievements is comparatively lower than that of the others.

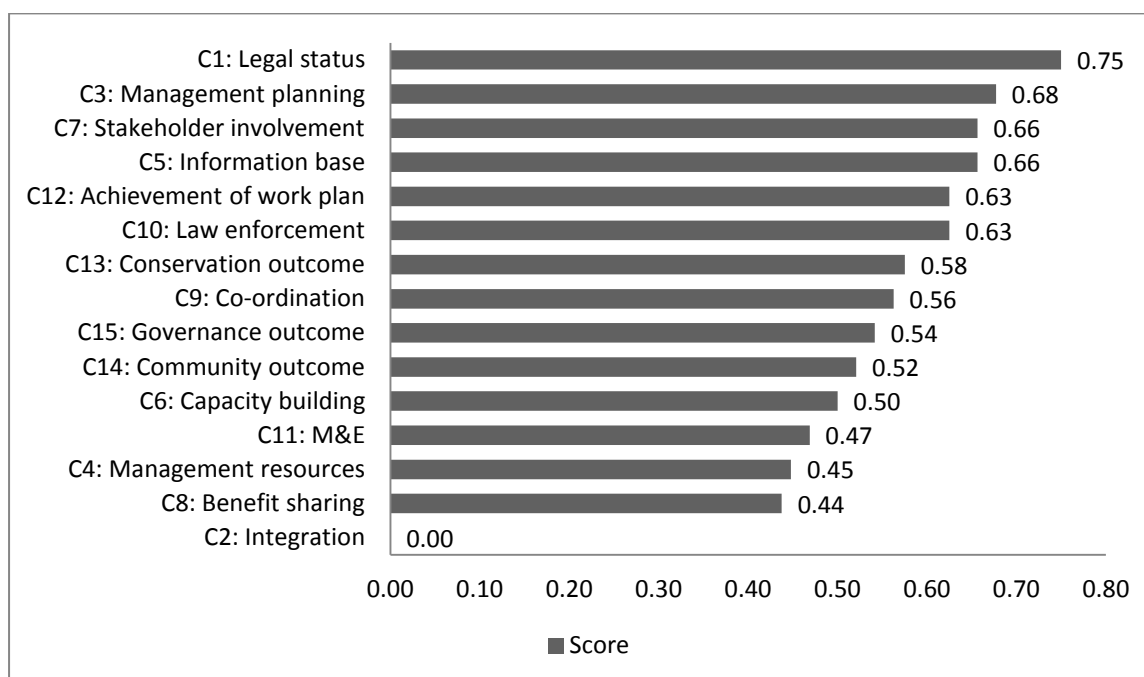
It is important to note that MPA1 (Cat Ba) and MPA2 (Con Dao) are located in the provinces where ICM performed relatively fair (VNICZM projects) as previously analysed in this research. The other 5 less effective MPAs are located in areas where there is either no ICM initiative or the ICM initiative is managed by the government, which was previously analysed to perform relatively poor. However, there is one exceptional case of MPA5 Cu Lao Cham. It is located in Quang Nam where ICM performance was evaluated to be very low, yet its MPA has a very high performance score (0.71). This will be further discussed in Chapter 6 where the relationship between ICM and MPA is analyzed.



**Figure 5.4 Overall effectiveness of MPAs in Vietnam**  
*(Mean 0.54; St. Dev 0.14; Min 0.37; Median 0.50; Max 0.76)*  
*(Colours are used to indicate associated ICM: black is “Bilateral ICM”, grey is “Government Initiatives ICM”, and light grey is “No ICM”)*

### 5.3.3 How did the criteria of management perform?

The strength and weakness of each criterion of effectiveness across the MPA sites are illustrated in Figure 5.5.



**Figure 5.5 Average scores of Criteria of Effectiveness across all MPA sites**

The scores of each Criterion for Effectiveness (C1-C14) ranged from 0 (C2: Integration) to 0.75 (C1: Legal status). The top 5 and bottom 5 criteria are summarized in Table 5.6.

**Table 5.6 Five highest and five lowest scored criteria of effectiveness**

Top 5 (in descending order)	Bottom 5 (in descending order)
C1: Legal status	C6: Capacity building
C3: Management planning	C11: M&E
C5: Information base	C4: Management resources
C7: Stakeholder involvement	C8: Benefit sharing
C10: Law enforcement	C2: Integration

Accordingly, MPAs in Vietnam are assessed to have strong legal status, good management planning, adequate stakeholder involvement, sufficient database for management and generally good achievement of their work plan. However, MPAs are all not assimilated into a larger context of integrated management.

Management resources including budget, facility, and staff capacity are insufficient and inadequate. The benefit sharing has not been adequately formulated or materialized. Capacity building and M&E activities are not sufficient.

### 5.3.4 Which indicators of management are the most effective?

The average performance of MPA for each indicator is shown in Appendix 7. The top 8 best performing EIs are listed in Table 5.7. MPAs in Vietnam appear to have a strong foundation when established as reflected by the high scores for context indicators EI5, EI1 and EI2. Each of the other elements of the WCPA framework (planning, process, input and output) contributed only 1 indicator in the top 8. All MPAs have strong management plans, regulations and mechanisms to monitor inappropriate activities. The baseline information is adequate for management. During MPA implementation, education and awareness programs are the main focus. More importantly, it seems that most of the MPAs show a positive change in resources condition which is the key objective of MPA management.

**Table 5.7 Top eight best performing effectiveness indicators**

<b>Top 8 (in descending order)</b>	<b>Score</b>	<b>Element</b>
EI5: Marine protected area objectives agreed	1.00	Context
EI6: Management plan exists	1.00	Planning
EI1: Park gazetted	0.88	Context
EI23: Education and awareness program presents	0.81	Process
EI2: MPA regulations and mechanism for controlling inappropriate activities	0.75	Context
EI17: Adequacy of relevant, available information for management	0.69	Input
EI33: Results and outputs have been produced obviously	0.69	Output
EI36: Resource conditions improved	0.69	Outcome

### 5.3.5 Which effectiveness indicators performed most poorly?

Of the nine most poorly performing indicators, there are 3 from Process, 2 from Outcome, 2 from Input, 1 from Planning and 1 from Context. In implementation, MPAs in Vietnam appear to lack support from volunteer

programs and the local community (EI16). It is observed that although the MPA is designed to conserve marine resources, the number of staff with marine conservation knowledge is insufficient (EI12).

During the process stage, activities to raise awareness for the local government authority (EI21) are inadequate. The lack of effective awareness raising activities may result in less political support. The mechanism for finance distribution between beneficiaries is not clear (EI 26) and planning with low involvement of stakeholders (EI7) may lead to poor support and involvement from various stakeholders.

Although the conservation outcome is obvious as discussed in section 5.3.4, the conflict of resources is not efficiently resolved. Moreover, the local budget utilized for MPA activities, which can be assigned by the local authority is relatively modest and not sufficient to conduct MPA implementation.

All of MPAs are not under any integrated management plan (EI4). This may be one of the reasons leading to the inadequacy of resolving resource conflicts (EI37).

**Table 5.8 Bottom nine performing effective indicators**

<b>Bottom 10 (in descending order)</b>	<b>Score</b>	<b>Element</b>
EI7: The planning process involve stakeholder	0.44	Planning
EI26: There are clear financial distributions agreements between beneficiaries	0.44	Process
EI43: Local government utilize sufficient local budget for MPA	0.44	Outcome
EI16: There is additional support from volunteer programs, local communities	0.38	Input
EI21: Awareness raising for local government authority	0.38	Process
EI31: M&E is used effectively throughout implementation	0.38	Process
EI37: Resource use conflicts have been reduced	0.38	Outcome
EI12: Adequacy of staff on marine conservation	0.25	Input
EI4: Integration of the MPA in a larger coastal integrated management plan	0	Context

### 5.3.6 Which indicators are most strongly linked to effective management?

To investigate which factors of management appear to be most closely linked to the overall effectiveness, data were analysed using the Pearson's Correlation Coefficient. These correlations do not necessarily mean a causative link, but give an indication where the most effective MPAs are characterized by certain factors. The overall management effectiveness of MPA in Vietnam was most strongly linked to factors including support from stakeholders, funding, adequate information for management, sufficiency of the research program, communication with stakeholders, stakeholder awareness on marine conservation, education and awareness program, and last but not least, support by the local authority and community.

Among the top 10, there are 5 Input indicators and 3 Process indicators. This showed that input resources and implementation process are significant to the effectiveness of MPAs in Vietnam.

**Table 5.9 Top ten indicators most strongly correlated with overall MPA performance**

Effectiveness Indicator	Element	Pearson's coefficient	Performance Rank
EI16: Additional support from volunteer programs, local communities	Input	0.973	40
EI14: Adequacy of funding	Input	0.902	31
EI15: External funding from NGO contributions, taxes, fees, etc	Input	0.902	32
EI17: Adequacy of relevant, available information for management	Input	0.893	7
EI18: Adequate program of research	Input	0.881	11
EI3: Support by political and civil environment	Context	0.857	17
EI22: Communication platform between stakeholders and managers	Process	0.857	13
EI25: Stakeholder awareness and concern about marine resource conditions and threats	Process	0.857	14
EI33: Results and outputs have been produced obviously	Output	0.772	8
EI23: Education and awareness program	Process	0.764	5

### 5.3.7 Which criteria promote effective performance?

Table 5.10 highlights the strongest correlations between individual criterion and MPA overall effectiveness. It is observed that 2 Input and 2 Outcome criteria strongly correlated with sound project performance and effectiveness.

The results again indicated that the effectiveness of MPA in Vietnam correlated well with adequacy of resources and database input for management. In this case, stakeholder involvement is critical to MPA effectiveness. Furthermore, it is very important that MPAs show significant outcomes with regards to governance and community improvement. These are the factors that lead to effective implementation of MPAs in Vietnam.

**Table 5.10 Top five criteria most strongly correlated with overall MPA performance**

<b>Criterion</b>	<b>Element</b>	<b>Pearson's coefficient</b>	<b>Performance Rank</b>
Criteria 4: Management resources	Input	0.957	13
Criteria 5: Information base	Input	0.914	3
Criteria 7: Stakeholder involvement	Process	0.908	4
Criteria 15: Governance	Outcome	0.848	9
Criteria 14: Community outcome	Outcome	0.846	10

### 5.3.8 Summary

The statistical analysis presents a clear picture of how the MPA system has been doing in Vietnam. It shows that MPAs in Vietnam are fairly effective with the overall score of 0.54. The two National Parks with marine components performed above the average. Cu Lao Cham can be considered as a good case of MPA with the highest performance score of 0.71.

The analysis also showed that most of Vietnam's MPAs have strong legal status, adequate management plan, regulation and mechanism to monitor inappropriate activities. The baseline information is adequate for management. During MPA implementation, education and awareness programs are the main



focus of many MPAs. More importantly, it seems that most of the MPAs showed a positive change in resources condition, which is the key objective of MPAs.

However, MPAs are all not incorporated into a larger context of integrated management. Management resources (budget, facility, staff capacity) are insufficient. The benefit sharing has not been adequately formulated. Capacity building, awareness raising activity for local authorities and M&E activities are insufficient. Even though the MPA's main purpose is marine resources conservation, the number of staff with marine conservation knowledge is insufficient. MPAs in Vietnam seemed to lack support from volunteer programs and the local community. One key factor that may lead to the ineffectiveness of Vietnam MPA is insufficient financial resources from the local government and other sources to conduct MPA activities.

The statistical analysis draws out the factors which accelerate MPA effectiveness in Vietnam, including financial resources, support from local authority and community, stakeholder involvement, and awareness raising activities for all types of stakeholders. More importantly, the MPA should show obvious outcome as a demonstration of effective investment of budget and effort.

## **5.4 Local perception of MPA effectiveness**

This section explores the local perception of the MPA effectiveness in Vietnam. Local perceptions about MPA effectiveness were compared to those obtained from the empirical research in the previous section.

### **5.4.1 Methodology**

Together with the MPA scorecard, questionnaires on incentives for MPA effectiveness were also sent to all nine MPAs in Vietnam. One IUCN officer and two MPA experts from DOFI and University of Natural Sciences were also interviewed and contributed their opinions (Appendix 5.2). The respondents were asked to rank different factors of 5 incentives contributing to

the effectiveness of MPAs in Vietnam (Table 5. 11). These are economic incentives, interpretative incentives, knowledge incentives, legal incentives and participative incentives (Jones & De Santo, 2009). The score ranges from 1 to 10 (1: least important; 10: most important). The full questionnaires are provided in Appendix 2.

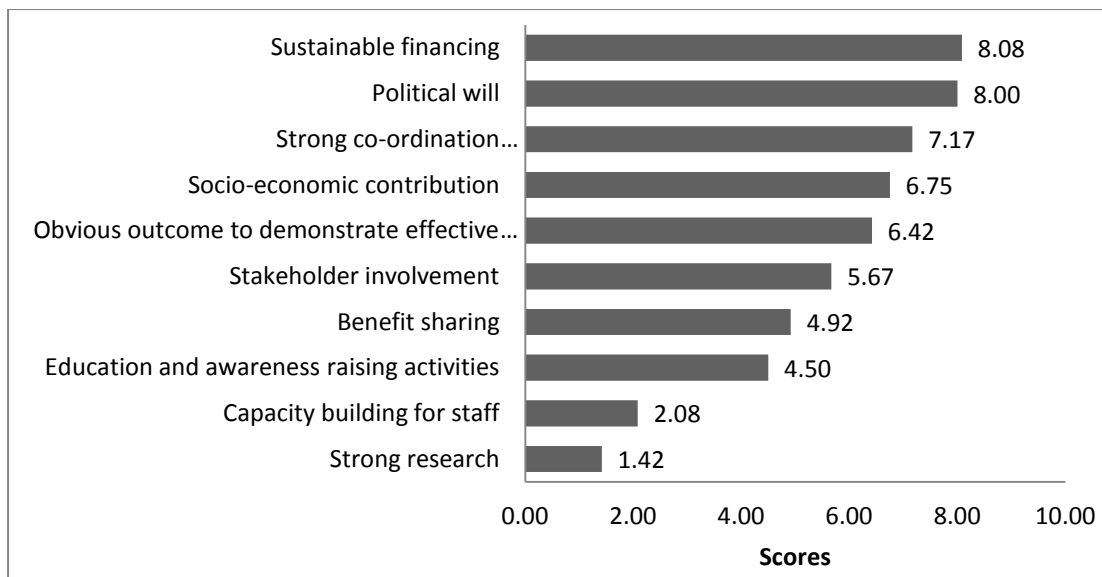
**Table 5.11 List of incentives to be ranked**

<b>Incentives</b>	<b>Effectiveness Factor</b>
Economic incentives	1. Socio-economic contribution
	2. Sustainable financing
Interpretative incentives	3. Education and awareness raising activities
	4. Obvious outcome to demonstrate effective investment
Knowledge incentives	5. Capacity building for staff
	6. Strong research
Legal incentives	7. Strong co-ordination mechanism/integrated management
	8. Political will
Participative incentives	9. Stakeholder involvement
	10. Benefit sharing

#### **5.4.2 Statistical data analysis**

Figure 5.6 summarises the results of all perceived factors contributing to MPA effectiveness by 12 respondents. The top 5 factors (scoring above 8) are:

- EF2: Sustainable financing
- EF8: Political will
- EF7: Strong co-ordination mechanism/integrated management
- EF1: Socio-economic contribution
- EF4: Obvious outcome to demonstrate effective investment



**Figure 5.6 Ranking of effectiveness factors according to all respondents**

### 5.4.3 Discussion of results

Perceptions of MPA effectiveness from all respondents reflected the empirical results discussed in section 5.3. The key factors affecting effectiveness of MPAs in Vietnam are mainly economic incentives, legal incentives and interpretative incentive. MPAs will perform better if they also address the socio-economic contribution to the local community. If MPAs show noticeable results, it will gain stronger support from the local authorities and community, which in turn, result in higher participation and co-ordination. Respondents also recognized the importance of placing MPAs in the context of integrated management as mentioned by Cu Lao Cham MPA representative *“Even (though) Cu Lao Cham shows positive effectiveness, we are facing considerable problems from the transboundary issue(s) such as freshwater discharge from river mouth, (and) water pollution from Hoi An town. It's very critical for us to be considered in an integrated coastal management mechanism”* (MO5).

## 5.5 Discussion and conclusions

Overall, the MPA system in Vietnam has achieved a basic standard of management with an effectiveness score of 0.54. Out of all 8 MPAs, there are 3 sites with high scores (above 0.7). In particular, two of these have been placed in the context of broader integrated management.

Since the start, MPAs in Vietnam were established with a strong foundation of legal support, baseline study, marine regulations, stakeholder involvement and adequate management planning. Awareness raising activities for stakeholders were conducted at all MPA sites. MPA implementation showed evident results which in turn, effectively attracted support from the local authorities and community.

However, the MPA system still faces a lack of adequate financial support. A clear benefit-sharing mechanism among beneficiaries is not presented. Resource use conflict is still not being addressed. Except for some cases, MPAs have not been managed within a broader integrated context. Monitoring and evaluation are relatively weak across all MPAs. It is also revealed that although the MPA is established for a marine conservation purpose, the MPA staff often have inadequate knowledge about marine conservation. Many of the respondents mentioned that marine conservation is very new to them. Many of them have a background in forestry and only recently started to work with the marine environment.

The Pearson's correlation calculation extracted factors that correlated most to the effectiveness of MPAs. The results are supported by the perception study of effectiveness factors from MPA officers and national officers. The most critical factors contributing to MPA effectiveness are economic, legal and interpretative incentives. Among them, political will and sustainable financing are perceived to be key to MPA success. MPAs should contribute to the welfare of the community in order to be kept sustained. The clarity of MPA achievements is an encouraging factor that may lead to more support from local authorities and the community.

However, many MPAs are now facing transboundary issues. Furthermore, resource conflicts have not been resolved well. This suggests that the approach of incorporating MPAs into an integrated management framework should be recommended. MPA officers confirmed support of this during the course of the interviews and is further discussed in the next part of the dissertation.

## **CHAPTER 6**

### **IMPLICATION OF COASTAL GOVERNANCE ON ICM AND MPA EFFECTIVENESS**

From the analysis in the previous chapters, a set of factors was found to have significant impacts on the effectiveness of ICM and MPA initiatives in Vietnam. These include institutional structure, coordination mechanism political will, financial support, stakeholder involvement and socio-economic contributions. In essence, these factors are closely related and inter-linked under the category of coastal governance. In this dissertation, the coastal governance concept is referred to as both the structures and processes by which the full range of laws, policies, plans, institutions and legal precedents address the issues affecting coastal areas (Best, 2003; Olsen, 2003; Hill & Lynn Jr., 2004). Therefore, it is important to further conduct a qualitative analysis of the current coastal governance arrangement in Vietnam and its implications on ICM and MPA effectiveness. This chapter will analyse current Vietnamese hierarchical governance system processes and how it limits or encourages the implementation and sustainability of coastal conservation efforts in Vietnam. It will then propose a recommended framework to improve coastal management effectiveness in Vietnam.

#### **6.1 Coastal management structures**

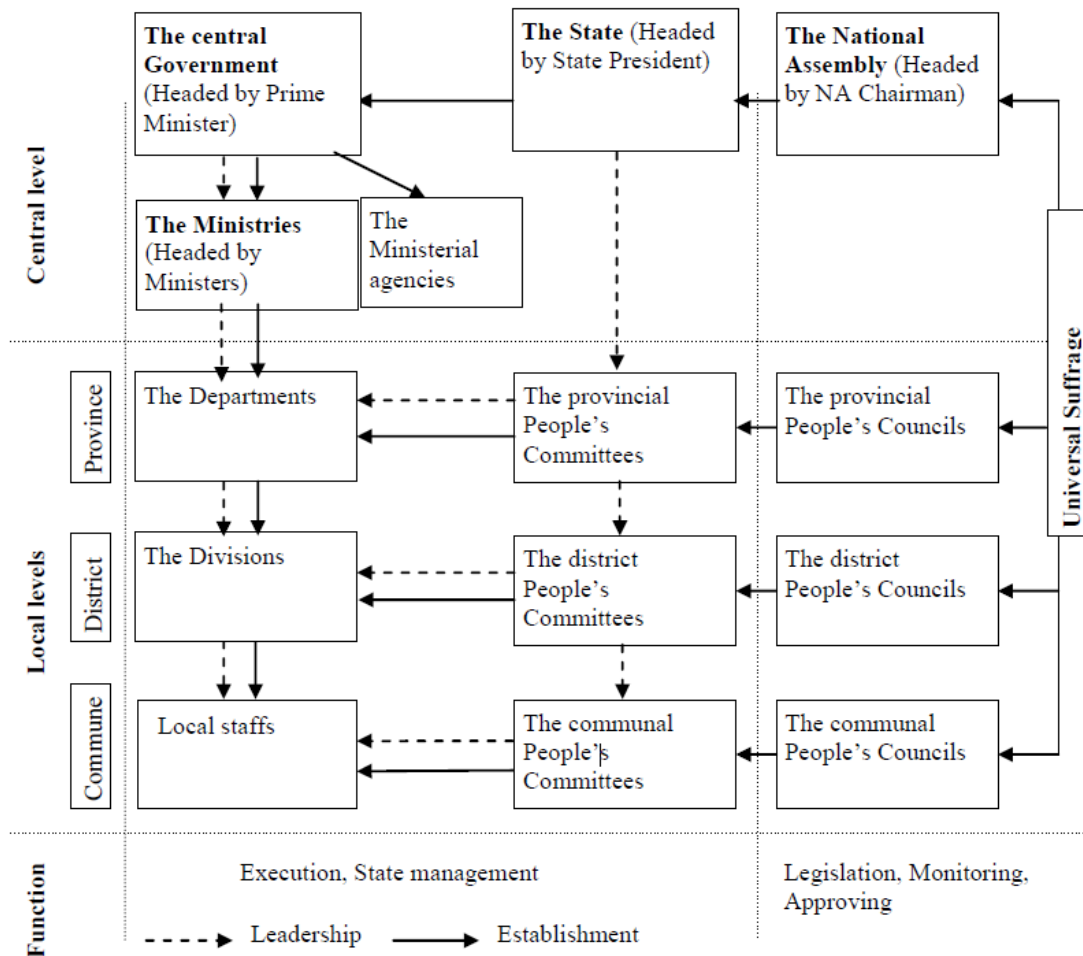
##### **6.1.1 Central level hierarchy**

According to The Constitutions of Vietnam (1992, 2013), the Vietnam governance system is organised hierarchically in four levels: the central level; the provincial level; the district level; and the commune level (Figure 6.1). Among these, the latter three levels are often referred to as the local levels. The hierarchy also illustrates the vertical division of power and responsibility between the government system, the state system and the national assembly system across the four levels of governance. At the central level, there are the National Assembly, the State, the Government, together with the People's Supreme Court and Supreme People's Procuracy. According to the newly

amended 2013 Constitution, the National Assembly is the constitutional and legislative body with the power to draft legislation and approve laws (GOV, 1998). The Government is the executive body of the National Assembly, and is the highest administrative body in Vietnam. The Government, led by a Prime Minister, manage the country's ministries and ministerial level agencies. The State, headed by the State President is responsible for monitoring state management through the People's Committees at all levels. The Supreme Court and Supreme People's Procuracy are the legal bodies responsible for enforcing laws and legislation.

A ministry is a representative of the government empowered to execute management practices of a particular field for the whole country. It is where visions and strategies are approved and implemented through policies and plans. They are the definitive and legitimate stakeholders since they have great power influence at both national and local levels. Each ministry is responsible for a particular sector assigned by the government in order to assist the government in the administration, regulation, execution and monitoring of policies and plans. The decisions of a ministry often come in the form of decrees and circulations in their authorised areas. For matters that involve more than one ministry, the relevant ministries need to collaborate with each other by forming official agencies or ad-hoc project departments (GOV, 1994).

Figure 6.1 indicates that Vietnam has a complicated hybrid institutional system across levels and domains. For example, a division at the District level is directly under the management of the relevant department at the Provincial level where it reports to. At the same time, that division is also under the influence of the relevant district's People's Committee, which in turn is effected by the People's Council of the district where it is located in. Therefore, it is important to have a clear understanding of how the Vietnamese government assign responsibilities and structure the arrangements to develop and implement policies and plans for national issues such as coastal management.



**Figure 6.1 Structure of the administration system in Vietnam (adapted from Nguyen, 2010)**

At the central level, the two main ministries directly involved in Vietnam's coastal management are the Ministry of Natural Resources and Environment (MONRE) and the Ministry of Agriculture and Rural Development (MARD). In addition, the Vietnam Administration of Seas and Islands (VASI) is the ministerial agency of MONRE responsible for the integrated management of seas and islands of Vietnam. This is the major central government body that primarily manages the ICM development and implementation in Vietnam. However, VASI is a relatively new institution, which was only established from 2008. Even though it is given the key mission of developing and coordinating coastal management in Vietnam, the perception of its power and influence is still very unclear. There is yet a strong and effective mechanism for VASI to be able to request other ministries or governmental bodies,



especially those outside MONRE, to collaborate and participate in its programs and activities (Interview NS3, 2010).

There is a similar situation regarding MPA as it is under the management of MARD. The history of MPA in Vietnam originated from the recognised need by the Ministry of Fishery (MOFI) to conserve fishery resources to tackle the problem of degradation of fishery resources. The introduction and implementation of MPA as an effective coastal resource management tool was during the period when the Ministry of Fishery (MOFI) was still separated from and had a full ministerial status as the MARD. In 2007, the government decided to merge the two ministries. As a result, MOFI was restructured to become the Directorate of Fisheries (DOFI) with significant reduction in power and scope. One of the direct consequences of this structural change was that investment for MPA started to reduce (Interview NO2, 2014). Moreover, within the MARD, MPA is not given equivalent attention compared to land protected area (Interview NO1, 2014).

The existence of the two agencies of two different ministries simultaneously involved in coastal resource management adds to the complexity of the above mentioned administration structure. When it comes to practice, the roles and responsibilities of the two agencies are perceived to be overlapping and even conflicting (Interview NO3, 2014). A common structure would be ideal to avoid such overlaps and conflicts, where MPAs could be located under MONRE (Interview NO1, 2014). If such radical change of structure is not possible, a strong coordination mechanism should be put in place. As illustrated in the previous MPA and ICM evaluation, coordination is the common key factor attributing to the success of the studied coastal management efforts. Strong co-ordination between key stakeholders is also a key success factor in many successful ICM cases around the world (Olsen & Christie, 2000; Sorensen, 2002; Chua, 2006). In order to improve the management of MPAs and accelerate ICM implementation in Vietnam, a strong co-ordination mechanism between the two ministries should be endorsed by an executive level higher than the ministerial level, which is effectively the Prime Minister (Interview NO1, 2014).

### **6.1.2 Local level hierarchy**

As illustrated in Figure 6.1, the structure of the central institution is replicated at the local levels, which comprise the province level, the district level, and the commune level. At each level, there are three distinct bodies: the People's Committees, People's Councils, and the government departments. Among these, the People's Committee is the representative body of the state management system. It is considered to be the centre of power and legitimacy in decision-making of the jurisdiction where it takes charge of. Local governments are also given a degree of freedom in formulating their own policies under the general and broad guidelines from the central government. In particular, the provincial governments have a direct influence on how the policies from the central and ministerial agencies are implemented and monitored. The People's Committee can establish departments and divisions corresponding to the structure of the central ministries to assist in the planning and execution of management activities in the particular areas. These departments and divisions follow a dual accountability system where they report to both the corresponding functional ministries and the respective People's Committees (Dang & Beresford, 1998).

At the provincial level, all government departments such as DONRE, DARD, and DPI, and societal organisations such as the Women's Association, the Farmers' Association, and the Youth Union are all accountable to the People's Committee of that province. This power structure explains the direct influence of the People's Committees over the formulation and implementation of coastal management including both ICM and MPAs. Since ICM and MPAs are significant projects in terms of financial and human resources, the People's Committees are commonly found to participate in the formulation of strategies and coordination of activities. As a result, at local levels, it is critical for ICM and MPA projects to be engaged directly with the People's Committee as it is the highest level of authority that will provide or limit the political support needed for the success of coastal management efforts in Vietnam. Both MONRE and MARD cannot simply rely on its functional network of provincial DONRE and DARD to implement its national strategies on coastal

management without the consideration for support and collaboration by the provincial People's Committee.

## **6.2 Decision-making and political support**

In Vietnam, decision making in the authoritative system traditionally follows a central planning process (Bach, 2004). This means that the central government develops a top-down framework of national strategies, plans and legislation where all decisions are made and followed accordingly. In essence, these are the decisions that provide the general long-term and large-scale visions and goals for the country. Then, they should be translated into specific objectives, plans and projects to be carried out at the local levels. However, one of the significant disadvantages of the central planning process is that there is a possible gap between what the national strategy aims to achieve and the local levels' specific objectives. Furthermore, the central planning system in Vietnam often sets specific objectives limited to the respective single sectors following the static ministerial arrangements.

Accordingly, coastal resources and activities in Vietnam involve the management of many different governmental ministries and departments. Besides the directly responsible MONRE and MARD, other relevant ministries who have the voice and influence over the planning and management of coastal areas include the Ministry of Culture, Sports and Tourism, the Ministry of Transportation and the Ministry of Industry and Trade. This generates even more difficulties in the coordination of activities and achievement of integrated coastal management in Vietnam.

As discussed above, the decision making at the local levels also involve the People's Committees. Furthermore, as Vietnam has attempted to initiate and facilitate decentralisation to transfer a greater level of administrative and fiscal responsibilities to the local levels, the role and power of the People's Committee in planning and coordination have been more obvious (Fritzen, 2006). Local governments are now encouraged to move up from their conventional organisation and implementing roles to participate actively in the development and coordination of strategies and plans. This empowered role of

the local governments has given them the opportunity and capacity to directly influence the relevant policies and decisions in their jurisdictions, such as budgeting and coordination between agencies.

Consequently, for coastal management effort to be successfully implemented at the local levels in Vietnam, it is critical that it be initially adopted and strongly supported by the respective People's Committees. The obtained strong political support will translate into effective coordination, raise awareness, and encourage other stakeholders' participation. Interview MO5 suggested that:

*“I think political will is the most critical factor for MPA success. My MPA is relatively new. The budget was not sufficient. One day, I personally took the Vice-Chairman of People's Committee to visit the MPA. I showed him how beautiful the ocean and the beach are. I also shared with him the improvements of Cu Lao Cham MPA and how it benefits people there. You know, in the following quarter, he decided to triple increase the budget assigned to us.”*

The importance of political will by the local government is also one of the most significant success factors that highlighted the effectiveness of MPA implementation compared to ICM in Vietnam as discussed in the previous chapters. The Cu Lao Cham case in Quang Nam province provides evidence a coastal management project which has stronger local government and political support will perform better. In the same province, the MPA project was assessed to be much more successful than the ICM effort (Cu Lao Cham MPA scored 0.71 out of a 1 scale while ICM Quang Nam scored 0.28 out of a 1 scale). The reason is well captured in this interview answer: *“The Cu Lao Cham MPA maintains a very good relationship with the local authorities, as the MPA manager regularly makes contact with the People's Committee to consult and report about MPA situation. Thus, the local authority strongly supports Cu Lao Cham MPA”* (Interview MO5, 2014). In contrast, the ICM effort did not obtain the adequate support from the local authorities of Quang Nam Province.

However, it is important to note that political support is often subject to the political election cycle, as the next elected People's Committee may not continue to give the same support as the previous one (Interview LS1, 2011). This causes difficulties in gaining and sustaining political support for coastal management as a typical political term is 5 years while coastal management efforts often take longer to demonstrate results to the authority and community (Sorensen, 2002). Therefore, in order to secure political support, awareness raising activities for authorities and stakeholders should be considered as a continuous process (Olsen, 2000; Pedersen et al., 2005; Hills et al., 2006). This is particularly true in the case of coastal management in Vietnam.

### **6.3 The culture of externally funded management initiatives and the issue of sustainable financing**

Sustainable financing mechanisms have been well recognised as a major challenge for many ICM programs and MPA implementation (Christie, 2005; Leverington et al., 2008). The lack of continued financial resources directly affects the sustainability of the management efforts (Milne & Christie, 2005).

In Vietnam, funding for many coastal management efforts comes from a variety of sources ranging from international donors, international organisations to provincial budget, local enterprises, local donors, and a small amount from the National Fund for Environmental Protection. However, as local financial resources are limited, the majority of coastal management funding comes from external sources (Nguyen, 2009a). More than 50% of the ICM and MPA efforts in this research were initiated and principally funded by international organisations. Even some of the government's initiatives are also supported by funds from similar international organisations. This has created a significant dependence on external financial and technical assistance which hinders the sustainability of the effort as both the central and local governments have little influence over these financial resources. Thus, it is important to formulate financial resource strategies that identify, secure, and allocate funds over a long period of time that allows the effort to sustain and achieve its targets (Chua, 2006).

Furthermore, collaboration with local and international research institutes to utilize their research funding in monitoring and conducting baseline study is one method to obtain financial resource for management activities (Interview MO5, 2015). Another effective mechanism is the Public Private Partnership (PPP) developed in order to mobilise various financial resources (Olsen, 2003). An interviewee shared the experience that: *“We built close relationship with local diver association. We have clear benefit sharing mechanism. At the same time, they help us in monitoring the condition of the reef”* (Interview MO2, 2014).

#### **6.4 The role of coastal management in coastal poverty alleviation**

For a developing country like Vietnam, the sustainable development of the sea and coastal areas should be closely linked with poverty reduction in local coastal communities and livelihood improvements (Nguyen, 2009a). As fishery labourers and other local people whose income depends on coastal and marine resources are also key stakeholders, they have both direct and indirect influence over any coastal management effort implemented in the area. Directly, they impact on the coastal and marine resources through their work activities. Indirectly, they are the people who will benefit from the advantages of the coastal management program and can influence the local political system through their voting power (Chua, 2006; Hind, 2010). Integrating coastal management with the poverty alleviation strategy can help to attract more political support from the local governments who often prioritize development objectives (Interview NS4, 2012). By integrating, the local governments will achieve not only the short-term growth objectives but also the long-term sustainability of the coastal area development.

The coastal zone of Vietnam is among the most densely populated areas in the world (Luttrell et al., 2004). Coastal zone poverty is caused by a number of reasons, including the complexity and vulnerability of coastal systems to hazards and changes (Adger, 1999), the dependency of the coastal population

on the related services and goods (Hossain et al., 2006), and the migration patterns (Nguyen et al., 2003).

In Vietnam, poverty alleviation is the top priority in the first 20 years of the new millennium (IMF, 2004). Significant efforts have been made by both the Vietnamese government and international organisations to tackle poverty. In particular, the government has implemented poverty eradication programs, and promulgated legislation such as the Decision 135/1998/QD-TTg on Socio-economic Development in Communes of Severe Difficulties in 1998 and the Decision 257/2003/QD-TTg on Support Investment in the Construction of Essential Infrastructures of Communes in Coastal Fronts and Islands of Exceptional Difficulties.

Hence, if coastal management initiatives are pro-poor and people-centred policies that address the complexity and multi-dimensionality of coastal poverty will be favourable as they concur with the government's focus (Interview NS2, 2013). *"It is very important to develop alternative livelihood for coastal community, if they see their livings are secured, they will show support and involve in conservation effort."* (Interview MO6, 2014). Coastal management can approach poverty from the socio-economic aspects of coastal sustainable development, such as community development, diversification of livelihoods, micro financing, mobilisation of social capital, and empowerment (Hossain et al., 2006; Luttrell, 2006; Smith et al., 2006; Tobey & Torell, 2006). Especially, the sustainable livelihoods approach, a well acclaimed approach to development, vulnerability reduction, and poverty alleviation (Chambers & Conway, 1992; Carney, 1998), has been recommended to be incorporated to coastal management to tackle poverty (Allison & Horemans, 2006; Glavovic, 2006).

## **6.5 The way forward: lesson learnt from MPA and ICM evaluation**

### **6.5.1 Improving the effectiveness of MPA and ICM programs**

As illustrated in the evaluation of ICM and MPAs in Chapters 4 and 5, MPAs in Vietnam have shown a greater degree of success in achieving its desired targets. Compared to ICM projects, MPAs received more solid political support and higher stakeholder involvement.

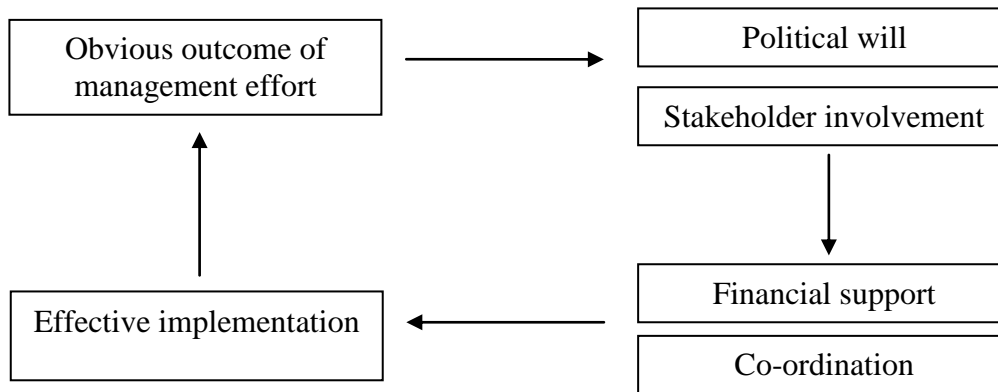
A key reason for stronger political support can be attributed to the fact that MPA implementation in Vietnam showed obvious outcomes in a relatively short period of time after inauguration. As the political structure in Vietnam has been discussed to give more priority to shorter term objectives, the degree of outcome visibility bears a significant correlation with political support (Pearson's Correlation 0.68, P value 0.08). Accordingly, the obvious outcome indicator had a high performance score in the MPA evaluation.

In contrast, as ICM efforts in Vietnam usually need a longer time span even in the initiating and planning stages, general awareness of and knowledge about ICM are often poor among coastal authorities. In fact, from the research conducted, none of the ICM efforts have effectively reached the implementation stage. The reason for this is also related to the previously discussed gap between the central planning agencies and the local level authorities. The design and planning of ICM in Vietnam at strategic levels are still too broad and have not been effectively translated into objectives and plans at the local levels. As a result, the local authorities do not recognise ICM as their priorities. It is recommended that ICM in Vietnam should set specific targets and objectives that are achievable in a defined time frame that corresponds to the local authorities' plans. The initial results of ICM are crucial as an encouraging factor to gain continued recognition and support from the local authorities until the desired outcomes are achieved. The effective integration of the national strategy into the local government plans is a key lesson for ICM in Vietnam.



However, MPA implementation in Vietnam still faced the limitations of transboundary issues and resource usage conflicts. As mentioned by Cicin-Sain and Belfiore (2005), if managed in isolation, MPAs are vulnerable to other development and exploitation activities occurring outside these areas such as overfishing, alteration and destruction of habitats, and water pollution. MPAs managed in isolation from the surroundings and without wide collaboration from a broad range of stakeholders will not achieve complete and sustainable success (Salm et al., 2000). Kelleher (1999) in preparing IUCN Guidelines for MPAs also mentioned that MPAs will rarely succeed unless it represents an integrated ecosystem management. Therefore, MPA implementation in Vietnam can be further improved by following an integrated management approach. The trend of recognizing the need for linkages between ICM and MPA governance is discussed vigorously in the literature (White et al., 2005; Balgos, 2005; Cicin-Sain & Belfiore, 2005).

Figure 6.2 presents the recommended effectiveness cycle based on the most significant success indicators concluded from the MPA and ICM evaluation in Vietnam. The design of ICM should take into account the specific targets and staged time frame that allow obvious outcomes to be realized as in the case of MPAs' success story. This will result in stronger political support and more effective involvement from relevant stakeholders. Consequently, sustainable financial support and effective coordination will be obtained from a wider range of stakeholders. The factors will then lead to more successful implementation which, in turn, increases outcome clarity. Together, all these factors form a beneficial cycle with each factor having a positive effect on the next factor. The inability to develop and sustain any of the contributing factors may result in a lower degree of success or even failure.



**Figure 6.2 Coastal management effectiveness cycle**

### **6.5.2 Linkages between the MPA programs and the ICM programs**

The following are the recommended linkages to be developed between the MPA and ICM programs for a more effective coastal management system in Vietnam:

1. MPAs should be considered and embedded as an essential component of major ICM programs (Cho, 2005). The ICM principles and concepts of ICM that address a wider range of issues and stakeholders should be applied in the MPAs established under these ICM programs particularly in the development and implementation of MPA management plans.
2. At the provincial level, in the cases where MPA establishments preceded the development of a broader coastal management program, the principles and lessons learned from the implemented MPA initiatives should be adopted and applied to all components of the integrated coastal management program.
3. MPAs can be used flagship projects to demonstrate the effectiveness of the ICM approach (Balgos, 2005). This is a crucial prerequisite to attract stronger political support and more effective stakeholder involvement in Vietnam. Through the promotion of successful MPAs, the expansion of MPAs' scope and the general ICM framework are more effectively endorsed.
4. The inter-dependency and connection between the terrestrial and marine areas of the coastal system, and between the MPAs and the

surrounding coastal and marine areas should be recognized and maintained. To achieve this, a rigorous scientific understanding of the ecological, socioeconomic, and cultural linkages and connectivity between ecosystems and humans in the coastal zone has to be developed and promoted in Vietnam. This is essential for ensuring that the management of MPAs and the wider coastal and marine areas is well integrated.

5. Information sharing among coastal management programs should be enhanced (Mabudafhasi, 2002). As MPA implementation often offers rich sources of information and knowledge, research and monitoring tools are required to collect and store data. ICM program managers will then be able to access this database to study and draw lessons applicable to improve their ICM effectiveness.
6. Due to the complex institutional arrangements in Vietnam, relationship both vertically and horizontally must be strengthened. This will allow all the relevant stakeholders the opportunity to participate at every stage of development and implementation. Consequently, adequate linkages of MPAs with the ICM institutional structures and planning processes will be achieved.

## CHAPTER 7

### CONCLUSIONS

As a major maritime country in Southeast Asia, Vietnam has largely benefited from its diverse coastal areas but also faced multiple issues including ecosystem degradation, pollution and resources use conflict. Assisted by a variety of international organizations, the government is committed to solving these problems through the implementation of integrated coastal management (ICM) and the establishment of marine protected areas (MPAs). This dissertation comprises of a review of the status of coastal zone and coastal management in Vietnam; evaluations of the ICM and MPA effectiveness to key factors attributing to the sustainability of ICM and MPA. Ultimately, the dissertation attempts to formulate recommendations on a governance framework that effectively integrates MPAs and ICM for a better coastal management in Vietnam.

Prior to conducting the research, following questions were posed:

1. How have ICM and MPA in Vietnam performed?
2. Are there relationships or dependencies between factors that affect ICM and MPA effectiveness in Vietnam?
3. What can be learnt from the evaluation of ICM and MPA effectiveness in Vietnam?
4. What do stakeholder perceptions reveal about ICM and MPA success and sustainability?
5. What are the overarching constraints and enabling factors to ICM and MPA success and sustainability?
6. How can ICM and MPA be integrated and complemented each other for a more effective coastal management of Vietnam?

The following sections will summarize major research findings in answering the above mentioned questions.

## 7.1 Evaluation of ICM in Vietnam

From my analysis, the overall performance of ICM in Vietnam ranges from “relatively poor” to “fair”. Only the Da Nang ICM (PEMSEA ICM demonstration site) performed well. This is due to high political support, sufficient financial and technical support that the project received. Moreover, project staffs are capable and well-trained by the external technical support organization which is PEMSEA. The government initiatives performed most poorly although they have the longest time scale. All of the ICM projects performed better during the planning stage and degraded during the implementation stage. It appears that ICM projects in Vietnam have adequate legal support from the central government and were carefully designed with a clear and shared vision. Institutional arrangements and co-ordination mechanisms were in place for implementing ICM (Table 7.1). However, an effective monitoring and evaluation program did not feature in many ICM projects. The lack of financial support and local community involvement severely affected the performance of ICM. The fact that ICM has not been legally endorsed in the local development plan also hindered the effectiveness of ICM efforts.

**Table 7.1 Summary of factors relating to ICM performance in Vietnam**

<b>Top five factors</b>	<b>Bottom five factors</b>
Governmental ICM legal support	Monitoring and Evaluation
Capacity building for project implementers	Additional financial resources
Local government develop plan including coastal and marine areas	Involvement of local people
Scientific support is adequate	Utilization of local budget for ICM
Visions and objectives of ICM projects is clear and measurable	ICM strategy is incorporated into local development

The evaluation of ICM also identified factors that strongly correlated with ICM success (Table 7.2). The results of the study of local perceptions on factors affecting the success of ICM further confirm the evaluation results. Factors contributing to the success of ICM projects include legal support,

capacity building, local government capacity (political will and co-ordination mechanism), and sustainable financing mechanism.

**Table 7.2 Summary of 5 factors most strongly correlated to ICM performance**

<b>Factors from evaluation</b>	<b>Perceived factors from local stakeholders</b>
Appropriateness of project design	Sustainable financing
Local government capacity (financing and staff)	Political support
Education and awareness raising	Co-ordination mechanism
Strong support from local authority	Legal support
Monitoring and Evaluation	Education and awareness rising

## **7.2 Evaluation of MPAs in Vietnam**

The MPA system in Vietnam achieved a basic standard of management according to the evaluation. Out of 9 MPAs, 3 sites had a high score of above 0.7. MPAs in Vietnam were established with a strong foundation of legal support, baseline study, marine regulations, stakeholder involvement and adequate management planning. Awareness raising activities for stakeholders have been conducted regularly at all MPA sites. MPA implementation showed obvious outcomes which attracted strong support from local authorities and the community (Table 7.3).

However, the MPA system still faces insufficient financial support. A clear benefit-sharing mechanism among beneficiaries is not presented. The resource use conflict is still not effectively tackled. Most importantly, MPAs have not been managed under a broader integrated context. Monitoring and evaluation are also below the expected level across all MPAs. It also showed that although an MPA is established for marine conservation purpose, most MPA staff has inadequate knowledge of marine conservation. The staff capacity survey shown that many of them have forestry background. Only 15% of MPA staff has relatively marine relevant background such as fisheries, aquaculture and biology.

**Table 7.3 Summary of indicator performance of MPA in Vietnam**

<b>Top 5 (in descending order)</b>	<b>Bottom 5 (in descending order)</b>
Legal status	Capacity building
Management planning	Monitoring and Evaluation
Information base	Management resources
Stakeholder involvement	Benefit sharing and resource conflict solving
Law enforcement	Integration

The Pearson's correlation calculation identified factors that correlate most to the effectiveness of MPAs. The results are similar to the perception study of effectiveness factors from MPA officers and national officers (Table 7.4). The primary factors contributing to MPA effectiveness are economic, legal and interpretative incentives. Among which, political will and sustainable financing are the key to MPA success. The MPA's obvious achievement is a critical factor that encourages and gains more support from local authorities and community. In this sense, MPAs should contribute to the welfare of the community in order to be sustained.

**Table 7.4 Summary of 5 factors most strongly correlated to MPA performance**

<b>Factors from evaluation</b>	<b>Perceived factors from local stakeholders</b>
Adequacy of funding	Sustainable financing
Adequacy of information	Political support
Support by local authority and community	Co-ordination mechanism
Results and outputs are obvious	Socio-economic contribution
Education and awareness program	Obvious outcome

### **7.3 Policy recommendations**

Although Vietnam has expended much effort to implement and scale-up ICM, the degree of achievement has been lower than expected. The MPA system, on the other hand, has shown more positive results even though challenges and issues exist. This research has found that ICM and MPA in Vietnam can complement each other as one can learn from the success and failure factors of the other and vice versa. Moreover, Vietnam's ICM and MPA effectiveness can be improved by implementing a framework that integrates MPA and ICM.

In the context of this study and based on empirical findings, I would make the following recommendations:

1. More effort should be made to institutionalise ICM and MPA at the local levels. The management of MPA and ICM should be conducted by the People's Committees who have the relevant power and authority to enable or hinder the implementation in their jurisdictions.
2. As ICM and MPA are currently managed by different ministries at the central level, the government should develop a strong co-ordination mechanism between the two ministries for a more effective coastal management.
3. Awareness raising activities for decision-makers and local community should be the key components of all coastal management efforts. The level of awareness corresponds to the level of political support and public participation (Tran, 2012).
4. A sustainable financing mechanism must be researched and invested in. These include but are not limited to the utilization of local budgets by gaining local political support, the collaboration with research institutes to make use of their research on monitoring, and the benefit sharing and fee schemes for beneficiaries.
5. The sustainable development of the sea and coastal areas should be closely linked with poverty reduction in coastal communities and livelihood improvements for the relevant stakeholders whose income depends on coastal and marine resources.
6. MPAs should be considered and embedded as an essential component of major ICM programs. Where possible, the principles and lessons learned in MPA initiatives should be adopted and applied to other components of the integrated coastal management program. MPAs can be used as flagship projects by ICM programs to demonstrate the effectiveness of the ICM approach in order to gain more political support and stakeholder involvement.
7. The mechanism to collect, store and communicate data across coastal management programs is essential to achieving effective coastal governance. Data accessibility and dissemination can have a positive



impact in raising awareness and enhancing stakeholder involvement. Therefore, the government should promote data sharing amongst all coastal management stakeholders

8. Relationship both vertically and horizontally must be strengthened in order to allow all the relevant stakeholders the opportunity to participate at every stage of development and implementation and to achieve adequate linkages of MPAs with ICM institutional structures and planning processes.
9. Vietnam coastal management expert network should be established. VASI and DOFI can jointly organize annual network meeting to discuss and find out solutions for emerging coastal issues timely.

#### **7.4 Research's contribution and limitation**

This research is, to my knowledge, the first attempt to quantitatively and systematically evaluate and synthesize the effectiveness of overall ICM and MPAs in Vietnam. It provides references for coastal managers to gain an overview of the current progress and effectiveness of ICM and MPAs in Vietnam when ICM is scaled up and MPA system is expanded. My study has shown that even though ICM has not achieved substantial results, evaluation can still be conducted in order to identify factors that need attention and improvement. The evaluation also showed how success factors correlated with the overall performance. This helps to prioritize the issues that are most significant to the performance of management efforts. My dissertation also proposed recommendations based on the evaluation results to integrate and enhance ICM and MPAs in Vietnam and identified the gaps to be filled by Vietnam authorities for more effective coastal management.

The evaluation method is designed with considerations of the local characteristics and issues of Vietnam. It is possible to apply this evaluation framework to other environmental management initiatives in Vietnam to gain a complete picture of coastal management. However, to measure the reliability of the method, it needs further observations, evaluation and continuation of the practice. In the future, IUCN will conduct intensive evaluations of all MPA

sites in Vietnam. My evaluation framework can be incorporated into this assessment.

As the main focus of my research is state governance, the scoring of management effort was given with reference mainly to the officers' knowledge. The results could have been more persuasive and representative if more data from the local community and other stakeholders were provided and accessible. As the evaluation is the first attempt and considered as exploratory study bridging scientific information and policy-makers, a simple statistical method was adopted. Going forward, it would be useful to continue testing different indicators and developing stronger statistical analysis such as the Generalized Linear Model to be applied in Vietnam's conservation evaluation research.

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## Appendix 1

### Questionnaire for ICM effectiveness evaluation

(Formatting of questionnaire has been removed in order to minimize space taken up. The original questionnaire is in Vietnamese)

Dear Sir/Madam,

The information generated from this interview will be used in my Ph.D ICM evaluation research. All information in this form will be kept confidential.

Thank you very much for your time.

#### **I. General information**

1. Personal details: Name: Occupation: Organization
2. Project that you involve: Name: Implemented by: Donor: Period of implementation

#### **II. Information about ICM project involved**

3. Is the ICM project completed? If yes, is it sustained and incorporate into local plan?
4. Is the project planned adequately? Did stakeholders involve in planning?
5. Have sufficient resources (finance, human resources) been utilized during planning?
6. Did project have sufficient baseline study (biophysical and social)?
7. Were project implementers trained on ICM?
8. Is project objectives measured and focused?
9. How local and national legislation support in formulating ICM project? Does your ICM project formulate coastal strategy and action plan?
10. Has a co-ordination mechanism existed?
11. Has project been implemented effectively (in term of utilizing fund, human resources, mobilizing external resources)? Explain your answer.
12. Did you maintain a good relationship and corporation with other related agencies during project implementation? What are the advantages and difficulties?

13. Has local community involved actively in project activities? Does local community know about the project through publicity of information?
14. How did project conduct awareness rising and education activities? Did the project target decision-makers in these education activities?
15. Have staff capacity building be focused? How regularly? What training workshops have been involved?
16. How implementation organization organized and functioned? Do you have enough staff? ICM skills and knowledge?
17. Has project have strong political support from senior authorities?
18. Did local government utilize local budget for project?
19. Do you have a clear and efficient Monitoring & Evaluation program?
20. Will project activities continue without external support?

### **III. Supplement survey**

21. Which factors to you think most influence the success and sustainability of ICM initiatives in Vietnam? Please rank the following factors from 12 to 1 with the descending of importance.
22. What other factors (out of this list) do you think also affect ICM in Vietnam? Please give your comments.

<b>Code</b>	<b>Success factors from literature review</b>	<b>Ranking</b>
PS1	Adequate project planning and design	
PS2	Clear objectives and visions	
PS3	Adequate scientific support	
PS4	Adequate legal support	
PS5	Strong institutional arrangements to conduct ICM	
PS6	Strong co-ordination mechanism	
PS7	Public involvement	
PS8	Education and awareness raising	
PS9	Legalizing ICM into local plan	
PS10	Sustainable financing	
PS11	Political will	
PS12	Evaluation and monitoring	

## Appendix 2

### Questionnaire for MPA effectiveness evaluation

(Formatting of questionnaire has been removed in order to minimize space taken up. The original questionnaire is in Vietnamese)

Dear Sir/Madam,

We are conducting research on Vietnam MPA. The information generated from the MPA questionnaire will be compiled and presented as a preliminary evaluation of MPA system in Vietnam.

#### I. General information

MPA:

Site Designation Date:

Total area of site:

Number of staff:

Number of communities living in/adjacent to MPA

CURRENT MANAGEMENT STATUS OF SITE	
What guides your day to day activities? What kind of planning documents do you have? Explain documents.	
How does the site prioritize what activities it will be engaged in?	
What is the extant of your legal authority?	
Do you have any regulations? Summaries	
Explain your enforcement program.	
Explain what kind of management partnerships you have in place?	
Explain what kind of awareness rising activities you have conducted?	
Do you have monitoring and evaluation (biophysical and socio-economic) program?	

Other Observations:

PRIORITY RESOURCE MANAGEMENT ISSUES	
What are the target (priority) resources (biophysical, human, cultural) your MPA is protecting?	
What do you consider the top 3 threats to these resources?	
What kind of impacts are these activities having on your target resources?	
Who are the primary stakeholders associated with these threats?	
Are there are management authorities whom have jurisdiction in these areas?	
How are you currently addressing each of these issues	
Do you have the necessary skills and knowledge to address these issues?	

How urgent are these issues/impacts?	
Do you have a mechanism for addressing new and emerging issues?	
Are you preparing now for potential future activities and their associated impacts or threats?	
Do you have sufficient baseline study about biophysical and social-economic status?	

Other Observations:

<b>CHARACTERIZING THE MANAGEMENT CAPACITY OF THE STAFF</b>	
Explain the structure of your staffing plan.	
What is the educational background of each of the staff members?	
How long have each of you been working in natural resource management?	
Do you see natural resource management as a career? Why or why not?	
What training or workshops have you had to date?	
What are some of the constraints to getting the skills and knowledge the staff needs?	

Other Observations:

<b>SITE INFRASTRUCTURE</b>	
Is there adequate office space to house staff and support existing programs?	
Is there room for expansion of staff and programs?	
Are there any educational facilities?	
Are there any research facilities?	
What kind of people visit the site and how frequently?	
What kind of technology can the office support?	
What kind of vessel and vessel facilities does the site have access to?	
What kind of dive equipment and dive facilities are available?	

Other Observations:

<b>POLITICAL WILL AND SUPPORT TO IMPLEMENT</b>	
What are some of the obstacles you see to increasing management capacity?	
What are some of the existing or potential strengths that could contribute to building management capacity?	
Is there the interest and will from the MPA management authority to build capacity by implementing what is learned in the classroom?	
Who are the biggest supporters and detractors of the MPA?	
What is your current relationship with stakeholders?	
How do you engage stakeholders in your MPA?	
Do you see yourself as part of a network (seascape) of MPAs? Why or why not?	
What would it take to function as a network (seascape) of MPAs?	

Other Observations:

<b>FINANCIAL SUPPORT FOR THE IMPLEMENTATION</b>	
What is the annually current financial support from the central/Government to your MPA?	
What is the annually current financial support from the local	

government to your MPA?	
What is the total income from the MPA's visitor fees annually?	
How many visitors yearly? and what is the visitor fees/visitor?	
How much is annual budget enough for your MPA functioning and why?	
Is your MPA have the sustainable financing strategy?	
There are other potential sources of financial support to your MPA? How to assess?	
How do you engage stakeholders (business, communities ...) in you MPA?	

Other Observation

<b>PRIORITY SKILL DEVELOPMENT NEEDS</b>	
What skills do you have that are relevant to your job? How did you acquire those skills?	
What skills don't you have that are relevant to your job and would improve your performance?	
Do you have other skills that you don't necessarily use in your job?	
What skills would you like to develop that aren't necessarily directly related to your job, but would improve your performance?	

Other Observations:

<b>PRIORITY KNOWLEDGE DEVELOPMENT NEEDS</b>	
What knowledge-base (experience) do you have that is relevant to your job? How did you acquire this experience?	
What experience don't you have that are relevant to your job and would improve your performance?	
Do you have other experience that you don't necessarily use in your job?	
What skills would you like to develop that aren't necessarily directly related to your job, but would improve your performance?	

Other Observations:

<b>IMPLEMENTATION EFFICIENCY AND GENERAL OUTCOME</b>	
Do you achieve your management plan? If not, list 3 main reasons	
Are marine resources in MPA enhanced?	
Do MPA activities have positive impacts on local community?	
Have local community awareness about marine conservation been improved?	
Have regulation-violated cases been reduced?	

Other Observations:

## II. Simple scorecard for MPA

Please kindly score each indicator in the scorecard below with scoring standard as follow:

"0": Indicator was not present

"0.5": Indicator was partially present

"1": Indicator was highly present



<b>Context</b>			
EI		Your score	Comments
	<b>Criteria 1: Legal status</b>		
1	Park gazette		
2	MPA regulations and mechanism for controlling inappropriate activities		
3	Support by political and civil environment		
	<b>Criteria 2: Integration</b>		
4	Integration of the MPA in a larger coastal management plan – Is the MPA part of a larger integrated coastal management plan?		
<b>Planning</b>			
	<b>Criteria 3: Management planning</b>		
5	Marine protected area objectives – Have objectives been agreed?		
6	Management plan exist – Is there a management plan and is it being implemented?		
7	The planning process involve stakeholder		
8	The socioeconomic impacts of decisions are considered in the planning process		
9	There is an established schedule and process for periodic review and updating of the management plan		
10	Management plan is tied to the development and enforcement of regulations		
<b>Input</b>			
	<b>Criteria 4: Management resources</b>		
11	Adequacy of staff numbers		
12	Adequacy of staff on marine conservation		
13	Adequacy of infrastructure, equipment and facilities		
14	Adequacy of funding		
15	External funding from NGO contributions, taxes, fees, etc		
16	There is additional support from volunteer programs, local communities, etc		
	<b>Criteria 5: Information base</b>		
17	Adequacy of relevant, available information for management (Resource inventory – Is there enough information to manage the area?)		
18	Research - Is there a program of management oriented survey and research work?		
<b>Process</b>			
	<b>Criteria 6: Capacity Building</b>		
19	Staff/ other management partners skill/knowledge level up		
20	Adequacy of staff training enough?		
21	Awareness raising for local government authority		
	<b>Criteria 7: Stakeholder involvement</b>		

22	Is there communication between stakeholders and managers?		
23	Education and awareness program – Is there a planned education program?		
24	Do stakeholders involve actively in MPA activities?		
25	Stakeholder awareness and concern – Are stakeholders aware and concerned about marine resource conditions and threats?		
	<b>Criteria 8: Benefit sharing</b>		
26	There are clear financial contributions/agreements between MPA and tourism operators to recover MPA resources rents for local benefits		
	<b>Criteria 9: Co-ordination</b>		
27	Implementing agency & partner organisation have a productive working relationship through clear coordinating mechanism		
28	Maintains a network with relevant agencies information sharing		
	<b>Criteria 10: Law enforcement</b>		
29	Adequacy of law enforcement capacity		
	<b>Criteria 11: M&amp;E is effective</b>		
30	Project has a clear and adequate M&E framework		
31	M&E is used effectively throughout implementation		
<b>Output</b>			
	<b>Criteria 12: Achievement of work program</b>		
32	Achievement of management plan		
33	Results and outputs have been produced obviously		
<b>Outcome</b>			
	<b>Criteria 13: Conservation outcome</b>		
34	Proportion of conservation objectives achieved		
35	Have threats (listed in the data sheet page) been reduced		
36	Resource conditions– Have resource conditions improved?		
37	Resource use conflicts have been reduced		
38	Compliance – Are users complying with MPA regulations?		
	<b>Criteria 14: Community outcome</b>		
39	Stakeholder satisfaction – Are the stakeholders satisfied with the process and outputs of the MPA?		
40	Community welfare – Has community welfare improved?		
41	Environmental awareness – Has community environmental awareness improved?		
	<b>Criteria 15: Governance</b>		
42	Political support increase		
43	Local government utilize sufficient local budget for MPA		
44	Sustainable financing, fee collection		

### III. Supplement survey about MPA incentives

1. What the main incentives that the MPA are focusing on?

2. Please rank the factor of incentives according to their importance to MPA effectiveness in your opinion (10: most important - 1: least important)

Incentives	Effectiveness Factor	Rank
Economic incentives	1. Socio-economic contribution	
	2. Sustainable financing	
Interpretative incentives	3. Education and awareness raising activities	
	4. Obvious outcome to demonstrate effective investment	
Knowledge incentives	5. Capacity building for staff	
	6. Strong research	
Legal incentives	7. Strong co-ordination mechanism/integrated management	
	8. Political will	
Participative incentives	9. Stakeholder involvement	
	10. Benefit sharing	

## Appendix 3

### Evaluation sheets

#### *Appendix 3.1: ICM evaluation sheet*

<b>Project title:</b>		<b>Score</b>	<b>Comments</b>
	<b>Project planning phase</b>		
<b>SF</b>	<b>Criteria 1: Planning process is adequate</b>		
1	Sufficient resources used to determine project need		
2	Stakeholders participated and contributed		
3	Good baseline data & understanding of local conditions		
4	Planning time is adequate in comparing to total ICM cycle		
	<b>Criteria 1 score</b>		
	<b>Criteria 2: Project design is appropriate</b>		
5	Reflects a long-term commitment		
6	Builds recurrent cost funding into design		
7	Builds capacity of project implementer		
	<b>Criteria 2 score</b>		
	<b>Criteria 3: Objectives are appropriate</b>		
8	Measurable, clear and feasible		
9	Focused and shared vision		
	<b>Criteria 3 score</b>		
	<b>Criteria 4: Scientific support</b>		
10	Good understanding of current condition of bio-physical conditions of project site (coastal profile)		
11	Good understanding of local socio-economic status		
	<b>Criteria 4 score</b>		
	<b>Criteria 5: Legal support</b>		
12	Local government development plan, including coastal and marine areas		
13	Coastal strategy and action plans		
14	Governmental legislation support strongly the formulation of ICM project		
	<b>Criteria 5 score</b>		
	<b>Criteria 6: Institutional arrangements</b>		
15	Clear organisational structure in place to manage project		
16	Coordinating mechanism is in place to implement project		
	<b>Criteria 6 score</b>		
	<b>Project implementation phase</b>		
	<b>Criteria 7: Project's function</b>		
17	Funding size is reflected by realistic timeframes		
18	Resources used efficiently and activities are likely to be completed on schedule		
19	Has ability to mobilise additional financial, technical and other resources		
	<b>Criteria 7 score</b>		

	<b>Criteria 8: Co-ordination</b>		
20	Implementing agency & partner organisation have a productive working relationship through clear coordinating mechanism		
21	Maintains a network with relevant agencies information sharing		
	<b>Criteria 8 score</b>		
	<b>Criteria 9: Public involvement</b>		
22	Encourages involvement of local people in an active capacity		
23	Publicity of project information		
	<b>Criteria 9 score</b>		
	<b>Criteria 10: Education</b>		
24	Has focus on staff capacity building through training and through daily work		
25	Public awareness raising activities are substantial		
26	Decision-maker awareness is enhanced		
	<b>Criteria 10 score</b>		
	<b>Criteria 11: Local government capacity</b>		
27	Implementation organization are well organised and functioning well		
28	Strong support from key senior officials		
29	Local staff have knowledge and skill in ICM		
30	Local government utilize local budget for ICM project		
	<b>Criteria 11 score</b>		
	<b>Criteria 12: Legalizing ICM</b>		
31	ICM strategy is incorporated into local development plan		
	<b>Criteria 12 score</b>		
	<b>Criteria 13: M&amp;E is effective</b>		
32	Project has a clear and adequate M&E framework		
33	M&E is used effectively throughout implementation		
	<b>Criteria 13 score</b>		
	<b>Sustainability of the action for next cycle</b>		
	<b>Criteria 14: Benefits are sustainable</b>		
34	Stakeholders have sufficient knowledge and resources to maintain project		
35	Project can continue to exist without external project finance /Project has sustainable finance-scheme		
36	Implementation institution has high-level officials committed to maintain project		
	<b>Criteria 14 score</b>		

*Appendix 3.2: MPA evaluation sheet*

<b>MPA site:</b>		<b>Score</b>	<b>Comments</b>
	<b>Context</b>		
<b>EI</b>	<b>Criteria 1: Legal status</b>		
1	Park gazette		
2	MPA regulations and mechanism for controlling inappropriate activities		
3	Support by political and civil environment		
	<b>Criteria 1 score</b>		
	<b>Criteria 2: Integration</b>		
4	Integration of the MPA in a larger coastal management plan – Is the MPA part of a larger integrated coastal management plan?		
	<b>Criteria 2 score</b>		
	<b>Planning</b>		
	<b>Criteria 3: Management planning</b>		
5	Marine protected area objectives – Have objectives been agreed?		
6	Management plan exist – Is there a management plan and is it being implemented?		
7	The planning process involve stakeholder		
8	The socioeconomic impacts of decisions are considered in the planning process		
9	There is an established schedule and process for periodic review and updating of the management plan		
10	Management plan is tied to the development and enforcement of regulations		
	<b>Criteria 3 score</b>		
	<b>Input</b>		
	<b>Criteria 4: Management resources</b>		
11	Adequacy of staff numbers		
12	Adequacy of staff on marine conservation		
13	Adequacy of infrastructure, equipment and facilities		
14	Adequacy of funding		
15	External funding from NGO contributions, taxes, fees, etc		
16	There is additional support from volunteer programs, local communities, etc		
	<b>Criteria 4 score</b>		
	<b>Criteria 5: Information base</b>		
17	Adequacy of relevant, available information for management (Resource inventory – Is there enough information to manage the area?)		
18	Research - Is there a program of management oriented survey and research work?		
	<b>Criteria 5 score</b>		

	<b>Process</b>		
	<b>Criteria 6: Capacity Building</b>		
19	Staff/ other management partners skill/knowledge level up		
20	Adequacy of staff training enough?		
21	Awareness raising for local government authority		
	<b>Criteria 6 score</b>		
	<b>Criteria 7: Stakeholder involvement</b>		
22	Is there communication between stakeholders and managers?		
23	Education and awareness program – Is there a planned education program?		
24	Do stakeholders involve actively in MPA activities?		
25	Stakeholder awareness and concern – Are stakeholders aware and concerned about marine resource conditions and threats?		
	<b>Criteria 7 score</b>		
	<b>Criteria 8: Benefit sharing</b>		
26	There are clear financial contributions/agreements between MPA and tourism operators to recover MPA resources rents for local benefits		
	<b>Criteria 8 score</b>		
	<b>Criteria 9: Co-ordination</b>		
27	Implementing agency & partner organisation have a productive working relationship through clear coordinating mechanism		
28	Maintains a network with relevant agencies information sharing		
	<b>Criteria 9 score</b>		
	<b>Criteria 10: Law enforcement</b>		
29	Adequacy of law enforcement capacity		
	<b>Criteria 10 score</b>		
	<b>Criteria 11: M&amp;E is effective</b>		
30	Project has a clear and adequate M&E framework		
31	M&E is used effectively throughout implementation		
	<b>Criteria 11 score</b>		
	<b>Output</b>		
	<b>Criteria 12: Achievement of work program</b>		
32	Achievement of management plan		
33	Results and outputs have been produced obviously		
	<b>Criteria 12 score</b>		
	<b>Outcome</b>		
	<b>Criteria 13: Conservation outcome</b>		
34	Proportion of conservation objectives achieved		
35	Have threats (listed in the data sheet page) been reduced		
36	Resource conditions– Have resource conditions improved?		
37	Resource use conflicts have been reduced		
38	Compliance – Are users complying with MPA regulations?		

	<b>Criteria 13 score</b>		
	<b>Criteria 14: Community outcome</b>		
39	Stakeholder satisfaction – Are the stakeholders satisfied with the process and outputs of the MPA?		
40	Community welfare – Has community welfare improved?		
41	Environmental awareness – Has community environmental awareness improved?		
	<b>Criteria 14 score</b>		
	<b>Criteria 15: Governance</b>		
42	Political support increase		
43	Local government utilize sufficient local budget for MPA		
44	Sustainable financing		
	<b>Criteria 15 score</b>		



## Appendix 4

### Project sheet template

#### *Appendix 4.1 ICM project sheet template*

<b>Project title:</b>		
Implementation by:	Donor/funding agencies:	
Location:	Project start:	Project completion:
Key project personnel contact:		
Project objectives:		
Key outputs (report, thesis, posters, strategy, etc.):		
Project outcome:		
Comments:		
Key stakeholders:		

#### *Appendix 4.2 MPA site sheet template*

<b>MPA site:</b>			
Implementation by:	Donor/funding agencies:		
Location:	Total area:	Sea area:	MPA establishment date:
Key MPA officer contact:			
MPA objectives:			
Key outputs (report, thesis, posters, strategy, etc.):			
Key outcome:			
Comments:			
Key stakeholders:			

## Appendix 5

### Code of respondents for evaluation

#### *Appendix 5.1: Code of Interviewees for ICM survey*

Code	Involved projects	Position/Organization
<b>Local staff</b>		
LS1	Vung Tau	Provincial DONRE Officer
LS2	Thua Thien Hue	Provincial DONRE Officer
LS3	Hai Phong	Provincial DONRE Officer
LS4	Da Nang	Provincial DONRE Officer
LS5	Quang Nam	Provincial DONRE Officer
LS6	Quang Tri	Provincial DONRE Officer
LS7	Nghe An	Provincial DONRE Officer
<b>National Staff</b>		
NS1	Vung Tau/Thua Thien Hue	MCD
NS2	Vung Tau/Thua Thien Hue	IUCN
NS3	Hai Phong	IUCN
NS4	Quang Nam/Quang Tri/Nghe An	VASI
NS5	Quang Nam/Quang Tri/Nghe An	VASI
<b>Scientist</b>		
SC1	Hanoi	University lecturer
SC2	Thua Thien Hue	University lecturer
SC3	Vung Tau	University lecturer
SC4	Da Nang	University lecturer
SC5	Quang Nam	Institute of Oceanography researcher
SC6	Quang Tri	University researcher
SC7	Nghe An	University lecturer

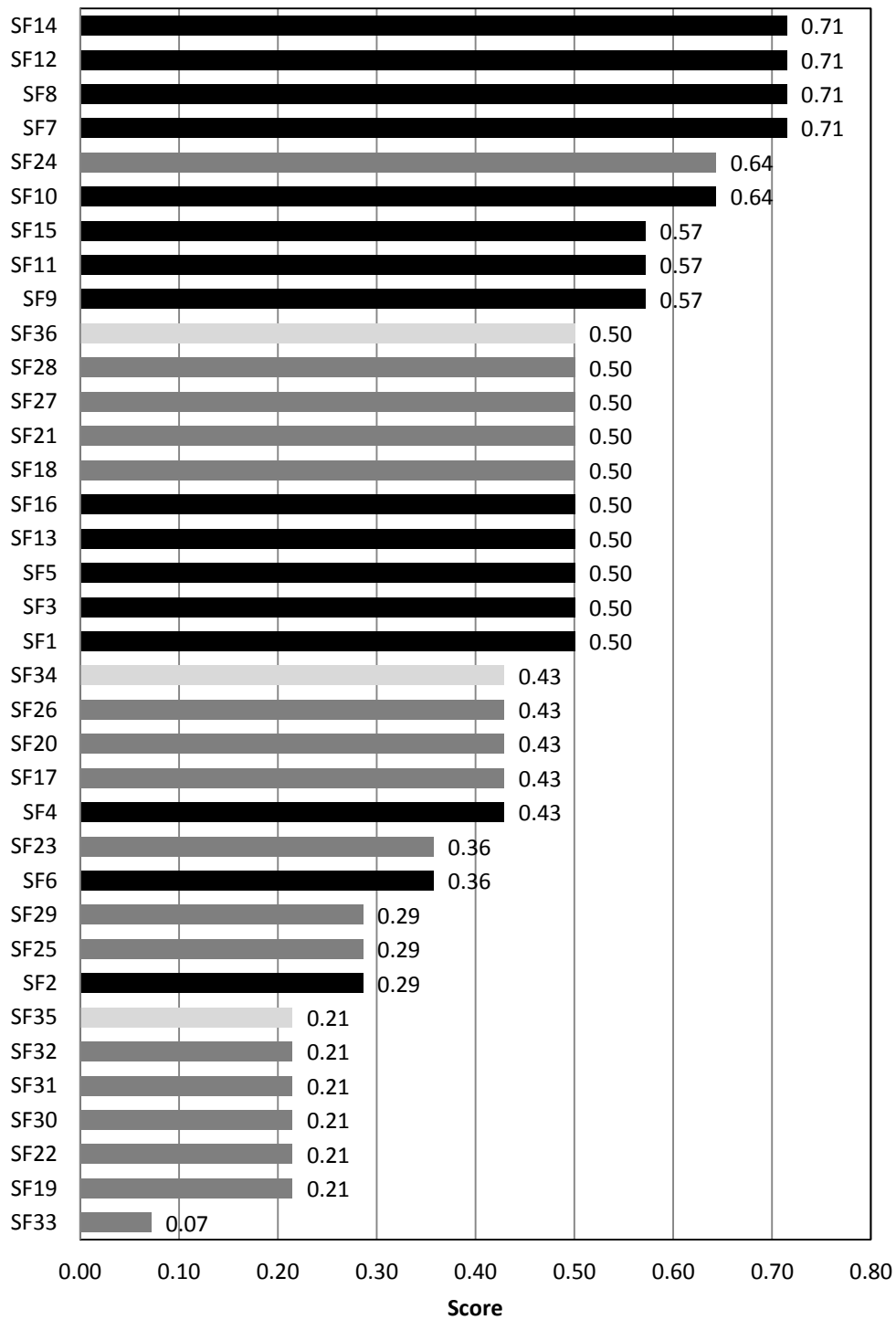
#### *Appendix 5.2 Code of Respondents for MPA survey*

Code	Position/Organization
<b>MPA officer</b>	
MO1	MPA Officer
MO2	MPA Officer
MO3	MPA Officer
MO4	MPA Officer
MO5	MPA Officer
MO6	MPA Officer
MO7	MPA Officer
MO8	MPA Officer
MO9	MPA Officer
<b>National Officer</b>	
NO1	IUCN
NO2	Vietnam Directorate of Fisheries
NO3	Hanoi University of Natural Sciences

## Appendix 6

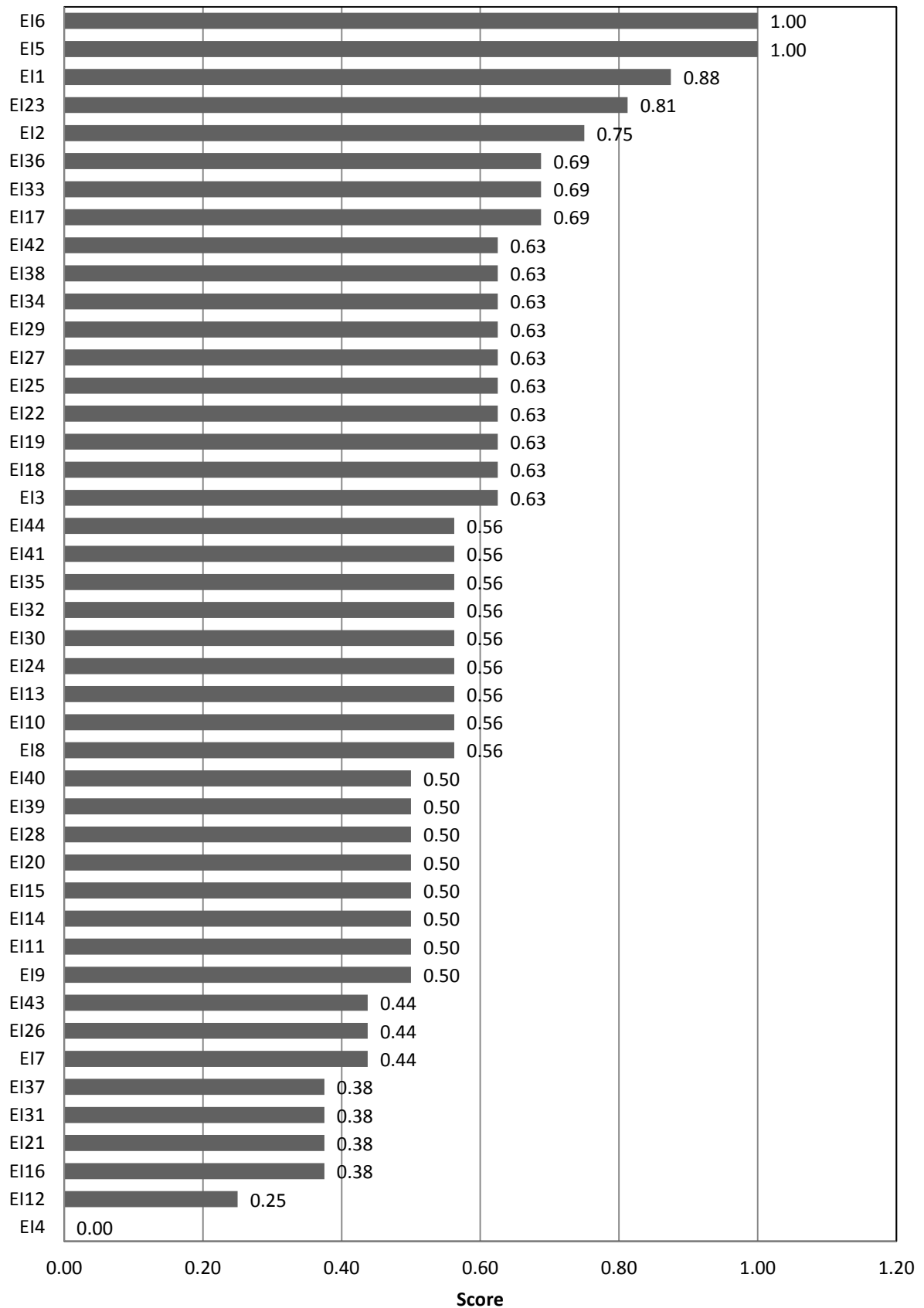
### Average scores for Success Factors across all ICM projects

(Colours are used to indicate what stage of the project cycle: Black is design, grey is implementation, and light grey is sustainability)



## Appendix 7

### Average scores for Effectiveness Indicators across all MPAs



## Appendix 8

### Publications and Conference experiences

- Tran, T.M.H., Chou, L.M. & Nguyen, T.T.H. (2012). *Increasing public participation through awareness raising: A case study in Trao Reef Marine Reserve, Vietnam*. Journal of Environment and Natural Resources Research. DOI: 10.5539/enrr.v3n1p24.
- Tran, T.M.H., Chou, L.M. & Nguyen, T.T.H (2012). *Increasing public participation through awareness raising: A case study in Trao Reef Marine Reserve, Vietnam*. Presented at Water and Environment Technology Conference, The University of Tokyo, Tokyo, Japan. (Best Presentation Award).
- Tran, T.M.H. & Chou, L.M., (2011). *Coastal and marine management in Vietnam: the roles of NGOs in community involvement*. Presented at The 16th Biological Sciences Graduate Congress (BSGC), University of Singapore, Singapore.
- Tran, T.M.H & Chou, L.M, (2011). *Integrated Coastal Management for Vietnam: The issue of sustainability*. Presented at The 17th annual conference of the International Sustainable Development Research Society, New York, US.
- Tran, T.M.H & Chou, L.M., (2010). *Aquaculture Management in Thua Thien Hue Province, Vietnam: Environmental Considerations*. In: Sustainability Matters Environmental Management in Asia . World Scientific Printers, Singapore.
- Tran, T.M.H., Low, J. & Ng, W.L. (2010). *The “Nei Gong” of teaching*. CDTLink 14(1).
- Tran, T.M.H, (2009). *Towards a National Integrated Coastal Management Policy for Vietnam*. Presented at The 14<sup>th</sup> Biological Sciences Graduate Congress, Bangkok, Thailand.