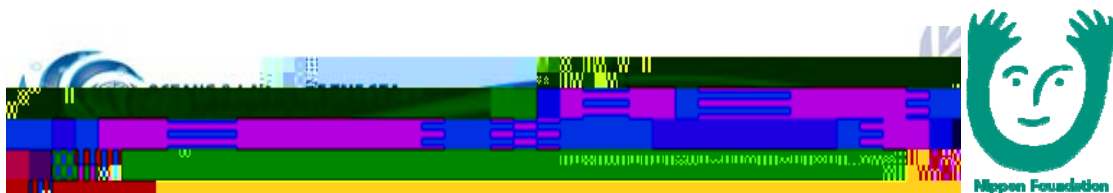


COASTAL AND ISLAND GOVERNANCE IN VIET NAM

PHAM THI GAM

United Nations - Nippon Foundation of Japan Fellowship Programme

December 2013



DISCLAIMER

The views expressed herein are those of the author and do not necessarily reflect the views of the Government of Viet Nam, the United Nations, The Nippon Foundation of Japan or Columbia University.

©2013 Pham Thi Gam.

Abstract

This thesis has two parts, including four chapters. Four topics are studied in these chapters, namely: claims to marine areas, marine environment, biodiversity and climate change. In the first chapter, the thesis focuses on the key conventions to which Vi

Acronyms

BASEL	Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal
CBD	Convention on Biology Diversity
CWA	Clean Water Act
CZMA	Coastal Zone Management Act of USA
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency of USA
GHG	Greenhouse Gas
GPA	Global Programme of Action
ICM	Integrated Coastal Management
MARPOL	International Convention for the Prevention of Pollution from Ships
MONRE	Viet Nam Ministry of Natural Resources and Environment
MPAs	Marine Protected Areas
MPRSA	Marine Protection, Research, and Sanctuaries Act
MSP	Marine Spatial Planning
NPA	National Programmes of Action for the Protection of the Marine Environment from Land-based Activities
SCS	South China Seas
UNCLOS	United Nations Convention on the Law of the Sea
UNFCCC	United Nations Framework Convention on the Climate Change
USA	United States of America

Acknowledgements

It would have been impossible for me to do this research without the support of the United Nation and The Nippon Foundation of Japan, as well as the assistance of a number of individuals and institutions. For this reason, I would like to sincerely thank to the United Nation and The Nippon Foundation of Japan for giving me a chance to undertake this research and extend my knowledge. I would also like to thank to Center for Climate Change Law at Columbia Law School and the Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs of the United Nations for hosting me during the Fellowship Programme.

I would like to express my profound gratitude to Prof. Michael B. Gerrard for his valuable advice and comments which allowed me to complete my research, as well as for the wonderful lectures in the Environmental Law class. This was really meaningful for me to build my knowledge foundation in environmental law, climate change and other areas and to assist me both in my current research and for my future. I would also like to thank Mr. Eric Wertzler and his team at Columbia Law School for facilitating my study at the School.

A very special expression of my gratitude goes to Dr. Francois Bailet, who always encouraged me and created the best conditions for me during the whole Fellowship Programme. He puts his whole-heart to develop capacity-building for the Fellows. This pushed me to try my best to study in order to do something for my Country. Also I would like to express my profound gratitude to Ms. Valentina Germani, who provided and shared with me a lot of valuable knowledge showing her devotion for the Programme. My real gratitude is to the thoughtful support given by the staff of the Division for Oceans Affairs and the Law of the Sea of the United Nations, especially thanks to Ms. Simone Dempsey and Ms. Mona Al-Sharmani. Their assistance is my achievement.

Finally, I would like to express my thanks to my family, friends and colleagues, especially thanks to Ms. Nguyen Thi Quynh Loan, who always encouraged and supported me to complete this research.

Table of contents

Introduction.....	1
PART 1. INTERNATIONAL FRAMEWORK, LESSONS FROM STATE PRACTICE AND CURRENT STATUS OF VIET NAM	7
Chapter 1: International framework and lessons from State practice	7
Section A. International framework.....	7
1. Marine areas under national jurisdiction.....	7
2. Marine environmental protection	10
2.1. United Nations Convention on the Law of the Sea	10
2.2 Other conventions	12
3. Marine biodiversity and climate change	15
3.1. Convention on Biological Diversity	15
3.2. The United Nations Framework Convention on Climate change	18
Section B. Lessons from State practice	20
1. Marine environmental protection	21
1.1. Marine pollution control - United States of America	21
1.2. Ocean dumping – United States of America.....	25
1.3 Integrated coastal zone management – United States of America.....	28
1.4. Land based marine pollution - Australia.....	30
2. <i>Biodiversity conservation</i>	33
2.1. China.....	34
2.2. The Republic of Korea.....	35
3. <i>Climate change adaptation</i>	37
Chapter 2. Status of coastal area and island governance in Viet Nam	41
Section A. Current legal and policy framework	41
1. Claim on the marine areas under the jurisdiction of Viet Nam	41
1.1 Declaration and legislation on marine areas	41
1.2. Delimitation on overlapping areas with other countries	43
2. Marine environmental protection.....	44
2.1. Land – based sources and pollution from atmosphere.....	45
2.3 Pollution from trans-boundary waste.....	48
Section B. The current legal and policy framework on biodiversity conservation, climate change, integrated coastal management and islands in Viet Nam	51
1. Biodiversity conservation	51
3. Integrated coastal management and Island governance.....	56
3.1. Integrated coastal management.....	56
3.2 Island governance	57
PART 2. SHORTCOMINGS, CHALLENGES AND RECOMMENDATIONS FOR COHERENT LEGAL AND POLICY FRAMEWORK IN VIET NAM	59
Chapter 1. Shortcomings and challenges of coastal area and island governance in Viet Nam	59
Section A. Claim on marine areas and marine environmental protection	59
1. Claim on marine areas	59
2. Marine environmental protection.....	60
2.1. Lack of unified management	60
2.2. Land – based sources	61
2.3. Dumping at sea	62

3. Climate change adaptation	63
4. Integrated coastal management, and management of islands and their biodiversity in Viet Nam	66
4.1. Integrated coastal management	66

Introduction

Background and context

Viet Nam is one of the countries surrounding the South China Sea, with the length of the coastline being over 3,260km not including the coastline of the islands. The area of waters under the jurisdiction of Viet Nam, that are determined based on the United Nations Convention on the Law of the Sea (UNCLOS), is around one million km². There are approximately 3,000 islands located both along the coast and offshore under the sovereignty of Viet Nam.

Table 1. The quantity and area of islands in the coastal area of Viet Nam¹

Group	Groups of island		Number of islands in a group	Percentage of a group out of the total number of islands (%)	Areas of a group (km ²)	Percentage of group areas out the total area of islands (%)
	Area (km ²)	Name of group				
1	< 0.001	Extreme small	284	10.24	0.1129	0.006
2	> 0.001 -0.01		1103	39.77	4.4070	0.26
3	> 0.01-0.1	Very small	988	35.64	32.1448	1.86
4	> 0.1 – 1		314	11.32	87.6538	5.09
5	>1 – 10	Small	60	2.16	183.2191	10.644
6	>10 – 100	Medium	21	0.76	509.4	29.6
7	> 100	Big	3	0.11	903.9378	52.53
Total			2773	100	1720.8754	100

With the geographic location as mentioned above, Viet Nam owns plentiful and diversified marine resources. There are about 11,000 aquatic species living in over 20 types of eco-systems consisting of about 6,000 marine benthic animals, 2,038 types of fish, 653 types of seaweed, 657 aquatic ephemeras, 94 types of plants living in salt-mash areas, 225 types of shrimp, 14 types of sea-grass, 12 marine animals, 5 types of turtles and 43 seabirds². It is projected that total allowable catch of aquatic product sources is around 1.4 to 1.6 million tons per year. This contributes to the marine economic development of Viet Nam, especially the

¹

fishery industry. The total productivity of fishery exploitation was around 2.2 million tons in 2011 and 2.6 million tons in 2012.³

There are also various types of minerals in the seabed and subsoil of Viet Nameese waters. Until now, about 35 types of minerals such as oil, gas, iron, manganese, mineral sand, titan ore, as well as building materials have been discovered. It is estimated that there are major deposits of oil and gas as well as methane hydrate reserves in Torkin Gulf, Thailand Gulf and in the continental shelf of Viet Nam. The South China Sea, including Viet Nameese waters, is

However, there are many challenges hindering the sustainable development of marine areas and islands. According to the statistical data in 2007, wetland areas cover 160,070 ha of the entire country, which has reduced by over 50% in comparison with the number in 1943. Moreover, 60% of this area is artificial forest, a small amount primeval forest and the rest poor secondary forest. The area of sea grass declined by 60% from 40% in comparison in 1999. The research of 7 coral areas from 2004 to 2007 had shown that only 2.9% of this area was assessed to be in a very good condition, 11.6% being good, 44.9% bad or very bad.⁴The main causes are the overexploitation of these ecosystem and the pollution of the marine environment.

The marine environment is seriously polluted as a result of human activities. Based on the statistics in 2008, the amount of ballast water of vessels, including oil at Haiphong seaport, was 4,578 tons with 2561 tons being waste oil. Furthermore, the amount of sewage deriving from fossil coal mining areas along the coast was about 25 -30 million m³ annually with a high amount of acidity. The solid waste from this process was estimated at about 150 million m³ each year.⁵ Incidents at sea are also a cause of the pollution of the marine environment, especially oil spills. Based on the statistics from 1989 until now, there have been over 100 oil spill incidents in Viet Nam waters, each case pouring into the sea at least several tons or hundreds of tons of oil.

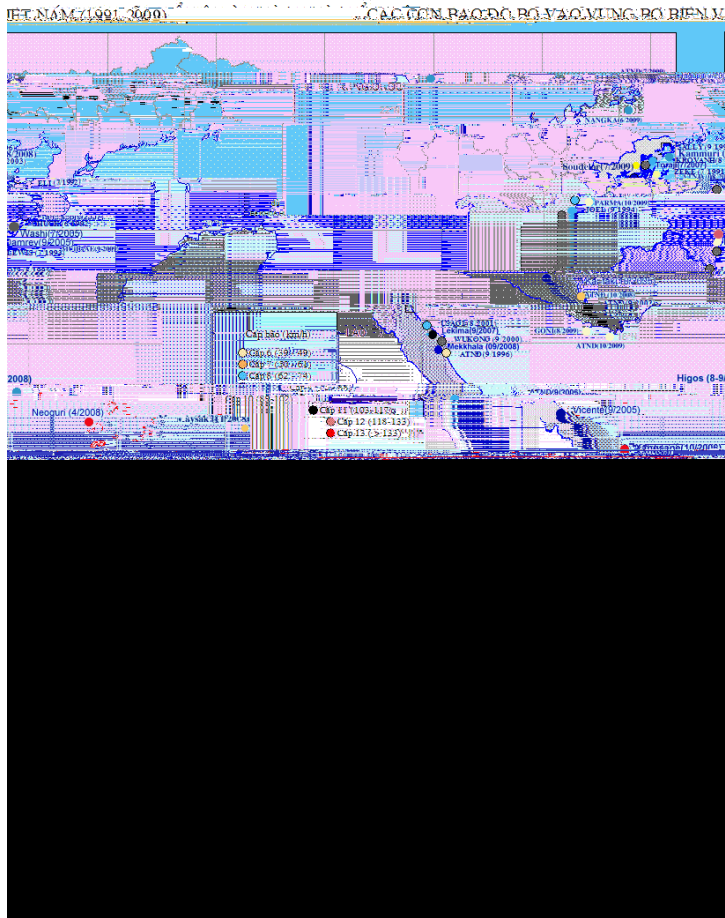
Pollution deriving from the other activities such as coastal fisheries, sea-bed mining, land-based sources, marine tourism as well as trans-boundary waste generates great pressure on biodiversity and aquatic habitats, especially in small islands which host high marine biodiversity and are vulnerable to pollution.

Small islands and coastal areas of Viet Nam also suffer from natural disasters such as storms and tropical low pressure due to their geographic location in the storm belt of the West-Northern Pacific Ocean with its long coastline. While the number of storms has decreased, the intensity of them has increased rapidly.

⁴National Environment Report in 2010.

⁵National Environment Report in 2010.

Figure 1. The number of storms hitting the Viet Nameese coastline in the period of 1991- 2009⁶



flooded); about 10-12% of Viet Nam's population will be directly impacted and the country will lose around 10% of GDP. Climate change impacts on Viet Nam are serious threats to the cause of poverty reduction, the realization of millennium goals and the country's sustainable development.⁸

Over the past few years, due to climate change, the frequency and intensity of natural disasters have increased, causing great human and property losses, damaging socio-economic and cultural infrastructure, and causing negative impacts on the environment. In the last decade (2001-2010), natural disasters like floods, flash floods, landslides, inundations, droughts, soil and water salinity and other calamities have resulted in 9,500 deaths and missing people as well as damaged about 1.5% of annual GDP.⁹

Viet Nam has received huge benefits from marine resources on one hand, but on the other hand it has contributed to the pollution and degradation of the marine environment. Viet Nam has tried to improve the state of the marine environment and to adapt to climate change through the development and implementation of a legal and policy framework. This has exposed the gaps and shortcomings, which need to be addressed through further research and implementation of good state practices to strengthen capacity in sustainable development for the long term. This is also necessary in order to implement the obligations of Viet Nam as a State Party of the international legal framework.

Scope and Objectives

This research paper will focus on studying the legal and policy framework of Viet Nam in the management of its marine and island natural resources and environment with a view to ensure environmental protection, biodiversity conservation, and climate change adaptation, in particular to sea level rise for sustainable use. The manageme

PART 1. INTERNATIONAL FRAMEWORK,

sovereignty of coastal States extends to the air space over the territorial sea as well as its bed and subsoil¹⁴.

The right of innocent passage of ships of all States, whether coastal or land-locked, through the territorial sea¹⁵ is a limitation to coastal States' sovereignty. However, UNCLOS regulated such rights of innocent passage, by establishing in innocent passages through these waters. The innocent passage cannot be prejudicial to the peace, good order or security of the coastal State, and also takes place in conformity with the UNCLOS and other rules of international law.¹⁶

Internal waters are waters on the landward side of the baseline of the territory. Coastal countries have sovereignty over these waters as their territory, except a limited right of innocent passage as provided under the Convention.¹⁷

The waters adjacent to the territorial seas, with a breadth that may not extend 24 nautical miles from the baseline, is called the contiguous zone. The coastal State may exercise the control necessary to prevent infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea, and also punish infringement of the above-mentioned laws of coastal States committed within its territory or territorial sea.¹⁸

The exclusive economic zone is defined is an area beyond and adjacent to the territorial sea with the breadth not extending beyond 200 nautical miles from

its rights and in pursuance of its duties in the exclusive economic zone shall conform to the provision of UNCLOS.

Freedoms of navigation, over-flight and of laying of submarine cables and pipelines, and other international lawful uses of the sea, related to these freedoms subject to the relevant provisions of the UNCLOS are provided for all States, whether coastal or land – locked, in the exclusive economic zone.²¹

The continental shelf is another area under the jurisdiction of a coastal State comprises the sea-bed and subsoil of the sea-bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines where the breadth of the territorial sea is measured— where the outer edge of the continental margin does not extend up to that distance²². The determination of the outer limit of the continental shelf of the coastal State shall be according to the provisions of UNCLOS under Article 76 in the case of the outer edge of the continental margin being beyond 200 nautical miles. The coastal State exercises over these area sovereign rights for the purpose of exploring it and exploiting its natural resources; the construction, operation and use of artificial islands, installations and structures and other economic purposes; drilling for all purposes.

In addition, islands have the right to determine marine areas surrounding them. Based on the UNCLOS, an island is a naturally formed area of land, surrounded by water, which is above water at high tide. Islands that can sustain human habitation or economic life of their own have a territorial sea, contiguous zone, economic zone and continental shelf determined in accordance with the provisions of UNCLOS. Rocks, which cannot sustain human habitation or economic life of their own referred to as rocks, have no exclusive economic zone or continental shelf.²³

The coastal State shall give due publicity to charts or a list of geographical co-ordinates showing the baselines measuring the breadth of the territorial sea, determined in accordance with the UNLCOS as well as the other outer limits of marine areas and lines of determination, and

²¹ Article 58, UNCLOS.

²² Article 76, paragraph 1, UNCLOS.

²³ Article 121, UNCLOS.

shall deposit a copy of each such chart or lists with the Secretary – General of the United Nations.²⁴

2. Marine environmental protection

The rapid industrialization over the decades has led to increasing wastes and other forms of pollution by various industries. The density of the population, especially in coastal areas, has added to increase the pollution of the marine environment, coastal degradation and the reduction of marine biological biodiversity. Furthermore, the magnitude of the impact of pollution has a trans-boundary effect, requiring the effort of the international community. Many conventions have been ratified by many countries in the world to deal with these issues in order to protect the ocean environment. Some these conventions are now presented, in particular in terms of the obligations of the State Party.

2.1. United Nations Convention on the Law of the Sea

Part XII of UNCLOS has 45 articles divided into 11 sections concerning the rights and duties of all States in the protection and preservation of the marine environment. This indicates that the protection and presentation of the marine environment consider a significant issue, and all States have the duty to protect the ocean environment in general and marine areas within national jurisdiction, in particular to achieve sustainable development.

In the first place, the sovereign right of States to exploit natural resources is connected with the duty to protect and preserve the marine environment.²⁵ All measures consistent with UNCLOS, that are necessary to prevent, reduce and control the pollution of the marine environment from any source, shall be taken by States in accordance with their abilities as well as the harmonization of their policies in this connection.²⁶ Furthermore, while States conduct the activities in their marine areas, they shall take all measures necessary to ensure that their activities do not cause pollution to other States and that pollution arising from incidents negatively affect areas beyond their national jurisdiction.²⁷ Moreover, States have to ensure that while they take measures to prevent, reduce and control pollution of the marine environment

²⁴ Article 16, paragraph 2, UNCLOS.

²⁵ Article 193, UNCLOS.

²⁶ Article 194, paragraph 1, UNCLOS.

²⁷ Article 194, paragraph 2, UNCLOS

UNCLOS also requires States shall take necessary measures to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.³³

Furthermore, the cooperation among States or through competent international organization in studies, research programmes and exchange of information and data acquired about pollution of the marine environment is provided for in the UNCLOS.³⁴

2.2 Other conventions

In the effort to protect and preserve the marine environment, UNCLOS not only provides for the general obligations of States but also relies on other conventions to regulate in more detailed duties of member States to deal with various sources of pollution. The section below presents some of those conventions.³⁵

2.2.1. International Convention for the Prevention of Pollution from Ships

The International Convention for the Prevention of Pollution from Ships (MARPOL) was adopted on 2 November 1973. This is the main international convention providing for prevention of pollution of the marine environment from the operation and accident of ships. The Protocol of 1978 relating to MARPOL, which absorbed the Convention, entered into force on 2 October 1983. As a result of the modification, this instrument is called MARPOL 73/78. In 1997, a Protocol was adopted to amend the Convention and a new Annex VI was added which entered into force on 19 May 2005. Viet Nam ratified this Convention on 29 August 1991 (including Annex I and II).

The Parties of the Convention give effect to the provisions of the Convention and those Annexes to which they are Parties in relation to all ships entitled to fly their flags, and ships not entitled to fly the flag of a Party. These ships include those operating under the authority of a Party except warship, naval auxiliary or other ships owned or operated by a State. The Convention aims to prevent the pollution of the marine environment by the discharge of harmful substances or effluents containing such substances in contravention with the Convention³⁶. The Authorities of the Party of the Convention are in charge of issuing the certification in accordance

³³ UNCLOS, Article 194, paragraph 5.

³⁴ UNCLOS, Article 200.

³⁵ UNCLOS, Article 237.

³⁶

with the regulation of the Convention for the ships flying their flag, which shall be accepted by the other Parties for all purposes covered by the Convention. In addition, the Convention requires not only the ship to hold such certificates, but also be inspected by the Authority at any seaport.³⁷

Furthermore, the Protocol of 1978 includes two Protocols (I and II) providing the obligation of Parties in reports on incidents involving harmful substances and procedures to be followed in Tribunal proceedings. The master or other person being in charge of any ship involved in an incident referred to as discharge of oil or of noxious liquid substances or harmful substances or other serious circumstances by ships shall report the particulars of such an incident without delay to the fullest extent possible in accordance with the provisions of the Protocol³⁸.

The Six Annexes to MARPOL 73/78 covers criteria, standards and measures to be undertaken by ships to prevent the pollution of the marine environment caused by various substances and their discharge from ships. While Annex I covers regulations for the prevention of pollution by oil, Annex II regulates the control of pollution by noxious liquid substances in bulk. Annex III concerns the prevention of pollution by harmful substances carried by sea in a packaged form, and Annex IV, V and VI provide the regulations preventing the pollution caused by sewage, garbage and air pollution from ships respectively.

2.2.2. Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal

Another convention contributing to preventing the pollution of the marine environment, especially trans-boundary movement and their disposal is the Basel Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal (Basel Convention) adopted on 22 March 1989. This Convention was developed to deal with the increased amount of industrial hazardous waste generated and the discharge of such waste, in order to protect human health and the environment including the negative effect to the ocean.

Aware of the risk of damage to human health and the environment caused by hazardous waste and other waste and its trans-boundary movement³⁹, the Basel Convention was adopted on 22 March 1989 in Basel, Switzerland. The main objective of the Basel Convention is to enhance control of trans-boundary movement of hazardous waste and other waste to protect human health

³⁷ MARPOL Convention 1973, art.5

³⁸ Protocol I: Provisions concerning Reports on Incidents Involving Harmful Substances, art I and II.

³⁹

and the environment from the risks arising from the negative impact of such waste. Hazardous waste is defined under the Basel Convention on basis of its composition, characteristics and origin as well. Other waste such as household waste and incinerator ash is also covered in this Convention.

There are various obligations of States in the effort to control the trans-boundary movement of hazardous waste. The definition of hazardous wastes under national legislation in accordance with Annexes I, and II is the first requirement after becoming a Party of the Convention, and has to be informed the Secretariat of the Convention.⁴⁰ States also exercise their rights to prohibit the import and export of hazardous waste or other waste⁴¹. Furthermore, States have duties to take the appropriate measures through bilateral, multilateral and regional cooperation and others to control and manage trans-boundary hazardous waste and other wastes.

2.2.3. Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matters

The ability of the oceans to cope was taken for granted, providing that the waste was dumped sufficiently far from land. By the early 1970s millions of tonnes of waste were being dumped into the oceans each year, and there seemed to be very few controls over how it was carried out. Many countries began to grow concerned about the wisdom of using the sea as an uncontrolled rubbish dump. It was widely felt that something should be done.⁴²

In this regard, international conventions have established the binding obligation for their member state parties. To complement the provisions in UNCLOS under article 210 and 216, the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters (London Convention) contributes to the prevention and control of marine pollution caused by the dumping of waste. This Convention was adopted on 13 November 1972 and entered into force on 30 August 1975, and a Protocol was approved in 1996. Currently, there are 87 State Parties to this Convention and 42 Parties to the Protocol. Viet Nam has been considering ratifying to this Convention for the benefit of its marine environment.

⁴⁰Basel Convention, art.3.

⁴¹Basel Convention, art.4.

⁴² Maritime Knowledge Centre, IMO, Origins of the London Convention, pp1.

“Dumping” under this Convention is defined as the deliberate disposal at sea of waste or other matters from vessels, aircraft, platforms or other man-made structures at sea or the deliberate disposal at sea of vessels, aircraft, platform or other man-made structures.⁴³

The Convention requires Parties to prohibit dumping of any waste or other matter listed in Annex I; the list of waste and other matter in Annex II requires the prior special permission of competent national authorities and the dumping of all other waste or matter requiring a prior general permit. The 1996 Protocol restricts all dumping except for a permitted list (which still require permits).

To carry out dumping, the Contracting Parties should assign an appropriate authority for the issue of permits and keep records of the nature and quantities of all matter permitted to be dumped including the location, time and method of dumping, as well as monitor individually or in collaboration with other Parties and competent international organizations.⁴⁴

In the process of consideration for the issuance of permits for the dumping of matter at sea, the Convention provides criteria, taking into account Annex III. Furthermore, the competent authorities of Parties should keep a register of vessels or aircrafts loading the waste for dumping in their territory or flying their flag⁴⁵.

To implement effectively the prevention and control of the dumping of matter at sea, the Convention promotes each Party in individually or in collaboration with the Organization⁴⁶ and other international bodies to train scientific and technical personnel; the supply of necessary equipment and facilities for research and monitoring; the disposal and treatment of waste and other measures to prevent or mitigate pollution caused by dumping.⁴⁷

seriously decreasing amount of biodiversity on the earth, involving a vast number of marine species. For example, in the South China Sea, around 80% of mangrove bordering the Gulf of Thailand has been lost⁴⁸; in China, in the period 1990-2000, the mangrove area lost was 21,100 ha, an average of 4.71% per year. CBD, which was a result of the United Nations Conference on Environment and Development in Rio de Janeiro Brazil in 1992, is an international binding instrument for the conservation and sustainable use of biological diversity. The Convention was opened for signature on 5 June 1992 at the United Nations Conference on Environment and Development. It entered into force on 29 December 1993, and currently has 193 Parties currently. Viet Nam became a State Party of this Convention on 16 November 1994.

There are three main objectives of the CBD, which are the conservation of biological diversity, the sustainable use of

conservation and sustainable use of biological diversity, where necessary through the appropriate international and national institutions⁵⁵.

In the relationship with UNCLOS, BDC provides Contracting Parties shall implement this Convention with respect to the marine environment consistently with the rights and obligations of States under the law of the sea.⁵⁶

3.2. The United Nations Framework Convention on Climate change

The negative impacts of climate change increase every passing day, such as storms intensifying, the length

change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.⁶⁰

To achieve these objectives, Parties commit to develop, publish and make available national inventories of anthropogenic emissions by sources and removals by sinks of all GHG, and adopt national policies and take corresponding mitigation measures, by protecting, and enhancing greenhouse gas sinks and reservoirs.⁶¹and InoptTo-37 . n an4 603.D0.0005 Tc0.23u-19.0 T5 31

take into account different socio-economic contexts, and cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors.⁶⁵

In terms of cooperation, all Parties, taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances, shall promote and cooperate in scientific, technological, socio-economic and other research, systematic observation and development of data archives related to the climate system. This is intended to further the understanding and to reduce or eliminate the remaining uncertainties regarding the causes, effects, magnitude and timing of climate change and the economic and social consequences of various response strategies. In addition, Parties shall promote and cooperate in the full, open and prompt exchange of relevant scientific, technological, technical, socio-

1. Marine environmental protection

1.1. Marine pollution control - United States of America

The United States of America (USA) has enacted a number of acts to control and prevent all aspects of water pollution, including marine pollution, such as the Clean Water Act (CWA), the Marine Protection, Research, and Sanctuaries Act (MPRSA), the Oil Pollution Act, the Coastal Zone Management Act, the Safe Drinking Water Act, etc. This section analyses three issues: marine pollution control, ocean dumping and coastal zone management.

The Federal Water Pollution Control Act, which was enacted in 1948, is known as the basis of the CWA. In 1972, it was significantly reorganized, expanded and renamed the CWA. The CWA provides for discharges of pollutants into USA waters, and water quality standards. The scope of this Act is to cover USA waters both inland and in marine areas.

The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the USA's waters.⁶⁷ To achieve this objective, the Act provides various tools to control and prevent water pollution. The control of water pollution based on water quality standards is a fundamental approach. The Act provides that the discharge of any pollutant by any person shall be unlawful except if a permit is issued by the competent authorities, according to the Act.⁶⁸ It requires more stringent limitations, including those necessary to meet water quality standards, treatment standards, or schedule of compliance, established pursuant to any State law or regulations.⁶⁹

The Act regulates the effluent limitations of pollutants for categories and classes of point sources, other than publicly owned treatment works, which: (i) shall require application of the best available technology economically achievable for such category or class, which will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, as determined in accordance with regulations issued by the Administrator pursuant to the Act, which such effluent limitations shall require the elimination of discharges of all pollutants if the Administrator finds, on the basis of information available to him, that such elimination is technologically and economically achievable for category or class of point sources as determined in accordance with regulations issued by the Administrator; or (ii) in the case of

⁶⁷CWA, Sec. 101, (a).

⁶⁸CWA, Sec. 301, (a).

⁶⁹CWA, Sec. 301 (b) (C).

the introduction of a pollutant into publicly owned treatment works which meets certain requirements, shall require compliance with any applicable pretreatment requirements and any other requirement under section 307 of the Act.

In order to achieve the objective of this Act, any water quality standard applicable to

esthetics, and recreation which may be expected from the presence of pollutants in any body of water, including ground water; (B) on the concentration and dispersal of pollutants, or their byproducts, through biological, physical, and chemical processes; and (C) on the effects of pollutants on biological community diversity, productivity, and stability, including information on the factors affecting rates of eutrophication and rates of organic and inorganic sedimentation for varying types of receiving waters.

Total maximum daily load is a component of importance in the process of water quality control. In Section 303, (d)(1)(A), the Act requires that each State shall identify those waters within its boundaries for which the effluent limitations required are not stringent enough to implement any water quality standard applicable to such waters. The State shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such waters. Moreover, each State shall establish for the waters identified and in accordance with the priority ranking, the total maximum daily load, for those pollutants, which the Administrator identifies according to the regulation of the Act⁷⁴ as suitable for such calculation. Such load shall be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.⁷⁵

Furthermore, under Section 303, d, (3), for the specific purpose of developing information, each State shall identify all waters within its boundaries which it has not identified and estimate for such waters the total maximum daily load with seasonal variations and margins of safety, for those pollutants which the Administrator identifies under regulation of this Act⁷⁶ as suitable for such calculation and for thermal discharges, at a level that would assure protection and propagation of a balanced indigenous population of fish, shellfish and wildlife.⁷⁷

assess the impact of application's activity to the environment, shall be required considerations of both context and intensity.

In this context "significant impact" means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the local area rather than in the world as a whole. Both short- and long-term effects are relevant.⁷⁸

In term of intensity, this refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity: (1) Impacts that may be both beneficial and adverse; a significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial; (2) The degree to which the proposed action affects public health or safety; (3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas; (4) The degree to which the effects on the quality of the human environment are likely to be highly controversial; (5) The degr

1.2. Ocean dumping – United States of America

The CWA and the MPRSA are two USA acts regulating the dumping of pollutants into marine areas. Section 404 of the CWA provides for permits for dredged or fill material into navigable waters⁷⁹ at specified disposal sites, and its scope is to cover territorial sea and inland waters. MPRSA regulates (1) the transportation by

Concerning the materials for dumping, any material transported into the United States ocean waters for the purpose of dumping is prohibited, except material authorized by a permit complying with the provisions of the Act⁸⁴. In relation to radiological, chemical, and biological warfare agents, high-level radioactive waste, and medical waste, no permit may be issued⁸⁵. Other materials may have a permit for dumping, except dredged spoils material.⁸⁶

Areas for consideration of dumping sites in US ocean waters are waters of the open seas lying seaward of the base line from which the territorial sea is measured, as provided for in the Convention on the Territorial Sea and the Contiguous.

The Federal Agencies responsible for the implementation of the Act are the Environmental Protection Agency (EPA), the U.S. Army Corps of Engineers, and the Coast Guard:

The Administrator of EPA may issue permits for the dumping of materials, after notice and opportunity for public hearings, an

exploitation; in designating recommended sites.

Designation of dumping sites for certain materials is another duty of the EPA. In conjunction with the Secretary⁸⁷, the EPA shall develop a site management plan for each site designated based on the conditions of MPRSA. In the case of dredged material disposal sites, the Administrator, in conjunction with the Secretary, shall develop a site management plan for each site designated pursuant to this section. Such plans shall include, but not be limited to: a baseline assessment of conditions at the site; a program for monitoring the site; special management conditions or practices to be implemented at each site that are necessary for protection of the environment; consideration of the quantity of the material to be disposed of at the site, and the presence, nature, and bioavailability of the contaminants in the material; consideration of the anticipated use of the site over the long term, including the anticipated closure date for the site, if applicable, and any need for management of the site after the closure of the site; and a schedule for review and revision of the plan (which shall not be reviewed and revised less frequently than 10 years after adoption of the plan, and every 10 years thereafter).⁸⁸

The Secretary has the same authority to issue a permit like the Administrator. However, prior to issuing a permit, the Secretary shall first show the Admi

schedule for review and revision of the plan shall not be more than 10 years after the adoption of

degraded that many were unable to support aquatic life. Passage of the Coastal Zone Management Act focused attention on eradicating the major sources of water pollution.

Federal officials felt local and State control was the best way to correct pollution problems and environmental hazards. Therefore, the Act intentionally altered the balance between the Federal Government and the States, giving the power to the States.⁹⁵

USA Congress adopted the Coastal Zone Management Act (CZMA) in October 27, 1972 (Public Law 92-583, 16 U.S.C. 1451-1456). The Act has been amended eight times. Realizing the importance of as well as the threats to coastal zones, the Congress found and declared the national policy, with the goal to preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for present and succeeding generations; to encourage and assist the States to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone, giving full consideration to ecological, cultural, historic, and esthetic values, as well as the needs for compatible economic development; and to encourage the preparation of special area management plans, the participation and cooperation with and among the appropriate Federal, State and local agencies, and international organization.⁹⁶

The establishment and implementation of management program at State level is a core content of coastal zone management. The Section 305 requires any coastal State, which has completed the development of its management

⁹⁷ for review and approval.

with local governments, interstate agencies, regional agencies, and areawide agencies within the coastal zone to assure the full participation of those local governments and agencies in carrying out the purposes of the Act; except that the Secretary shall

protect the marine environment. It is designed to assist States in taking actions individually or jointly within their respective policies, priorities and resources, which will lead to the prevention, reduction, control and/or elimination of the degradat

health of the marine system. It affects ecological processes, public health and social and commercial use of marine resources¹⁰⁵.

There are some main challenges in Australia in terms of land – based activities damaging the marine environment. Australia’s coastal zone is approximately 36,000 kilometres long. More than 86 per cent of the Australian population now live within 50 kilometres of the coast and many millions of Australians and international tourists visit coastal areas regularly. Currently, about a quarter of Australia’s population lives on the coast outside capital cities where the population growth is currently 60 per cent above the national average¹⁰⁶.

Furthermore, catchment degradation, for example, the majority of the Western Port catchment in Victoria’s south, is used for irrigated pasture and intensive horticulture. Drains have been constructed and mangroves removed to reclaim land for farming. As a result, increased sedimentation and high turbidity along with inputs of nutrients, herbicides and pesticides have been associated with a loss of 70 per cent of sea-grass cover in the Western Port since the 1970s.¹⁰⁷ In addition, the coastal development and industrial development pose a significant risk to the marine environment.

To cope with this problem, Australia’s National Programme of Action for the Protection of the Marine Environment from Land-based Activities (Australia’s NPA) was issued in 1995. The NPA clarifies challenges for Australia such as catchment degradation, coastal development causing a wide variety of pollutants, industrial development concentrated on the coastline leading to a high level of metal pollution¹⁰⁸. From these, the NPA defines Australia’s actions to address land based activities.

Firstly, Australia’s collective response to the challenges posed by land-based sources of marine pollution, endorsed by the Council of the Australian Government’s Natural Resource Management Ministerial Council, is categorised into 5 levels at national scale, bilateral scale, single jurisdiction scale, local

Small Island Developing States and Countries which include islands take action in different ways to retain healthy habitats as well as marine biodiversity. While some countries include this in their policy of coastal areas, in some case studies, islands have separate policies due to their characteristics. This section presents the experience of China and the Republic of Korea in the area of protection of marine biodiversity for sustainable development, especially uninhabited islands.

2.1. China

To protect the biological diversity and environment of islands, China approved the Island Protection Law in 2009 (China Island Protection Law). This Law focuses on protecting the ecosystems of islands and their surrounding waters, rationally developing and exploiting the natural resources of islands, and promoting sustainable economic and social development¹¹³. An island defined under this Law is a naturally formed area of land, surrounded by water, which is above water at high tide, including inhabited and uninhabited islands. Beside the general provisions for management of both inhabited and uninhabited islands, there is a specific management mechanism to protect the ecosystems of uninhabited islands.

The sustainable development and protection of the ecosystem of islands is regulated as a principle, and is the responsibility of all levels of authority.¹¹⁴ Enhancing the awareness of the public as well as competent authorities in this work is considered an important factor. Furthermore, the Island Protection Planning is a key element in order to protect the ecosystem and develop sustainably in terms of economics, based on the principle of advantages for the ecosystem of islands and waters surrounding. Elements such as natural resources and environment status shall be taken into account during the process of the Planning. The engagement of the public in the planning is also regulated in this law, which requires the involvement of the public ideas before promulgating.¹¹⁵ This planning is the foundation for all decisions concerning exploitation and protection of ecosystems of islands.¹¹⁶

In addition, this Law regulates the establishment and management of the database of islands as well as conducting investigation and assessment of natural resources of islands is

¹¹³ China Island Protection Law, art.1.

¹¹⁴China Island Protection Law, art.3.

¹¹⁵China Island Protection Law, art.8.

¹¹⁶China Island Protection Law, art 11, 12.

regulated by. To ensure the effective management, the Law regulates also the inventory and the name of islands.¹¹⁷

In terms of biodiversity conservation of islands, the States prohibit some activities damaging the ecosystem such as exploiting coral reef and sea-grass, cutting mangrove forests. Furthermore, the State encourages people to bring benefits to the ecosystem like fresh water resources preservation and scientific research¹¹⁸.

In virtue of the characteristics of uninhabited islands, the Law regulates specific provisions to protect and manage natural resources and the environment. The jurisdiction over management of uninhabited islands under the Chinese marine areas lies with the State, in particular the State Oceanic Administration.¹¹⁹The use of natural resources of uninhabited islands is strictly managed. All activities on these islands require permits from competent authorities, which is conformity with the Planning. Waste arising from the use of uninhabited islands requires treatment before discharging into the environment.¹²⁰

in 2006 as a part of a national eco-network across the Korean Peninsula to maintain the connectedness of ecological patches.

To preserve the natural ecosystem of such islands, South Korea has investigated and assessed the characteristics of islands. Ecological surveys were carried out on 705 out of 2,700 islands from 1998 to 2006. As a result, the government selected 158 islands (10.125) with outstanding ecology as Special Islands adding 47 islands in 2000, 79 in 2002, 9 in 2003, 18 in 2004, and 5 in 2007 respectively. As for the regional distribution, Jeollanam-do Province that prides itself on having the largest number of islands in Korea including uninhabited islands, registered 60 Special Islands followed by Gyeongsangnam-do Province and Incheon.¹²¹

Therefore, there are 158 Special Islands, including Dokdo, designated and managed based on the Specific Act on Ecosystem Preservation in the Island Areas Including Dokdo. South Korea approved this Act on 28 July, 2011. The main aim of this Act is to preserve the natural environment including various natural ecosystems, topography or geology of specific islands in order for the entire nation to live a healthy and pleasant life in a clean natural environment in the present and in the future.¹²²

Special islands under the Act are the uninhabited islands and islands with limited residents where the natural ecosystem, landscape and geology are unique and worthy of protection¹²³. The Act authorizes the Ministry of the Environment to designate special islands based on criterion such as islands having an excellent in natural landscape; necessary for the preservation of water resources, fossils, rare animals/plants, endangered species, and other indigenous species of Korea; worthy of preservation as a habitat or destination of wild animals; ecological importance as a natural forest. Meanwhile, to carry out this work, the Minister of the Environment shall consult with the head of the relevant central administrative agency and the head of the city/governor, who has jurisdiction over the island. The Ministry of the Environment consultation with such agencies and consistent with the Act has the right to cancel or reduce the designation of a specific island.¹²⁴

¹²¹See at: http://www.paforum.or.kr/area/area.html?cate_idx=31

¹²²Specific Act on Ecosystem Preservation in the Island Areas Including Dokdo, Art 1.

¹²³Specific Act on Ecosystem Preservation in the Island Areas Including Dokdo, art 2, par 1.

¹²⁴Specific Act on Ecosystem Preservation in the Island Areas Including Dokdo, art 4.

To achieve the aim of the Act, the Ministry of the Environment, consulting with the head of the relevant central administrative agency, shall establish a Basic Plan for preserving specific islands every 10 years. The Basic Plan shall include the basic direction for the preservation of the natural ecosystem and matters pertaining to the preservation of the natural ecosystem.¹²⁵

Furthermore, preliminary and in-depth investigation is an important duty of the Ministry, which supplies basic information for the designation of special islands, in addition to the establishment of the Basic Plan.¹²⁶

The Act also provides for the restricted activities, permitted activities and the activities banned in special circumstances. The restricted activities can damage the natural ecosystem of special islands. They are the creation or extension of buildings or structures; cultivation, reclamation, or dredging; construction of a housing site, change of land character, and division of land; reclamation of public water surface; lumbering or destruction of e

that a climate policy that mainstreams the ICM framework through risk assessment, contingency plans and integrated land and sea use planning is timely. Integrated Environmental Impact Assessments are also now more relevant, given that knowledge of cumulative impacts of development and proper land and coastal use planning can be integrated into risk reduction. A network of marine protected areas (MPAs) under an ICM governance framework can promote ecological resiliency, protect biodiversity and decrease social vulnerabilities¹²⁹.

Australia is a stark example of the application of ICM, as one of the important tools to adapt with climate change.

“Planning for climate change will change how we run our businesses, government agencies and other organisations. The Australian government is increasing its focus on adaptation – one of the three pillars of its comprehensive climate change strategy. The Council of Australian Governments agreed to the National Climate Change Adaption Framework in April 2007”.¹³⁰The promotion of all sectors and scales in th

For this reason, the goals of the Framework move forward the comprehensive mechanism from the development, implementation, reviewing policies, strategies, including regulation of the involvement of local communities and capacity building.

The strategies and actions under the Framework define two priority areas for potential action, including building understanding and adaptive capacity and reducing vulnerability in key sectors and regions. In the second priority area, the coastal region is one of eight areas focused on. In this area, it indicates that the coastal zone is vulnerable to sea level sea surface temperature, increased storm intensity and frequency, ocean acidification and changes to rainfall, run-off, wave size and direction and ocean currents. In its actions, the Framework for a National Cooperative Approach to Integrated Coastal Zone Management adopted by the Natural Resource Management Ministerial Council has a strong focus on climate change. In particular, it assigns priority for an integrated and coordinated national assessment of the vulnerability of Australia's coastal system to climate change, involving all jurisdictions and major sectors¹³³.

In order to serve for adapting to climate change, many actions are required. This will include measures to: develop and implement a national OzCoasts Portal – a one-stop-shop, web-based system of information, maps, tools and products related to the coast and climate change; map national geomorphology and ecosystem information on the high resolution Digital Elevation Model for Australia; identify and address priority knowledge gaps required to progress with the national coasuirw[(req0.00k3-30.84ai084q0.00k0.0l[(anliof i2eec)4.8liof i2;)Tj 0 Tcidificati;0 TDso6 Tc0.03p

assessment of the risks of climate change for the whole of Australia's coastal zone. The objectives of the "first pass" national coastal risk assessment are to: provide an initial assessment of the future implications of climate change for nationally significant aspects of Australia's coast, with a particular focus on coastal settlements and ecosystem; identify areas at high risk to climate change impacts; identify key barriers or impediments that hinder effective responses to minimize the impacts of climate change in the coastal zone; help identify national priorities for adaptation to reduce climate change risk in the coastal zone. The assessment focuses on risks to settlements and infrastructure, ecosystems and industries in the coastal zone.¹³⁵

To supply the "first pass" national assessment, an assessment on Climate Change Risks to Coastal Buildings and Infrastructure was conducted in 2011 to supply the analysis presented in the Climate Change Risks to Australia's Coasts report. It provides additional data on the exposure of commercial buildings, light industrial buildings, and transport systems.¹³⁶

¹³⁵ Climate Change Risks to Australia's Coast, Department of Climate Change, Australian Government, www.climatechange.gov.au/climate-change/adapting-climate-change/australias-coasts-and-climate-change/coastal-risks-0/climate

¹³⁶Climate Change Risks to Coastal Buildings and Infras

Concerning the marine area of the surrounding islands and archipelago, which forms an integral part of the Viet Nameese territory and which are located beyond the Viet Nameese territorial sea, the Declaration provides that they have their own territorial sea, contiguous zone, exclusive economic zone and continental shelf.

Following is the text of the Declaration of the Government of the Socialist Republic of Viet Nam of 12 November 1982 establishing the straight baseline system. The baseline used to measure the width of the territorial waters of the continental part of Viet Nam is constituted by straight lines linking the points, the coordinates of which are mentioned in the following table.

Table 2. Viet Nam straight baseline system

VIET NAM STRAIGHT BASELINE SYSTEM			
POINT	GEOGRAPHIC NAMES	LATITUDE NORTH	LONGITUDE EAST
0	On the southwestern demarcation line of historic waters of the S.R.V. and the P.R. of Kampuchea		
A.1	At Hon Nhan Island, Tho Chu Archipelago, Kien Gian Province	09°15.0'	103°27.0'
A.2	At Hon Da Island southeast of Hon Khoai Island, Minh Hai Province	08°22.8'	104°52.4'
A.3	At Tai Lon Islet, Con Dao Islet in Con Dao-Vung Tau Special Sector	08°37.8'	106°37.5'
A.4	At Bong Lai Islet, Con Dao Islet	08°38'9"	106°40.3'
A.5	At Bay Canh Islet, Con Dao Islet	08°39.7'	106°42.1'
A.6	At Hon Hai Islet (Phu Qui group of Islands), Thuan Hai Province	09°58.0'	109°05.0'
A.7	At Hon Doi Islet, Thuan Hai Province	12°39.0'	109°28.0'
A.8	At Dai Lanh point, Phu Khanh Province	12°53.8'	109°27.2'
A.9	At Ong Can Islet, Phu Khanh Province	13°54.0'	109°21.0'
A.10	At Ly Son Islet, Nghia Binh Province	15°23.1'	109°09.0'
A.11	At Con Co Island, Binh Tri Thien Province	17°10.0'	107°20.6'

The vertical surface running along the border of the territorial seas referred to in Paragraph 1 of this Article shall delimit the air spaces, seabeds, and subsoils of the two countries' territorial seas.¹³⁸

In June 2003, Viet Nam and Indonesia signed an Agreement on the delimitation of the marine boundary of the continental shelf; the two sides will continue further negotiations to delimit the boundary of the exclusive economic zones that overlap.

Furthermore, having agreements with other countries on other overlapping marine areas, Viet Nam agreed to conduct an exploration and exploitation of the natural resources in these areas, such as between Viet Nam and Malaysia, and Viet Nam, Thailand and Malaysia. In the historic water between Viet Nam and Cambodia, two parties agreed this area as a common exploitation area under the Agreement signed on 7 July in 1982.

2. Marine environmental protection

The environment in general and marine environment in particular in Viet Nam is a serious problem, which requires the effort of preventing and controlling increased pollution. Together with the international community, Viet Nam ratified a number of conventions concerning the environmental protection such as the UNLCOS, the MARPOL 73/78 in 1991, only Annexes I and II, Protocol of 1992 to amend the International Convention on Civil Liability for Oil Pollution Damage (CLC), 1969, International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001, etc.

The Viet Nam National Assembly approved the first Law on Environmental Protection being specific in this area in 1993. At the same time, the rapid development of industries, especially in coastal provinces and the increased population have fostered the pressure to the environment. The Law in this area was amended and complemented in 2005, and now is amending and complementing the change in the development of the socio-economy, in addition to the growth of various sources leading to the polluted environment in general, and marine environment in particular. The marine environmental protection has regulated firstly the Law on Environmental Protection in 2005, which indicates the change in the awareness of the decision-

¹³⁸ Agreement between the Socialist Republic of Viet Nam and the People's Republic of China on the Delimitation of the Territorial Sea, Exclusive Eco

maker as well as the public on the pollution of the marine environment. Based on this Law, other sector Laws concerning the use of marine natural resources have paid attention to the marine environment. Recently, the launch of the Viet Nameese Law on Sea supports more the direction and principles in the protection of the marine environment.

2.1. Land – based sources and pollution from atmosphere

The Law on Environmental Protection was approved by the Viet Nam National Assembly in 2005. This Law is considered as a legal framework to control, prevent and protect the environment in all aspects and from all sources causing pollution. This Law encourages all activities not to harm the environment. In general, to protect the environment from the beginning of activities bringing with them the potential pollution, various standards of waste are created based on this Law. Furthermore, strategies, planning and plans, which are related to national and regional economic – social development such as National socio-economic development strategies, planning for land use, forest protection and development, shall be subject to strategic environmental assessment reports. In addition, entities, which conduct projects of national importance, shall elaborate on the environmental impact assessment reports, while other entities having business activities shall oblige to make

Viet Nam Law on Water Resource¹⁴² was enacted to contribute to prevent marine pollution from the land. One of the prohibited acts in the exploitation and exploration of natural resources is to discharge waste, to discharge or cause the leak of hazardous substances into water resources.¹⁴³ Meanwhile, waste from the rivers is also controlled and prevented under this Law, which shall be investigated, taken statistically, assessed and solutions taken to control before disposing into the rivers. The implementation of this act includes the local authorities who have rights to manage this area.¹⁴⁴ All waste arising from the activities on land, coastal area and islands shall be treated before disposing into the sea.¹⁴⁵

In the context of the marine pollution from the atmosphere, emitting smoke, dust or gases with toxic substances or odor into the air; dispensing radiation, radioactivity and ionized substances at levels in excess of permitted environmental standards are acts prohibited under the Law on Environmental Protection. In order to control air pollution, periodically taking samples for analysis and forecast of changes in air quality is in the environmental monitoring program. Provincial authorities play an important role in the process of controlling air pollution in their annual reports on status and changes in the quality of air environment, and provide information for decision-makers.¹⁴⁶ The State encourages production, business and service establishments to minimize greenhouse gas emissions.¹⁴⁷

Furthermore, all seagoing vessels must have seagoing-vessel registration certificates, certificates of marine navigation safety, marine navigation security and prevention of environmental pollution according to the provisions of Viet Nameese law and treaties to Viet Nam is a contracting party. Certificates concerning environmental pollution include environmental standards of emission of the vessels.¹⁴⁸

2.2 Pollution from maritime and sea-bed activities

While the Law on Environmental Protection provides for principles in the control and prevention of pollution from maritime activities, other Laws stipulate more detail. Under the

¹⁴² Viet Nam Law on Water Resources was approved by the National Assembly on 21 June 2012.

¹⁴³ Viet Nam Law on Water Resources, art.9.

¹⁴⁴ Viet Nam Law on Water Resources, art.60 and 61.

¹⁴⁵ Viet Nam Law on Water Resources, art.34.

¹⁴⁶ Viet Nam Law on Environmental Protection, art 7, 97and 99.

¹⁴⁷ Viet Nam Law on Environmental Protection, art 84.

¹⁴⁸ Viet Nam Maritime Code, art 26.

Law on Environmental Protection, waste and other contaminants from marine production, service, construction, transport and exploitation activities must be controlled and treated to meet environmental standards. Oil, gas, drilling solutions, chemicals and other toxic substances used in exploration and exploitation of the marine resource must be collected and stored in specialized equipment and be treated according to hazardous waste management regulations¹⁴⁹

establishment processing, which have not yet been treated or have been treated improperly, into the surrounding environment, is prohibited.¹⁵⁶ The conditions for aquaculture are controlled to meet environmental standards. Individuals or organizations conducting aquaculture shall be in conformity with regulations concerning protection of the environment.¹⁵⁷ Fishing ships being new or renewed subject to registry shall obtain the permission of competent State bodies with all

Trans-boundary waste movement is strictly controlled and prevented under the Law on Environmental Protection. Import and transit of goods, machinery, equipment, means, raw materials, fuels, chemicals and goods shall meet environmental standards. Import of machinery, equipment and means failing to meet environmental standards; used machinery, equipment and means of transport for dismantlement; raw materials, fuels, materials, chemicals and goods on the list of goods are banned. Machinery, equipment and means affected by radioactive substances or pathological microbes or other poisons not yet cleaned or unable to be cleaned; foodstuffs, medicines, animal and plant protection drugs, that have expired or fail to meet food quality, hygiene and safety standards do not have a permit to be imported to Viet Nam. In case of machinery, equipment, means, raw materials, fuels, chemicals or goods that are imported but do not meet the above requirement, their owners must re-export, destroy or dispose of them in accordance with the provisions of law on waste

technologies and equipment for reprocessing and reuse of scraps, meeting environmental standards.

Organizations and individuals importing scraps

Furthermore, response levels of oil spills are divided into the local, regional and national level based on the scope of each spill. Fostering the human resources for the response of oil spill as well as finance is also stipulated in this Decision.

Section B. The current legal and policy framework on biodiversity conservation, climate change, integrated coastal management and islands in Viet Nam

1. Biodiversity conservation

To implement its obligations as a Party to the CBD, as well as conserve and sustainably use its biological diversity in the context of many species in Viet Nam being extinct or in danger, the Viet Nameese National Assembly enacted the Law on Biodiversity in 2008. There is a comprehensive legal framework with the main issues concerning biodiversity such as ecosystem, species and genetic resources. Although this Law has no mention of marine biodiversity in detailed regulations, this issue is in the scope of almost all the provisions in general.

Under the Law, core policies build up. There are priorities on important ecosystems, species in danger, along with genetic resources being effectively managed. The deciding factors to implement effectively the provisions of this Law are State policies in ensuring financial resources for carrying out the basic investigation, monitoring, statistics and building a database of biodiversity, and activities in the progress of conservation of biodiversity such as planning and facilities for protected areas. Ensuring the finance for the participation of local communities in the process of developing and implementing the planning for biodiversity conservation is a further step to meeting the content of CDB. They play an important role in the conservation of biodiversity. The success of new legislations or policies depends on the close coordination of local communities. This provides the basis to achieve the target of the Law.¹⁶⁵

A number of provisions focus on each aspect of biodiversity. To conserve biological diversity, the development of National Biodiversity Conservation Planning is the first step in the process, based on all aspects of biodiversity such as the status of species and ecosystem and its impacts including the demand for social-economic development and the environment.¹⁶⁶

¹⁶⁵ Law on Biodiversity, art 5.

¹⁶⁶ Law on Biodiversity, art 8.

According to National Biodiversity Conservation Planning, to further protect and conserve ecosystems, provincial governmental authorities build Biodiversity Conservation Planning at their level. In addition, various forms of protected areas are classified and established based on this Law. They are National Parks, Natural Reserves, Species/Habitat Preservation Areas, Landscape Conservation Areas with more detailed rights and obligations of governmental agencies and related entities from the building to the implementation.¹⁶⁷ Wetlands containing a rich ecosystem are also taken into account in this Law¹⁶⁸.

The endangered, valuable and rare species are listed in this Law, to contribute to preserve the biodiversity in general and marine ecosystem in particular. The investigation, statistics and management in export and import, along with the improved status of these species are strictly managed.¹⁶⁹

The management of genetic resources accounts for a considerable part of this Law. There are a series of measures to manage and preserve genetic resources, including marine genetic resources, such as the responsibilities of individuals, organizations, governmental agencies in the management of genetic resources; investigation, collection, assessment, supply and management of genetic resources database and the use and sharing of genetic resources¹⁷⁰.

Concerning access to genetic resources, the Law requires State policies to give priority to ensure control of access to genetic resources.¹⁷¹ Conservation zone management units, organizations and individuals carrying out lawful activities in conservation zones have rights to enjoy benefits from the access to genetic resources within the conservation zone.¹⁷² The Law also regulates the establishment of facilities to store and preserve genetic resources and genetic specimens.¹⁷³

In terms of marine protected areas (MPAs), the Law on Fisheries also addresses this issue. Planning and managing MPAs is the main content of this Law. On the basis of the typical

¹⁶⁷Law on Biodiversity, art 16.

¹⁶⁸Law on Biodiversity, art 35.

¹⁶⁹ Law on Biodiversity, chapter IV01 T3 IVs Tm-48 0 nsibili-n-27.5is the m

degree of biodiversity according to national and international standards, MPAs shall be classified into national parks; species and biotope conservation zones; and natural aquatic resource reservation zone.¹⁷⁴ To detail this regulation, the Government promulgated DecreeNo.57/2008/ND-CP on 02 May, 2008, issuing the Regulation on Management of Viet Nam MPAs, which is important at national and international level. The Decree focuses on: the criteria for various types of MPAs; spatial zoning of MPAs; the functions of management agencies of MPAs; the participation of local communities in protection and development of MPAs; the financial mechanism established to ensure the building and implementation of MPAs.

Based on the legal framework, the MPAs system has been established. The Prime Minister promulgated Decision No.742/QD-TTg dated on 26 May 2010 on Master Planning for Viet Nam MPAs System forward to 2020. This Decision provides for the establishment of an MPA system to protect the marine ecosystem and aquatic species bringing with them the economic and scientific value, contributing marine economic development, and improving the livelihood of local communities on the coast. Sixteen MPAs will be established over the period of 5 years from 2010 to 2015. In 2015, at least 0.24% of Viet Nam waters will be MPAs and about 30% of each MPA strictly protected. In the next 5 years, a new MPAs system will be proposed. Up to now, there have been four MPAs established. They are Nha Trang Bay, Cu Lao Cham Island, Phu Quoc Island and Con Co Island¹⁷⁵.

Table. 3 The list of MPAs of Viet Nam planned to be established up to 2015¹⁷⁶

No.	Name of MPA/name of province	Total area (ha)	Marine areas (ha)
1	Tran Island/ Quang Ninh province	4,200	3,900
2	Coto Island/Quang Ninh province	7,850	4,000
3	Bach Long Vi Island/Hai Phong province	20,700	10,900
4	Cat Ba Island/Hai Phong province	20,700	10.900
5	Hon Me/Thanh Hoa province	6,700	6,200

6	Con Co Island/Quang Tri province	2,490	2,140
7	Hai Van – Son Tra/ Da Nang province	17,039	7,626
8	Cu Lao Cham/ Quang Nam province	8,265	6,716
9	Ly Son Island/ Quang Ngai province	7,925	7,113
10	Nam Yet/ Khanh Hoa province	35,000	20,000
11	Nha Trang gulf/ Khanh Hoa province	15,000	12,000
12	Nui Chua/ Ninh Thuan province	29,865	7,352
13	Phu Quy island/Binh Thuan province	18,980	16,680
14	Hon Cau/Binh Thuan province	12,500	12,390
15	Con Dao Island/Ba Ria – Vung Tau province	29,400	23,000
16	Phu Quoc Island/Kien Giang province	33,657	18,700

2. Climate change adaptation

Viet Nam ratified the UNFCCC on 16 November 1994 and the Kyoto Protocol in September 2002. The Government authorized the Ministry of Natural Resources and Environment to implement obligations of Viet Nam as a Party of this Convention and Protocol.

Since becoming a Member of the UNFCCC, Viet Nam has taken a series of actions to implement its commitments to deal with this issue.

Strategy on Climate Change

e8(ce)14.2

The milestone in this progress is the adoption by the Prime Minister of the National Strategy on Climate Change via Decision No.2139/QĐ-TTg, dated on 5 December 2011. The target of the strategy is to ensure food security, energy security, water resources, enhance living standards, etc, in the context of climate change; reduction of amount of greenhouse gas, climate change adaptation; raising public awareness. The strategy creates a number of actions comprehensively to respond to climate change. In terms of sea level rise adaptation, the actions are to build early warning systems, reduce the damage as a result of natural disasters, such as building plans to adapt to the severe weather conditions, build protective structures to reduce the damage from hazards. The adaptation of climate change, especially sea level rise in vulnerable areas and islands such as developing infrastructures and warn21.69pap

including 3 projects assessing the level of climate change and sea level rise; establishing and implementing action plans; conducting case studies in some provinces and capacity building and outreach.

A Climate Change Scenario was created in 2009 and reviewed frequently, the latest version being in 2012. The Scenario presents an overview of the trend of climate change on the planet, the current status and a prediction of climate change impact in all aspects of the country. The sea level rise and its effect on low-lying areas in the coastal province is dominant together with the natural disasters.

Legal framework

Drafting a Law on Climate Change, which is in progress, is one part of the Action Plan. Furthermore, Law on Environmental Protection, which is amending and complementing, requires the consideration of climate and the development of socio-economic development strategy and planning.

3. Integrated coastal management and Island governance

3.1. Integrated coastal management

The first legal document related to marine integrated management is DecreeNo.25/2009/ND-CP approved by the Government dated on 6 March, 2009 on the Integrated Management of Marine Resources and Environmental Protection of Seas and Islands, which provides for vital tools such as Marine Spatial Planning, Programme and Plans of Integrated Coastal Management (ICM).

To conduct the ICM effectively, the Prime Minister ratid1mental P25/2273tini0(A C11ini0[(Decriion

assessment of their potentiality. The result of these projects is subject to developing a database of marine resources and the environment.

- Prime Minister Decision approved No.158/2007/QĐ-TTg dated on 9 October 2007, an integrated management Program of North Coast and Central Coast of Viet Nam until 2010 and with a vision to 2020. According to this Program, coastal provinces in North and Central Viet Nam are supported financially to conduct ICM in areas under their jurisdiction.¹⁷⁷ Based on the result of the Program, the Prime Minister will consider the second phase of the Program, which will apply to the whole country.¹⁷⁸

3.2 Island governance

The National Assembly and the Government have paid attention to the economic development of islands. Policies and projects to reduce poverty and improve living condition are approved by the documents of the Government. In addition, to exploit the potential benefits of natural resources of islands and their beauty, besides the disadvantage arising from the remote location and lower infrastructures, the State encourages investment by individuals and organizations through tax policies or advantaged conditions in laws¹⁷⁹ for investors to favour the islands over other locations.

Furthermore, a sound policy for inhabited islands is the Economic Development Planning of Viet Nameese Islands to 2020 under Decision No.568/QĐ-TTg of the Prime Minister dated on 28 April 2010. Its objective is to develop quickly and effectively in terms of the economics of islands to contribute to national security protection. The directions of the Planning is to focus on the economic development of islands such as building infrastructure to attract the investors; develop energy, especially renewable energy for remote islands; develop the water supply and irrigation systems; telecommunications; education, medical. The area is to focus on fisheries, tourism, services for fisheries, navigation, especially big islands. Directions in the environmental protection and response to climate change such as building structures to prevent the damage as a result of climate change, etc, is found in this Planning.

¹⁷⁷The jurisdiction of coastal provinces to conduct ICM is limited from the coastal line to 12 nautical miles.

¹⁷⁸Twenty eight coastal provinces in total in Viet Nam.

¹⁷⁹ Law on Investment in ; Law on Fisheries in; Law on Enterprise – give more detailed

In addition, the Law on Viet Nam Sea in 2010 regulates islands in the aspect of encouraging investment of individuals and organizations for economic development of islands. The State provides investors, who conduct their business on islands, with priority conditions such as reduction of tax and supporting capital via loans with a low interest. The other laws such as Law on Land, Law on Environmental Protection, Law on Building, Law on Biodiversity in their scope cover islands in general.

PART 2. SHORTCOMINGS, CHALLENGES AND RECOMMENDATIONS FOR COHERENT LEGAL AND POLICY FRAMEWORK IN VIET NAM

Chapter 1. Shortcomings and challenges of coastal area and island governance in Viet Nam

Section A. Claim on marine areas and marine environmental protection

1. Claim on marine areas

Viet Nam identified a straight baseline in 1982. This baseline is to measure marine zones under the jurisdiction of Viet Nam. The territorial sea, contiguous zone, exclusive economic zone, and continental shelf were identified in conformity with UNCLOS.

There are 11 points on the straight baseline, which do not cover whole coastline. In the Tokin Gulf, Viet Nam and China had an Agreement delimitating the marine boundary of two countries. However, until now, Viet Nam has not drawn the baseline in this Gulf to establish the other zones to implement UNCLOS. The waters overlapping between Viet Nam and China beyond the Tokin Gulf have not been agreed. Further, Cambodia Gulf is a historic gulf. Two countries agreed to delimit the islands under the sovereignty of each country. However, maritime boundary of two countries has not had any agreement.

In terms of islands, Viet Nam declared the waters surrounding the islands and archipelagos under the Viet Nam sovereignty in the Declaration of 1977. Under this Declaration, islands and archipelagos beyond the territorial seas have their own marine areas such as territorial seas, contiguous zone, exclusive economic zone and continental shelf with the same width as waters of the mainland. Rocks do not have exclusive economic zone or continental shelf accordance with the provisions of UNCLOS. However, Viet Nam adopted only one document concerning baselines, Declaration of 1982. This Declaration does not mention the waters of islands.

Firstly, identifying the baselines to measure the width of the other maritime zones is the basis for Viet Nam to exercise the rights and obligations over various areas. Furthermore, to show on charts or geographical co-ordinates and deposit a copy with the Secretary – General of the UN is an obligation of Viet Nam being a Party to UNCLOS. Having the planning to draw the baseline and other zones is necessary to show the commitment of Viet Nam as well as to exercise

general, each sector holds their figures, but a database containing all figures is lacking. This leads to a lack of direction from the decision makers.

Furthermore, there is a poor monitoring system in the large marine area. Currently there are only a few monitoring stations in a one million km square marine area. The assessment of marine pollution is based on limited figures, leading to a slow or no response.

In addition, in aspects of environmental quality assessment, the Law on Environmental Protection only represents the group of environmental standards of coastal seawater for aquaculture, entertainment, recreation and other purposes. In other marine areas, the environmental quality assessment has not been created. Meanwhile, each sector has their own regulations to prevent and control the environment. Therefore, the common marine environment as well as the solutions to the marine environment pollution is not managed by any regulations or authorities.

2.2. Land – based sources

In the Law on Environmental Protection, there are some provisions to manage, prevent and control waste from activities on land such as sources from agriculture, aquaculture, urban, rural areas, industrial zone and so on. However, the waste from all such activities is serious, and damages the coastal environment. According to the National Environmental Reports in 2010, the total inorganic fertilizer for agriculture was estimated around 2.5 – 3 million tonnes per year, 50-70% among them disposing into the environment; only 66% of companies in the industry zone have sewage treatment. It is estimated that 70% out of one million cubic metres per day go into the canals without treating, which cause pollution 1.5-3 times the environmental quality standard in some rivers cutting across such zones; the coliform in such sewage being very high in some places over 4,500 to 210,000 times the normal level.

These potential land-based sources are extremely damaging to the environment of coastal areas in Viet Nam. Current legal and policy documents reveal the limit in prevention and control of land – based sources, while the coastal area is vulnerable and consists of high marine biodiversity. This area contains the wetland areas, a nursery for aquatic resources as well as the livelihood of local communities.

The current legal framework relating to preventing and controlling the land-based sources depends on the effective implementation of the Law on Environmental Protection, while land – based sources contribute the biggest amount of sources causing the marine pollution.

2.3. Dumping at sea

With long coastlines and bays, Viet Nam has a good condition to develop seaports. There are about 170 seaports in Viet Nam now.¹⁸¹ The speed of seaport development is 6% per year and the amount of cargo is increasing 15% per year, while the infrastructure as well as the facilities for loading and receiving the waste from vessels or responding to incidents has not met the international standards. Consequently, the environment is seriously in danger; for instance in Haiphong seaport, there are 1500 vessels boarding each year with thousands of cubic metres of waste oil disposed of in the water, together with the other waste from the activities of both vessels and seaport services¹⁸². Dredge materials include a great amount of waste oil and heavy metals. These dredge materials are dredged and dumped at sea without management from the authorities due to the lack of regulations. In addition, to save budget, the vessels carry these dredge materials and dump them within the coastal areas, which consist of coral reef and sea grass areas damaged by this dangerous dredge.

Furthermore, in the Master Plan for the Development of Viet Nam Seaport¹⁸³, the target is to develop a seaport system for the serving of 500 – 600 million tonnes of cargos per year by 2015, and 900-1,100 million tonnes to 2020. This development will increase the pressure on the environment. The dredge materials arising from seaports and sea-lanes will increase rapidly and need strict management to protect the marine environment.

In addition, the dumping of gear or fishing vessels and other materials in the waters of Viet Nam has no data or figures or assessment of their status.

The Viet Nameese Law on Sea regulates this issue. The dumping or burying of industrial waste, nuclear waste or other hazardous waste is prohibited in the waters of Viet Nam.¹⁸⁴

¹⁸¹National Report on Environment in 2010, pp.23

¹⁸²

However, it is a general regulation without the appointed authority to enforce. Other waste and matters are not mentioned in this Law in terms of if they are dumped at sea or how they are controlled.

Hence, even if we stop increasing our emission of greenhouse gases today, we are committed to future warming and sea-level rise¹⁸⁶.

Therefore, adaptation to climate change is one of the key components to survive.

Adaptation to climate change refers to preparing for, responding to, coping with, recovering from and living with climate induced changes. This can be achieved through two main activities: first building adaptive capacity, and second implementing adaptation actions. It is important to distinguish between the two as they are both important.

Building adaptive capacity: Improving the ability to cope with or respond to the impacts of climate change. Undertaken by: gathering knowledge and information about climate change; training people; researching; making plans, creating networks and discussion forums.

Implementing adaptation: Decisions or choices that generate change. Implementation occurs through: laws or policies; organizational change; individual action.¹⁸⁷

In a short time from the beginning of the progress to respond to climate change, Viet Nam has approved a range of important documents in order to reduce and adapt to such change. The adaptation approach in coast and islands is to focus on a number of actions. The protection of the coastal environment and conservation of marine biodiversity is one. However, integrated coastal management (ICM) being one of the important tools to adapt to

In addition, it seems that islands are lacking a sound consideration in the context of the climate change response. In the Climate Change Scenario in 2009 and 2012, there is no mention of islands in the assessment of vulnerability, while islands are home to 320,000 inhabitants in 12 island districts. Almost all island areas are small, leading to increased vulnerability in tropic cyclone intensity and the sea level rise. There are 8 islands above 400m, with the others around 100-200m. Based on the estimated scenario, the sea level rise will be one meter by the end of this century; from 2,773 islands, only 84 islands have an area over 1 km square, the others being very small.

In the Action Plan to implement the Strategy of Climate Change, there is considerable content on the islands. The projects for the Socio-economic development of inhabited islands and Community Model in Response to Climate Change have a priority to inhabited islands and coastal areas respectively. Implementing these projects successfully will improve the ability of inhabited islands to adapt to the climate ch

Co island contributed a 50% effect, Chang Dong and Chang Tay uninhabited island contributed considerably in this delimitation. Based on the effect of these small islands, the marine area belonging to Viet Nam after the agreement is 53.23% of the Gulf. What happens if these islands disappear due to the impact of climate change?

In addition, other islands are strategic in the delimitation with Cambodia such as Tho Chu island, Phu Quoc island; while Tho Chu island, Hon Khoai island, and Con Dao island in the delimitation of the marine boundary between Viet Nam and Thailand, Malaysia and Indonesia¹⁹⁰. Furthermore, two archipelagos being Hoang Sa and Truong Sa consist of almost all uninhabited islands. These islands are very far from the mainland.

In brief, there is a comprehensive policy to respond to the climate through the effort of the Government in all countries in the world. In terms of integrated marine management conducted in Viet Nam, some components such as ICM, activities based on Marine Spatial Planning should be considered in the process of climate change adaptation. In addition, a regime for uninhabited islands should be included in the Strategy on Climate Change.

4. Integrated coastal management, and management of islands and their biodiversity in Viet Nam

4.1. Integrated coastal management

The urgency of addressing coastal issues is now considerably greater than it was a decade ago. Despite many international environmental treaties, declarations and other promises of action, the quality of coastal environments continues to deteriorate in most parts of the world. Many of the major pressures

document of the UN Conference on Environment and Development Rio de Janeiro, Brazil in 1992.
The trend towards ICM based on ec

Section B. The current status and shortcomings of the institutional arrangement, human resources and regional cooperation in Viet Nam

1. The current status of the institutional arrangement, human resources and regional cooperation

1.1. Institutional arrangements

In Viet Nam, the central Government is an executive organ, which unifies the administration of all areas. The Government establishes a number of ministries in support of its duties in charge of specific fields. The management of the use, exploitation and protection of natural resources and environment of seas and islands is under about 15 separate Ministries and sectors both in central and local governments.

In central government, Ministries relating to this area are: Ministry of National Defence, Foreign Affairs; Construction; Transport; Agriculture and Rural Development; Industry and Trade; Planning and Investment; Science and Technology; Natural Resources and Environment; Information and Communications; Finance and Culture, and Sports and Tourism. These Ministries have jurisdiction to manage marine economic development, safety and security at sea, marine environment and natural resources. These Ministries conduct their assignments relating to the sea through some main detailed duties as: drafting legal documents to submit to the Government or promulgating legal documents relating to marine areas belonging to their assignments; directing and checking the implementation of these legal documents; coordinating with other ministries and sectors concerning the marine administration; settling the disputes, complaints, petition etc, according to their authority as, regulated by laws.

In local government, there are agencies at provincial, district and community level. They are agencies conducting the management of the scope of territory under their authority. Almost all coastal provinces have their own agencies consulting with the People Committee in specific areas such as tourism, fisheries, environment, etc.

Integrated marine management is a young idea in Viet Nam. Following the trend of the international community and to face up to the worsening status of marine natural resources and environment, in Decree No.25/2008/ND- dated on 04 March, 2008 on the function, assignments, authority and institutional structure, the Government authorizes one m

seas and islands. This is the first time this new approach has been applied officially in Viet Nam. Viet Nam Administration of Seas and Islands (VASI)¹⁹⁷ conduct the assignment of central government under MONRE in the unified and integrated management of seas and islands with 15 groups of assignment. Its duties focus on the integrated management of the use of seas and islands; the basic investigation of natural resources and environment of seas and islands; the exploration and scientific research of seas and islands; marine environment protection; the information of international cooperation in the use and exploitation of marine natural resources and environment. In local government, the Divisions belonging to the Department of Natural Resources and Environment under the People Committee are responsible for this area at provincial level.

Furthermore, Viet Nam has a National Direction Committee on Seas and Islands under the lead of the Prime Minister; a Deputy Prime Minister is the head of this Committee with the members being representatives of the leader of relevant ministries and sectors. There are some principles established by the same Committee at the provincial level to consult to the People Committee in the regulation of activities regarding the management, exploitation and protection of marine natural resources and environment at local level.

The following are some detailed assignments of agencies in the management of issues relating to marine natural resources and the environment:

- Concerning the marine environment management, MONRE is a principle governmental agency. There are two subsidiary bodies being the Viet Nam Environment Administration (VEA) and Viet Nam Administration of Seas and Islands (VASI) in support of MONRE in the management of this area. While the VEA is in charge of general issues of the marine environment, VASI is responsible for the integrated management of such areas. Moreover, the Ministry of Construction, Ministry of Health, Ministry of Transport manage the waste arising from the areas in which they are responsible for solid waste urban areas, waste from shipping and sea-ports, waste from health activities respectively. Ministry of Construction has a duty in its scope of work for establishing a plan for the management of waste among provinces, checking and promulgating the standards of solid waste. While MONRE is responsible for regulating the

¹⁹⁷VASI was established by the Decision of the Prime Minister No. 116/2008/QĐ-TTg dated on 27 August, 2008 regulating the functions, assignments and structural organization of VASI.

quality. The capacity of the human resources has gradually improved. However, the experienced staff concentrate on career organizations established for a long time such as marine mineral and geology, marine meteorology and hydrography.

On the aspect of environmental protection in general and marine environmental protection in particular, apart from civil servants, the Government has encouraged the participation of all people. Based on the view “take people as a root”, the State has requested that all people participate in environmental protection and socialization of environmental protection. Applying this view in the process of strengthening national industrialization and modernization, the State identifies that “protection of environment is the rights and duties of all households and of each individual”.

The National Strategy on Environment Protection to 2020, with Visions to 2030, was approved by the Prime Minister in his Decision 1216/Q -TTg on September 05, 2012. The environment protection is a responsibility of the whole society and an obligation of every citizen. It must be conducted consistently on the basis of clear accountability of ministries and agencies as well as decentralization between central and local levels; the role of communities and mass organizations should be brought into play and the cooperation with other countries in the region and the world enhanced.¹⁹⁸

The Law on Environmental Protection in 2005 recalls this view in Article 4, paragraph 2: that Environmental protection is the cause of the whole society, the right as well as responsibility of state agencies, organizations, households and individuals. Some projects on the environmental protection of coastal areas with the participation of local communities have been carried out.

If the Government succeeds with the engagement of all people this will contribute to fostering a great amount of human resources in comparison with a limited number of staff of state governments to prevent and control the marine environment for sustainable development.

1. 3. Cooperation at regional level

The cooperation at regional levels both bilateral and multilateral plays an important role for Viet Nam in the effort to manage marine natural resources and the environment. At the same

Southeast Asian Nations (ASEAN), Coordinating Body on the Seas of East Asia (COBSEA), Partnerships in environmental management for the seas of East Asia PEMSEA, The Asia Pacific Fishery Commission (APFIC), ASEAN Regional Forum (ARF). PEMSEA and COBSEA are two regional organizations contributing to the development of ICM and marine environmental protection as well as marine biodiversity conservation.

PEMSEA is a regional partnership programme implemented by the Global Environment Facility (GEF) and the United Nations Development Programme (UNDP) and executed by the United Nations Office for Project Services. The project, started in 1994, was originally known as Prevention and Management of Marine Pollution in the East Asian Seas. Major targets of PEMSEA are to strengthen consensus among partners on approaches and strategies for addressing identified threats to the environment and sustainable development of the Seas of East Asia; build confidence among partners through collaborative projects and programmes; achieve synergies and linkages in implementing the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA) among partners; reduce in-country and regional disparities for sustainable coastal and ocean development and management.

In December, 2003, in Malaysia, Viet Nam together with 11 other countries namely Cambodia, China, Indonesia, Japan, Laos, Philippines, North Korea, Philippines, Singapore, Thailand, Timor-Leste, signed the Putrajaya Declaration on Regional Cooperation for the Sustainable Development of the Seas of East Asia. The declaration formally adopted the SDS-SEA as a regional strategy for the sustainable development of the seas of the region. PEMSEA Partners are targeting to cover 20 percent of the regional coastline through replication of ICM practices by 2015.

On 15 December 2006, the Haikou Partnership Agreement was signed by 11 countries including Viet Nam, thereby formally establishing PEMSEA as the regional coordinating mechanism for the implementation of the SDS-SEA. The Agreement also confirmed the countries resolve to transform PEMSEA from a regional project-based arrangement to a self-sustained and effective regional collaborative mechanism with a mandate to pursue the implementation of the SDS-SEA through collaborative, synergistic and responsible actions. In the same year on 16 December, 12 stakeholder organizations signed the Partnership Operating Arrangements, thus becoming the first group of non-governmental organizations to be formally

recognized as PEMSEA Partners for the implementation of the SDS-SEA. In November 2009, in the Philippines, Partners of PEMSEA signed the Malia Declaration on fostering the ICM for SDS-SEA.

In Viet Nam, PEMSEA supported MONRE implementing SDS-SEA, which consisted of three projects: Policy on MSP with biodiversity preservation and the sustainable use of aquatic resources; In 2010, PEMSEA and Viet Nam concluded an MOU on the implementation of SDS-SEA in Viet Nam from 2009 to 2012.

COBSEA is a regional body being one of six UNEP Regional Seas Programmes. Ten countries in East Asia are members of COBSEA, namely Indonesia, Malaysia, the Philippines, Singapore, Thailand, Australia, Cambodia, China, Korea and Viet Nam. COBSEA steers the Action Plan for the Protection and Development of the Marine Environment and Coastal Areas of the East Asian Seas Region. The main components of this Plan are assessment of the effects of human activities on the marine environment, control of coastal pollution, protection of mangroves, sea-grasses and coral reefs, and waste management.¹⁹⁹

In Viet Nam, VASI and COBSEA signed two Small – Scale Funding Agreements. The Project on Marine Spatial Planning, which is enforced byo f t h e i h

development planning.²⁰⁰ As a result, 7 National Action Plans were developed: National reports on land-based sources of pollution; National Action Plans for addressing the issues of Land-

weak and overlapping or a gap in the duties usually appears, which negatively impacts the management of marine natural resources and environment.

Despite of establishment of an integrated management agency of seas and islands, it has not had efficient enough to harmonize benefits of sectors. The interdisciplinary mechanism and inter-area in the management of coastal zones was not effectively implemented. More detailed limitations follow:

- The machinery of government is not comprehensive. Some sectors only have jurisdiction at central and provincial level, leading to obstacles in the implementation of legal documents to all people at district and community level, which connects directly to applicators. The decentralization of authority of sectors in this area is not unified. For example, the local governments do not have rights in the management of navigation and oil exploration, while they have specialized agencies in natural resources and environment, tourism, fisheries, etc.

- The overlapping in responsibilities of government agencies gives rise to the waste in the investment in facilities for various authorizes having jurisdiction to monitor and investigate in one marine area. For instance, Coast Guards, Customs, Maritime Inspectors,... etc, have their own ships and devices in one area.

- The inspection and examination in the implementation of legal documents has not had enough strength due to the lack of experienced forces, especially with integrated management being a new area. The lack of full information is another reason leading to inefficiency in this work.

In addition, the national budget for the management is small in comparison with the huge marine areas requiring a great amount of investment in both human resources and facilities. Expenditure for environmental protection is an example. While the environmental protection is an emerging issue, which is threatening the sustainable development of the countries, the spending for it only accounts for 1% the total national expenditure.²⁰³

2.2. Human resources

²⁰³ National Environmental Report 2010, chapter 10, pp.186

Although there is an increasing number of staff in government agencies in the management of seas and island, there are shortcomings in the human resources. Staffs with

stakeholders in this work is not a very important problem because of the absence of sanctions. People participate in some phases of this work, however their role is limited in some cases. Many people do not know their rights. Based on the investigation of Viet Nam Environment Administration, 90% of people asked said that they have little information relating to the environmental issues in addition to environmental protection. They believe that it is an oversight of government agencies at both central and local levels.²⁰⁵

Regional and international levels, the participation of local communities and stakeholders in decision- making is popular, while in Viet Nam the inadequate participation of them in marine environmental protection and biodiversity preservation is a big obstacle. This reduces the efficiency in environmental protection in general and marine environment protection in particular.

2.3. Regional cooperation

The South China Sea is an area of globally significant biological diversity. The Trans-boundary Diagnostic Analysis prepared for this marine basin identified the issue of coastal habitat degradation and loss as a key priority issue for action.²⁰⁶ *It is an enclosed and semi-enclosed sea, which hosts migratory species and where many living organisms straddle areas under different States' jurisdiction. In this area, marine resources are mostly shared between bordering States. At the same time, the waste disposal from coastal activities and mining at seabed, shipping, etc, are extremely threatening the habitat and*

region, firstly, should aim to protect the marine environment and marine biodiversity in SCS, including in each country, and, secondly, to imp

Freshwater Fisheries	16	7
<i>Pollution</i>	<i>14</i>	<i>3</i>
Domestic waste	19	3
Pollution of freshwater	17.5	5
Agricultural Wastes	15	9
Industrial waste	15	9
Sedimentation	14	11
Solid waste	13	12
Hydrocarbon	12	13
Vessels Waste	12	13
Sources from atmospheric emissions from	8.5	16
<i>Freshwater scarcity</i>	<i>9</i>	<i>15</i>

There are some cooperation activities to protect marine environment and biodiversity in SCS by countries in the region. Nevertheless, territorial disputes in SCS, limit the development of regional cooperation. Until now, while most other regions have a formal regime to solve urgent issues in their marine areas, SCS still does not have a framework for regional cooperation.

Marine pollution in SCS is a dominant issue due to a busy international shipping channel, offshore oil and gas exploration and exploitation, and the rapid development of urbanization in coastal zone. Viet Nam coastal zone suffers adverse impacts due to incidents of oil spill and waste disposal driving from these activities. This requires the cooperation of all countries in the region. However, Viet Nam has only had agreements in oil incident response with Thailand and Cambodia in Thailand Gulf.

In other areas, such as marine biodiversity conservation and marine migratory species, Viet Nam regional cooperation is insignificant except the cooperation implemented by COBSEA and PEMSEA.

Chapter 2. Recommendations for coherent legal and policy framework in Viet Nam

Section A. Claim on marine areas, climate change adaptation and marine environmental protection

1. Claim on marine areas and climate change adaptation

1.1. Claim on marine areas

The identification of the outer limits of the maritime areas of Viet Nam is a significant element in the implementation of its sovereignty and sovereign rights over its maritime. This plays an importance role because each maritime area, including internal waters, territorial sea, exclusive economic zone and continental shelf, brings with different rights and duties of coastal States. This has also implication for foreign vessels in each maritime area in accordance with their rights and duties based on UNCLOS. For example, foreign vessels have the right of innocent passage in the territorial sea, subject to the duties not to cause pollution of the marine environment. This is also an obligation of Viet Nam as a Party to UNCLOS. Therefore, baselines used to measure the outer limits of maritime areas should be identified, consistent with UNCLOS.

The Viet Nam Government drew the Viet Nam baselines in 1982. [However, these baselines only cover about four fifth of the Viet Nam coastline.](#) In the Tokin Gulf, Viet Nam and China finalized an agreement on the delimitation of marine boundary on demarcation of territorial sea, EEZ and continental shelf in 2000. However, in this area, Viet Nam has not taken into account the baseline. In the Cambodia Gulf, Viet Nam should resume discussions with Cambodia for the marine boundary delimitation, and this ends it should draw the baselines in this area.

In term of islands, in the 1977 Government Declaration on the Territorial Sea, contiguous zone exclusive economic zone, and continental shelf, Viet Nam declared that the islands and archipelagos, forming an integral part of the Viet Nameese territory and beyond the Viet Nameese territorial sea have their own territorial seas, contiguous zones, exclusive economic zones and continental shelves. However, until now, no island or archipelago has its marine areas delineated on charts.

The delimitation of marine boundary between Viet Nam and China in the mouth of Tonkin Gulf; Viet Nam, Malaysia and Thailand over marine area overlapping and settling the dispute in the South China Sea should be taken into account, and this will be a further step to identify maritime areas under the jurisdiction of Viet Nam. If Viet Nam succeeds in these

- The participation of local communities in the development of the MSP should be mandatory. They live in the coastal areas for many generations, and therefore accumulate the rich experiences and local culture and knowledge of the nature as well as its status and impact, and forecast of nature changes. The participation of local people not only provides such knowledge but also help them to better understand the negative impacts of climate change. The sea level rise, in addition to inundation and erosion in vulnerable areas, are factors influencing directly their life, and they can learn more about it in this process. This is a first step to improve the awareness of the local people in the implementation of the MSP approved. In addition, they should participate in decision – making process. This is an exercise to raise their awareness of decisions already approved. Therefore, the relevant authorities should plan for the participation of local communities in certain steps of the MSP building.

- In Viet Nam marine and coastal areas, factors such as marine environmental pollution, the loss of marine biodiversity, the destruction of wetlands or unsustainable harvesting of mangrove forest increase the erosion of coastline and the expansion of saline water inundation. In the process of MSP development, the balance of all elements, such as the potential of marine natural resources, marine environmental status, the orientation of marine economic development, social factors, etc, provide the overall context of sustainable development of seas and islands, aimed at the harmonization between nature and development. The connection among such factors with the capacity of coastal areas in climate change adaption is necessary in the MSP process. The data of the change of sea level rise and extreme weather events for the long term should be considered in this process. There are critical factors considered in the MSP, including being the forecast of the change of these factors to the marine biodiversity, the stable coastal areas, the reciprocal influence of these factors on the ecosystem based approach in sustainable development. Based on this assessment, there are marine areas identified for various purposes, areas for the improvement of marine environment, areas for MPAs or conservation of biodiversity to reduce the erosion or creating the barriers preventing the natural disasters or creating a stable coastline, areas for the fisheries, tourism, etc.

- The participation of experts and stakeholders from all relevant areas as well as the representatives of ministries and sectors should be provided for. Many Ministries in Viet Nam manage the use, exploitation and protection of the natural resources and environment of seas and islands, and their participation enhances a comprehensive contribution in the consideration of the

best options to harmonize economic development and conservation of natural resources and environment for the next generation, especially in the content of climate change.

- Building an efficient mechanism for the control and monitoring of the implementation of the MSP after it is approved is a key component to ensure the success of this new approach in Viet Nam, to protect marine environment and biodiversity, to support the sustainable use of marine natural resources, and climate change adaptation. The MSP really brings the benefits for sustainable development only when the implementation is efficient. In addition, the connection between the MSP and the other sectors is essential. Sectors should build a plan for their activities conformity with the MSP. The performance of such plans and issuance of permits for the activities of exploitation of marine resources by all sectors should be regulated through clear rights and obligations of entities, and through stringent sanctions for violations. The MONRE should be assigned on behalf of the central Government to take a leading in the responsibility of this work, in co-ordination with other authorities.

ICM provides a complementary tool to support MSP in each coastal province in Viet Nam. The objective of ICM is to reduce the conflict of sectors at provincial level, taking into account all aspects relating to the coastal natural resources by provincial administrations, based on the law. The adaptation to sea level rise and other impacts of climate change, such as extreme weather related natural disasters, warmer seawater, ocean acidification, should be included and reflected as an indispensable element in ICM. To support for this work, the mandatory participation of local communities in the development and performance of ICM is essential.

Furthermore, the scenario and actions to respond to climate change should take into account the reality of islands. Their vulnerable conditions due to the geographic location of islands, it is critical to protect them from the disappearance as a result of the sea level rise and extreme weather events. The monitoring and forecast of negative impacts of climate change to islands should be included in the strategy for climate change response, especially uninhabited islands.

2. Marine environmental protection

As mentioned above, the marine environment of Viet Nam is extremely polluted by different sources. The polluted environment threatens marine biodiversity, adversely impact people's health and the stable economic development for future generations. Preventing and

controlling the pollution of the marine environment is one of the important requirements under UNCLOS, as well as the obligations of its Parties under other conventions concerning the marine environment protection, in particular these to which Viet Nam is a State Party. Developing anecessary national legal mechanism is essential not only to protect the marine environment of Viet Nam, but also to implement Viet Nam's commitment under these conventions. A number of legal documents have been approved, however the gaps and shortcomings still exist. A comprehensive regime to protect and preserve the marine environment of Viet Nam is an urgent requirement to contribute to the effort of the international community in the protection of the planet.

In the context of fragmented regulations on marine environment control under the Law on Environmental Protection, Maritime Code, Law on Petroleum, etc, the effort to put in place regulations for integrated management of marine environment and resources in the Billon Natural Resources and Environment of Seas and Islands is important. The major ideas for these regulations focus on: marine environmental management, marine environmental pollution control and prevention, management of dumping at sea, and some other contents.

There are two main principles for the marine environmental pollution control and prevention.

- The principle of marine ecosystem and people health protection: The use of marine natural resources and the marine environmental protection should be based on the full-scale consideration of all aspect of marine ecosystem toward sustainable development of marine natural resources. Marine environmental protection should aim to maintain healthy ecosystems providing sustainable ecosystem services. This is a core factor in the process of marine environmental management. In some cases, the limited financial resources as well as the capacity gap in the field of marine environment control and prevention should be considered as priorities for the long-term target of sustainable development.

- The polluter pays principle: Forcing polluters pay costs for the harm of marine environment by their activities. This, firstly, ensure that all users causing damage to marine environment have to be responsible for their activities. [Thus, not only the marine environment is protected, and but also this increases awareness of violators and other users.](#)

2.1. Marine environmental control and prevention

A number of sectors have a role in the management of marine environment, in their specific areas of competence, such as Ministry of Transportation (marine environmental pollution arising from shipping and seaport), Ministry of Industry and Trade (oil exploration and exploitation), Ministry of Agriculture and Rural Development (marine environmental pollution of aquaculture and fisheries industry), and MONRE. This creates a lack of unified marine environment management. Viet Nam should establish a central coordinating council that would provide a forum for all the relevant agencies to communicate and make their actions consistent to marine environment management. High officials of relevant ministries should be members of this council. In case of disagreements among agencies, this council would made final decisions. Furthermore, the unified management of database of marine environment would provide the key foundation for the decision-makers in the process of development of legal and policy documents. Following is some main proposals.

- Building and management of a monitoring program of marine water quality: require the building and management of a monitoring program of marine water quality on all marine areas of Viet Nam, especially in the areas having the high risk of pollution. The Central Government could unify the management of marine water quality database. The Government should assign MONRE as an agency in charge of this work. MONRE should be responsible for the arrangement of this data in a modern system. To contribute to this database, sectors would manage data concerning the marine environment and submit them MONRE. MONRE would establish and manage database according to strict procedures to enhance an effective information exchange of marine environment.

- The effluent limitations of pollutants: This is important to limit pollutant discharge into the marine environment. MONRE should establish the effluent limitation of pollutants for categories of point source. The application of the best available technology economically feasible for each source for such category should be called for.

- Marine water quality standard: to control and prevent marine pollution, marine water quality standard should be identified. This will be a standard to identify a sample of water meeting the quality for a habitat of marine species. MONRE should be in charge of marine water quality standard development, as well as the coordination of relevant sectors. The process of marine water quality standard development should follow a strict procedure, and public hearings

should be one of steps of such procedure. Public hearings regarding applicable marine water quality standard should be held before they are adopted or reviewed. This is essential to get a consensus of entities involved.

- Enforcement: enforcement is a final critical step to ensure that regulations are effectively implemented to meet the objective of a legal document to control and prevent marine pollution. It should require reasonable punishments and enforcement authorities. Three types of punishment, administrative, civil and criminal, should be provided for to punish violators for various levels of violation. In term of enforcement authorities, MONRE, in coordination with Coast Guard and other sectors and coastal provinces, are in charge of the monitoring and detecting violation activities.

volumes and concentrations of such materials; the effect on alternate uses of oceans, such as scientific study, fishing, and other living resource exploitation, and non-living resource exploitation.

- The jurisdiction of dumping permit issuance: authorize the MONRE to issue permits of dumping at sea; the Ministry of Transport in the licensing of vessel in transport waste for dumping at sea.

- Reporting: authorize the MONRE management of dumping at sea to prepare on annual report on the status of dumping to submit the Central Government and to be published on the MONRE website.

- Other contents should be regulated such as fees of dumping, obligations of individual or organization owing dumping permits, authorities having a duty in monitoring and detecting violations concerning dumping activities.

Section B. Management of uninhabited islands and their biodiversity, institutional arrangement, human resources, and regional cooperation

1. Management of uninhabited islands and their biodiversity

The ecosystem in shallow water in Viet Nam coastal area together with island ecosystem create high biodiversity, which can generate valuable natural resources for the economic development of seas and islands in the twenty first century. However, they are a vulnerable and fragile ecosystem due to the human activities, so the management of these ecosystems shall be based on the basis of an ecosystem approach toward sustainable development.

As mentioned, the management of uninhabited islands in Viet Nam, which are vulnerable to the increasing change of climate, overexploitation, and pollution, has shortcomings. It lacks legal clarity as well as appointed relevant agencies responsible for their management. A comprehensive regime to manage such islands is required. Including a chapter in the Bill on Natural Resources and Environment of Seas and Islands would be reasonable.

Two main issues should be considered in this Bill. They are institutional arrangements of uninhabited islands and protection of ecosystems in content of climate change adaptation and sustainable development in the use of natural resources of these islands.

Firstly, in term of institutional arrangements of marine natural resources and environment of uninhabited islands in general, there are different Ministries, which could be assigned by the Central Government, according to their functions. The MONRE has the mandate to oversee integrated management of natural resources and environment of seas and islands, including sea minerals mining, climate change response, and biodiversity. In addition, the Ministry of Agriculture and Rural Development is involved in management of MPAs; the Ministry of Internal Affairs has the responsibility to name places and for administrative boundary delimitation. The Central Government should consider unifying the institutional framework of uninhabited islands and assign for ministries as proposed below.

There are some uninhabited islands within the border of island districts, the rest is out of the districts. Thus, the jurisdiction of uninhabited islands should authorize two levels of administration, central government and provincial government. The Central Government should authorize the MONRE in management of uninhabited islands, which are located outside of the districts. The MONRE should be

entities in the exploitation of uninhabited island natural resources, the policies of the state. Such Plan should be based on the MSP approved. The Plan will be focus on: (1) the designation of uninhabited islands for ecosystem conser

mechanisms in recent years. The development and implementation of an integrated marine management approach requires changes in sectoral duties because the sectors become important players in this approach. In addition, sectors should review, amend, supplement by themselves or recommend to the competent authorities to amend and supplement the policies and laws in conformity with the development trend of each sector, and taking into account sustainable development based on integrated marine policies and legal documents. Also, the Government should ensure the application of flexible management methods, especially an integrated marine management approach.

Local organizational structures should enhance the capacity of agencies in charge of both sectoral and integrated management in coastal provinces. Local authorities should develop policies and legislation on marine integrated management, in accordance with their economic and social status and the characteristics of coastal areas, on the basis of national policies and legislation. Local participation should also be enhanced in monitoring the implementation of plans and planning related to integrated management by the ministries and agencies in the province.

Viet Nam should effectively develop and implement strategies for sustainable development, that emphasize exploitation and sustainable use of natural resources and protection of the marine environment therein. Viet Nam should also improve and strengthen the development of marine policy and legislation suitable for integrated and unified management of seas and islands.

In terms of implementation of marine policies and legislation, authorities responsible for their implementation should be reformed. There are many authorities dealing with specific sectors. This reduces the amount of national budget investment for advanced technology of facilities, and training of high quality human resources. Therefore, the implementing authorities should be authorized to be equipped with facilities and advanced technology to increase their capacity to detect violations of the regulations and law relating to the exploration and exploitation of marine natural resources and environmental protection.

Furthermore, States should invest considerable financial resources in monitoring and investigating sources of marine pollution, and recovering the marine environment polluted. In addition, the necessary budget should be provided to support

management and related disciplines. State should have a training investment policy for limited specialized training. This would ensure an adequate supply of human resources for the fields of research, basic surveys, management of marine resources and environmental protection, and integrated marine management.

The State should enhance legal education in order to enhance understanding for local communities, to make sense of their rights and obligations in the marine resource management and environmental protection. The curriculum at

aspects of SCS, including marine environment, biodiversity and climate change. This would establish the assistance framework among countries in the region. It will help in narrowing capacity gaps in one individual country. In addition, regional issues will be considered in a National Strategy.

Secondly, assessing the status of cooperation both at bilateral and multilateral level between Viet Nam and bordering countries in SCS is necessary to find out priority issues, in the context of sustainable development. Viet Nam should establish an effective mechanism for cooperation with neighbours. Marine environmental protection and biodiversity should be considered in the context of multilateral cooperation in the region. These issues require agreement amongst countries to deal with these trans-boundary issues.

The focus of regional cooperation should be: marine environmental protection, marine scientific research, investigation of marine resources in SCS and States interactions in SCS.

First, cooperation in training and transfer technology are important issues to enhance the capacity of human resources, and to access advanced technologies. Each country has its own advantages and strengths, so finding partners in cooperation is a key component in this process.

Science – technology should be sufficiently advanced in Viet Nam in the marine field. Beside the domestic effort, the cooperation with other countries provides a good tool to catch up with the science and– technology development in region and the world. Regional cooperation in science would support Viet Nam in the effective application of technology related to climate change prediction and warning, to mitigate the negative impacts of natural disaster and contributing to strengthen adaptive capacity, monitoring of marine environment and biodiversity. This will also foster the capacity in the offshore investigation and monitoring of marine resources, environment and biodiversity.

Secondly, Viet Nam should have cooperation direction in these issues in the region. Marine biodiversity and environment protection require bilateral and multilateral cooperation. The sustainable development of coastal States heavily depends on the abundance and health of marine species. Marine biodiversity reduction is threatening the economic development of countries in the region.

There are number of sources of marine pollution. In SCS, land based sources, offshore facilities and shipping are dominant sources. Until now, almost all countries confirm that land

based sources contributes the greatest amount of marine pollution. Viet Nam should learn from the experiences of the other countries in the region, which have successfully acted to control and prevent land – based sources of pollution. In addition, cooperation with neighbours to reduce the increase of sources of pollution in sensitive marine areas, such as Tonkin Gulf and Thailand Gulf, which are rich in aquatic species and biodiversity. They are easy threatened by pollution coming from Viet Nam and China in Tonkin Gulf; Viet Nam, Thailand and Cambodia in Thailand Gulf.

The busy shipping lanes and offshore facilities in SCS are another source of marine pollution. Pollution from vessels, seaport activities, and especially oil spills generated during exploitation and exploration activities, and from incident of oil carrier vessels, increase pressures for the marine environment. To solve this problem, bilateral as well as regional cooperation are necessary. This issue should be discussed in the context of regional organizations, such as the ASEAN Forum. A comprehensive regime to deal with marine pollution should be established at the regional level.

In terms of marine biodiversity conservation, until now the main scientific activities at regional level have been funded by international organization. Maintaining biodiversity is relevant for the sustainable development of all countries in the region, while it demands the consensus of all countries to solve this issue. Countries in the region have not paid individually enough attention to this problem. Regional projects should be continued, in order to assess and build cooperation, especially in fisheries with migratory stocks or wetland protection to keep a nursery for fisheries sources in SCS. Wetland areas have been reduced rapidly, due to damage to the fisheries sources of countries in SCS.

Viet Nam shall invest reasonable national budget to enhance national capacity, exchange experience with other countries, to develop science and technology, to follow the regional and international development of such areas. This would also enhance Viet Nam position in the process of cooperation. At the same time, it would strengthen the implementation when cooperation established. Focusing on marine integrated management and exchange good learning practices should be a priority in the context of Viet Nam's policies to improve the marine environment and biodiversity conservation. This builds a good foundation for Viet Nam in itself and to become a good partner in cooperation.

Climate change is another issue which requires greater efforts in Viet Nam in order to adapt to changes of marine living condition for marine species, sea level rise, warmer sea water, ocean acidification. Viet Nam should assess these issues to plan cooperation with other countries at both regional and international level.

Conclusion

Viet Nam has a potential to enhance its activities aimed at the sustainable use of marine areas and resources, such as seaports, tourism, fisheries, navigation. In its waters, there is high marine biodiversity. However, the marine environment and ecosystems are threatened by human activities. Marine pollution from different sources, such as land-based activities, seaport activities and shipping is increasing rapidly. A great amount of important marine ecosystems are damaged by marine pollution and overexploitation. In addition, climate change generates a considerable impact to coastal areas and islands.

Realizing the adverse effects of marine pollution, ecosystem loss and climate change for its sustainable development, Viet Nam has approved a number of laws and policies to address these challenges. Further, Viet Nam is applying

framework, policies, institutional arrangement, human resources as well as international cooperation. Controlling and preventing marine pollution, including the management of dumping at sea and other matters should be regulated and improved to adapt with current requirements and fill the gap of legal system. Climate change adaptation should be considered in the context of integrated marine management, in order to strengthen the country capacity to face up with sea level rise and extreme weather events. Management of uninhabited islands in the context of environmental protection, biodiversity conservation and climate change adaptation would play an important role, as part of a comprehensive mechanism to protect the marine environment and biodiversity conservation.

To strengthen its capacity in the development and implementation of legal documents and policies in integrated marine management, Viet Nam should improve human resources through education, training and international cooperation in relevant areas, in order to create high quality human resources for the long term. Regional cooperation in SCS would be a critical factor in order to solve issues concerning marine pollution and biodiversity conservation.

The effort of Viet Nam together with the support of international community in marine environmental protection, biodiversity conservation, and climate change adaption would contribute to sustainable development of Viet Nam for present and future generations.

Bibliography

1. Emma L. Tompkins, Sophie A. Nicholson-Cole, Lisa-Ann Hurlston, Emily Boyd, Gina Brooks Hodge, Judi Clarke, Gerard Gray, Neville Trotz and Lynda Varlack, *Surviving climate change in small islands – A Guideline Book*, 2005;
2. The Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, *Oceans and climate change*, September 2010;
3. The second EAS Partnership Council Meeting Agenda Item 3.0: Technical Session, *Adaptation to Climate Change through Integrated Coastal Management*, PC/08/DOC/30b 7 July 2008.
4. World Ocean Conference Ministerial/High Level Meeting Manado, Indonesia, Manado Ocean Declaration, 11-14 May 2009.
5. Overturf, Erin. “Global Climate Change and U.S. Law by Michael B. Gerrard Ed.” *Sustainable Development Law & Policy*, Fall 2007.
6. Australia Department of Climate Change, *Climate Change Risks to Australia’s Coast*, 2009.
7. *Threatened Island Nations Legal Implications of Rising Seas and a Changing Climate*, edited by Michael B. Gerrard, Columbia Law School Gregory E. Wannier, U.S. District Court for the Central District of California, 2013.
8. Olav Schram Stokke, *Beyond Dumping? The Effectiveness of the London Convention, Current Issues and Key Themes*, *Yearbook of International Co-operation on Environment and Development* 1998/99.
9. Joseph J. Kalo; Richard G. Hildreth; Alison Rieser; Donna R. Christie; Jon L. Jacobson: *Coastal and Ocean Law: Cases and Materials*, 2006.
10. Australia *State of the Environment*, 2011.
12. Robert V. Percival, Christopher H. Schroeder, Alan S. Miller, James P. Leape, *Environmental Regulation: Law, Science, and Policy*, 2013.
13. *Proceedings of the 4th Sub Regional Meeting of the Gulf of Thailand Project Task Team*, PEMSEA/WP/2005/16;
14. UNEP, 2008. *Strategic Action Programme for the South China Sea*. UNEP/GEF/SCS Technical Publication No. 16.

