COASTAL AND ISLAND GOVERNANCE IN VIET NAM

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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 Viet Nam is a State Party, and State practice. The second chapter looks at Viet Nam's current legal framework concerning claims to marine areas, protection and preservation of the marine environment, biodiversity, climate change response, and island and coastal area management. Shortcomings and challenges of Viet Nam's legal system, institutional arrangements and regional cooperation concerning the subjects analysed in the second chapter are considered in the third chapter. In the final chapter, some proposals are put forward in the context of marine integrated management approach.

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
NPAs	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

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Table of contents

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 km^2. 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 Nam[1]

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 (%)
Group	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 seabirds[2]. 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]Le Duc An, Islands in Viet Nam Coast – Natural Resources and Development, 2008, P.2
[2] The General Report of Institution on Strategy and Policy of Natural Resources and Environment 2011.

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 Namese 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 Namese waters, is considered one of the four areas in the world with huge potentiality for methane hydrate. It is one kind of alternative energy that is highly efficient and clean, and prevents traditional energy becoming exhausted.

Viet Namese waters are home to beautiful places. There are about 126 beautiful beaches, including around 20 beaches at international standard. Many islands and groups of islands create amazing scenery such as Con Dao Island, Phu Quoc Island, Cat Ba Island. Halong bay is a world natural heritage and one of the seven most beautiful places in the world. These places are attractive for a great number of visitors both Viet Namese and foreigners from all corners of the world. They provide opportunities for tourism development in the coastal area and islands with different types of tourism. Recently, the development of tourism has played an important role in the development of marine economics in Viet Nam, and this trend is rapidly growing. The contribution of the tourism industry was over 5% of GDP for Viet Nam in 2012 in comparison with about 4.5% in 2011.

Viet Nam also has a good growth in terms of navigation and seaports, due to its location near international sea channels. In addition, there is a long coastline with a number of places for building deep seaports. In fact, about 110 seaports have been built, including 17 big seaports, encouraging the increase of the maritime services serving a huge amount of loading and unloading of goods, approximately 251 million tons in 2009.

In addition, coastal areas and islands are home to about 30 million residents in 136 coastal districts and 12 island districts belonging to 28 coastal provinces. Marine resources provide not only the development of multiple sectors like the fishery industry, maritime industry, but also the livelihood for a great number of local communities.

[3]See at: www.thuysanViet Nam.com.vn

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.[4]The main causes are the overexploitation of these ecosystem and the pollution of the marine environment.

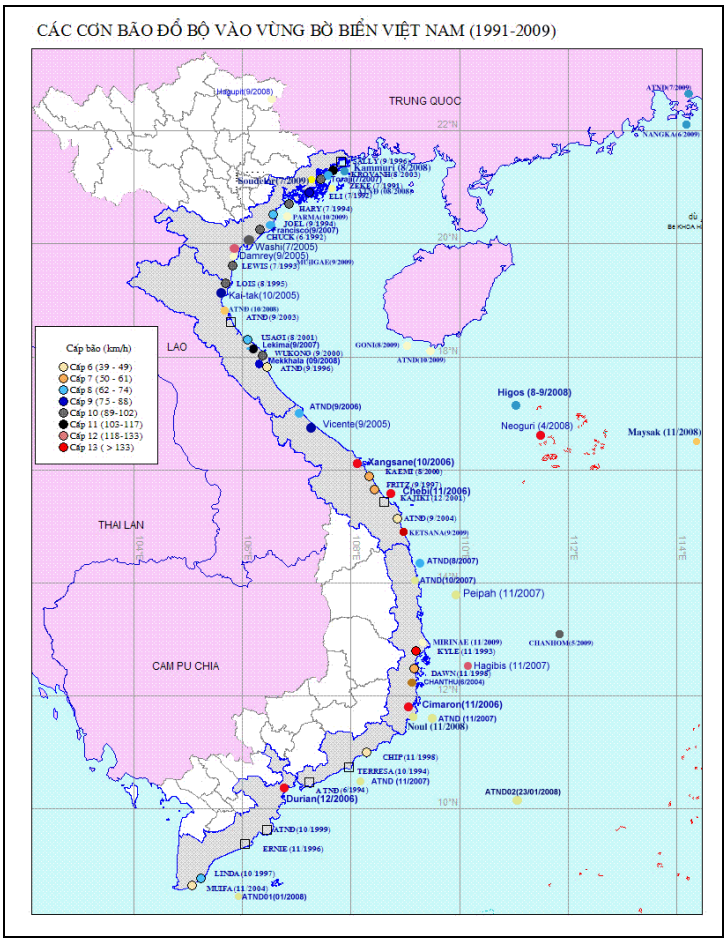
The marine environment is seriously polluted as a result of human activities. Based on the statistics in 2008, the amount of ballast water of vessels, including oil at Haiphong seaport, was 4,578 tons with 2561 tons being waste oil. Furthermore, the amount of sewage deriving from fossil coal mining areas along the coast was about 25 -30 million m^3 annually with a high amount of acidity. The solid waste from this process was estimated at about 150 million m^3 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.

[4]National Environment Report in 2010.
[5]National Environment Report in 2010.

Figure 1. The number of storms hitting the Viet Namese coastline in the period of 1991- 2009[6]



Storm level (km per hour)	
	Level 6 (29 -59)
	Level 7 (50-61)
	Level 8 (62 – 74)
	Level 9 (75- 88)
	Level 10 (89-102)
	Level 11 (102 – 117)
	Level 12 (118 -133)
	Level 13 (>133)

Climate change poses another challenge for Viet Nam. The Government approved the Strategy on Climate Change[7] to face up to the increased severe climate condition and sea level rise. Based on the assessment of this strategy, Viet Nam is considered one of the countries most affected by climate change; its Mekong Delta is one of the world's three most vulnerable deltas (together with the Nile Delta in Egypt and the Ganges Delta in Bangladesh) to the rising sea levels. According to climate change scenarios, in the late 21st century, Viet Nam's yearly mean temperature will go up by 2-3^{0}C: the total yearly and seasonal rainfall will increase, while the rainfall in dry seasons will decrease; the sea level may rise by 75 cm to 1m, compared to the 1980-1999 period. If the sea level rises by 1 m, about 40% of the Mekong Delta area, 11% of the Red River Delta and 3% of coastal provinces will be inundated (over 20% of Ho Chi Minh City

[6]Sources of Center for National Hydrometeorology, 2010.
[7]The National strategy on climate change was issued by Prime Minister Nguyen Tan Dung in Decision 2139/QĐ-TTg on December 05, 2011.

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 management approach adopted in this paper will be integrated management method based on eco-system considerations. Consequently, proposals in this paper aims at contributing to reducing marine pollution, improving biodiversity conservation and sustainable use, and strengthening the ability of Viet Nam to adapt to climate change in coastal areas and islands. Furthermore, this research will emphasise the importance of

[8]The National strategy on climate change was adopted by the Prime Minister in Decision 2139/QĐ-TTg on December 05, 2011.
[9]Ibid.

sustainable utilisation and conservation of biodiversity and environment of the uninhabited islands.

Achievements

The main goal of this research will be to provide the main content for the development of a legal and policy framework for Viet Nam to limit the damage of pollution, and foster capacity for adaptation to climate change and sustainable use of natural resources and environment of coastal areas and islands. For this reason, the following proposals are set:

1. To propose critical ideas to develop regulations to control and prevent marine pollution from various sources;

2. To propose tools for the development and implementation of integrated coastal management in the context of climate change adaptation;

3. To propose major ideas to develop the legal framework to sustainably manage and use natural resources and for biodiversity conservation of uninhabited islands;

4. Institutional arrangement, human resources needs and regional cooperation mechanisms are considered and proposed within this paper.

5. Some proposals in terms of identification of outer limitation of Viet Nam marine areas as an obligation of Viet Nam under United Nation Convention on the Law of the Sea.

PART 1. INTERNATIONAL FRAMEWORK, LESSONS FROM STATE PRACTICE AND CURRENT STATUS OF VIET NAM

Chapter 1: International framework and lessons from State practice

Section A. International framework

Viet Nam is a Party of a number of conventions. In the scope of this paper, this Section concentrates on some conventions which Viet Nam is a Party to or in the process of consideration to become a Party. The major subject considered are the obligations of Viet Nam under these conventions, including claims to marine areas under United Nations Convention on the Law of the Sea (UNCLOS); protection of marine environment under UNCLOS, International Convention for the Prevention of Pollution from Ships (MARPOL), Convention on the Prevention of Marine Pollution by Dumping of Waste and Other matters (LONDON Convention), Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal (BASEL Convention); marine biodiversity under Convention on Biology Diversity (CBD); climate change response under United Nations Framework Convention on the Climate Change (UNFCCC).

1. Marine areas under national jurisdiction

UNCLOS was opened for signature in Montego Bay, Jamaica on 10 December 1982. It entered into force on 16 November 1994 after being ratified by 60 Countries. Currently its members are 194 States and International Organizations. It comprises 320 Articles and nine Annexes, governing all aspects of ocean space from delimitation to environmental protection, scientific research, economic and commercial activities, technology transfer and the settlement of disputes relating to ocean matters.[10]

One of the important issues in this Convention is the identification of marine areas under national jurisdiction as well as their legal regime. The territorial sea is a marine area under the sovereignty of the coastal State.[11]The breadth of a territorial sea is up to a limit not exceeding 12 nautical miles, measured from baselines[12] with its outer limit being a line every point of which is at a distance from the nearest point of the baseline equal to the breadth of territorial sea.[13] The

[10]The Preamble of UNCLOS.
[11] Article 2, paragraph 1, UNCLOS.
[12] Article 3, UNLOS.
[13] Article 4, UNLOS.

sovereignty of coastal States extends to the air space over the territorial sea as well as its bed and subsoil[14].

The right of innocent passage of ships of all States, whether coastal or land-locked, through the territorial sea[15] 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 the baseline, by which the breadth of the territorial sea is measured[19]. The coastal State has sovereignty rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non – living, of the water super-adjacent to the sea-bed and of the sea-bed and its subsoil and with regard to other activities for the economic exploitation, and exploration of the zone as well as the jurisdiction of the establishment and use of artificial islands, installations and structures, marine scientific research, the protection and preservation of the marine environment and other rights and duties provided for in the UNCLOS.[20] The Coastal State in the exercise of

[14] Article 2, paragraph 2, UNCLOS.
[15] Article 17, UNCLOS.
[16] Article 19, paragraph 1, UNCLOS.
[17] Article 8, UNCLOS.
[18] Article 33, UNCLOS.
[19] Article 55 and 57, UNCLOS.
[20] Article 56, UNCLOS.

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 distance[22]. 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

they act so as not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another.[28]

Monitoring the risks and assessing of pollution are also duties of States in the implementation of the Convention.[29] States are required to endeavour directly or through the competent international organizations to use scientific methods to observe, measure, evaluate and analyse the risks or effects of pollution of the marine environment as well as to determine which activities cause this pollution[30]. The result of monitoring and assessment of the potential effects of the activities on the marine environment shall be provided through reports at appropriate intervals to competent international organizations.[31]

In addition, States are responsible and can be held liable in accordance with international law in relation to their obligations for the protection and preservation of the marine environment. There are different sources of pollution of the marine environment such as land-based sources, sea-bed activities, vessels, and pollution from or through the atmosphere. States have an obligation to adopt laws and regulations, and other necessary measures to prevent, reduce and control pollution of the marine environment from all such sources.

Cooperation at regional and global level is another obligation of States in the endeavour to protect and preserve the marine environment. In case of awareness of imminent or actual damage to the marine environment, States have to notify other States and competent international organizations. To deal with this situation, States in the area affected, in accordance with their capabilities, and competent international organizations shall co-operate, to the extent possible, in eliminating the effects of pollution and preventing or minimizing the damage. To this end, States shall jointly develop and promote contingency plans for responding to pollution incidents in the marine environment.[32]

[28] Article 195, UNCLOS.
[29] Article 204, UNCLOS
[30] Article 204, UNCLOS.
[31] Article 205, 206, UNCLOS.
[32] Article 199, 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 an 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 Convention[36]. 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] MARPOL Convention 1973, art.1 and 3.

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 Protocol[38].

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 movement[39], 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]BASEL Convention, Preamble.

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 waste[41]. 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.

[40]Basel Convention, art.3.
[41]Basel 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 flag[45].

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 Organization[46] 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]

3. Marine biodiversity and climate change

3.1. Convention on Biological Diversity

The Convention on Biological Diversity (CBD) was negotiated in the context of many kinds of species, both on land and in the ocean, being endangered or extinct along with the

[43] London Convention, art.III.1(a).
[44]London Convention, art. IV.
[45]London Convention, art. VII.
[46]London Convention, art III.7 defines "The Organization" means the Organization designated by the Contracting Parties in accordance with article XIV(2).
[47]London Convention, art. IX.

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 lost[48]; 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 its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources[49]. The CBD is based on the principle that, on one hand, States have the right to exploit the natural resources pursuant to their environmental policies within their national jurisdiction, and on the other hand, they have the responsibility to ensure such activities do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction[50]. Its Protocol is known as the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization. The objective of the Protocol is the fair and equitable sharing of benefits arising from the use of genetic resources, which contributes to the conservation and sustainable use of biodiversity, in line with the objectives of the CBD. It was adopted in Nagoya, Japan in October 2010.

The CBD provides the detailed duties of States to achieve its targets. Each Contracting Party shall, in accordance with its particular conditions and capabilities, develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity together with the integration of the conservation and sustainable use of biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies[51]. The identification of components of biological diversity is important for its conservation and sustainable use. In addition, the monitoring of such components through sampling and other techniques shall pay particular attention to the urgency of conservation measures. States also shall identify processes

[48]UNEP, 2004a.
[49] CBD, art.1.
[50]CBD, art.3.
[51]CBD, art. 6.

and categories of activities, which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques. Moreover, States are in charge of maintaining and organizing the result of the identification and monitoring mentioned above by mechanism data.[52]

The CBD provides for both in-situ conservation and ex-situ conservation. States shall take measures to establish and manage a system of protected areas with a view to ensuring the conservation and sustainable use of biological diversity, as well as protecting and promoting ecosystem, natural habitats and the maintenance of viable populations of species in natural surroundings. Preventing the introduction of, control or eradication of alien species, which threatens ecosystems, habitats or species, is one more tool to conserving the biological diversity. Furthermore, the CBD within the in-situ conservation provides for the respect, preservation and maintaining the knowledge and practices of indigenous and local communities, in addition to their engagement in the conservation and sustainable use of biological diversity. Meanwhile, in the context of ex-situ conservation, States shall take appropriate measures complementing in-situ measures, such as adopting measures for the ex-situ conservation of components of biological diversity, preferably in the country of origin of such components[53].

States shall exercise other duties for the conversation and preservation of biological diversity, such as establishing and maintaining the programme for scientific and technical education and training in the identification, conservation and sustainable use of biological diversity, in addition to enhancing public awareness as an important factor in the process.

Furthermore, the provisions of the CBD also emphasizes assessing the impacts of projects upon biological diversity; regulating access to genetic resources; access to and transfer of technology, which is considered as a critical components, with a view to conserving and preserving biological diversity[54].

Concerning international cooperation to support the Parties, especially developing countries in the area of conservation and preservation of biological diversity, Parties have the responsibility to promote international technical and scientific cooperation in the field of

[52] CBD, art.7.
[53]CBD, art.8 and 9.
[54] CBD, art. 12.13,15,16, and 17.

conservation and sustainable use of biological diversity, where necessary through the appropriate international and national institutions[55].

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 of the drought season lengthening, and especially sea level rise. Samoa, for instance, was hit by two cyclones in successive years, Cyclones Ofa (1990) and Val (1991) causing damage of about US$450 million, an amount greater than the country's annual average GDP[57]. By the year 2050, about 75 million people could be forced to leave their homes in the Asia-Pacific region due to climate change, with that number growing to around 150 million by 2100[58].

The United Nations Framework Convention on Climate Change (UNFCCC) was adopted in 1992, and has 194 Parties. It created a foundation to respond to climate change. Viet Nam ratified the UNFCCC on 16 November 1994.

"Climate change" is defined in the UNFCCC as a change of climate, which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods[59]. Mitigation of greenhouse gas emission and adaptation to climate change are two key terms in the UNFCCC, which defines the obligations of the Parties. The ultimate objective of the Convention is to stabilize greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. This level should be achieved within a timeframe sufficient to allow the ecosystem to adapt naturally to climate

[55] CBD, art.18.
[56]CBD, art, 22, par 2.
[57]Oxfam, 2009, The future is here: climate change in the Pacific, Oxfam briefing paper 2009.
[58]Nicholls, R.J. 1995. "Synthesis of vulnerability analysis studies". In Preparing to Meet the Coastal Challenges of the 21st Century, vol. 1.Proceedings of the World Coast Conference, Noordwijk, 1–5 November, 1993, CSM-Centre Publication No. 4, Ministry of Transport, Public, Works and Water management, The Hague, The Netherlands, pp 181–216.
[59]UNFCCC, art.1, par 2.

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.[61] In the implementation of these commitments, Parties shall consider fully the specific needs and concerns of developing country Parties adversely affected by climate change, such as small island countries, countries with low-lying coastal areas, or with arid and semi-arid areas, forested areas and areas liable to forest decay, countries with areas with fragile ecosystems, including mountainous ecosystems.[62]

In term of cooperation for adaptation, the Parties commit to cooperate in preparing for adaptation to the impacts of climate change; develop and elaborate appropriate and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas affected by drought and desertification, as well as floods.[63]

The Convention defines its underlying principles as following: all Parties should protect the climate system for the benefit of present and future generations of humankind. However, the Convention considered the difference in the responsibility between developed and developing country Parties. The developed country Parties should take the lead in combating climate change and adverse effects thereof.[64]

Furthermore, concerning mitigation of greenhouse gas emission, the Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. To achieve this, such policies and measures

[60]UNFCC, art.2.
[61]UNFCC, art.4, par 1a and 2a.
[62] UNFCC, art.4, par 8.
[63] UNFCC, art.4, par 1e.
[64]UNFCC, art. 3.

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- economic and legal information; education, training and public awareness related to climate change.[66]

The Kyoto Protocol to the UNFCCC is a Protocol complementing the UNFCCC, which was adopted in Kyoto, Japan, on 11 December 1997, and entered into force on 16 February 2005. Under this Protocol, developed countries commit to reducing their GHG emissions. Developed States are obliged to limit and reduce greenhouse gases, because they are principally responsible for the current high levels of GHG emissions in the atmosphere as a result of more than 150 years of industrial activity.

Section B. Lessons from State practice

This section focuses on specific points concerning environmental protection, biodiversity conservation and climate change adaption, which is considered as the best practices to adapt in proposals for Viet Nam presented in section B – Part2. Subsection 1 identifies good practice concerning marine pollution control, prevention and control of dumping at sea, coastal zone management and land-based sources; the second subsection focuses on conservation and sustainable use of biodiversity as well as management of small islands. In the last subsection, the research focuses on certain countries using integrated coastal management (ICM) as a tool in adaptation to climate change.

[65]UNFCC, art. 3, par 3.
[66]UNFCC, art.4, par 1.

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

[67]CWA, Sec. 101, (a).
[68]CWA, Sec. 301, (a).
[69]CWA, 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 interstate waters which was adopted by any State and submitted to, and approved by, or awaiting approval by, the Administrator shall remain.[70] The Governor of a State or the State water pollution control agency of such State shall from time to time (but at least once each three year period beginning with the date of enactment of the Federal Water Pollution Control Act Amendments of 1972) hold public hearings for the purpose of reviewing applicable water quality standards and, as appropriate, modifying and adopting standards. Results of such review shall be made available to the Administrator.[71]The Act requires a State whenever reviews water quality standards shall adopt criteria for all toxic pollutants.[72]

In a further step to control water quality standard, except controls based on technology, the Act regulates the designated uses and total daily maximum load.

In term of the designated uses, the Act provides for: whenever a State revises or adopts a new standard, such revised or new standard shall be submitted to the Administrator. Such revised or new water quality standard shall consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses. Such standards shall protect the public health or welfare, enhance the quality of water and serve the purposes of the Act. Such standards shall be established taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes, and also taking into consideration their use and value for navigation.[73]

To build the water quality criteria, the Section 304 (a)(1) of the Act provides that the Administrator, after consultation with appropriate Federal and State agencies and other interested persons, shall develop and publish criteria for water quality accurately reflecting the latest scientific knowledge - (A) on the kind and extent of all identifiable effects on health and welfare including, but not limited to, plankton, fish, shellfish, wildlife, plant life, shorelines, beaches,

[70] CWA, Sec. 303. (a)(1).
[71]CWA, Sec.303.c (1).
[72] CWA, Sec. 303, c (2) (B).
[73] CWA, Sec 303 (c) (2)(A).

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 Act[74] 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 Act[76] 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]

In addition, one of important condition for permit to control the disposal of new discharges in the environment, in Title 40, 1508 of the Code of Federal Regulation on Terminology and Index regulates environmental impact statement (EIS). Except categorical exclusion and finding of no significant impact in environmental assessment, the other activities shall implement EIS. Significant impact, which is one of contents in the establishment of EIS to

[74] CWA, section 304(a)(2).
[75] CWA, 303, (d) (1) (C).
[76] CWA, section 304(a)(2).
[77] CWA, 303, (d) (3).

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 degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks; (6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration; (7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts; (8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources; (9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973; (10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

[78] 40, CFR, 1508.27 (a)

1.2. Ocean dumping – United States of America

The CWA and the MPRSA are two USA acts regulating the dumping of pollutantsinto marine areas. Section 404 of the CWA provides for permits for dredged or fill material into navigable waters[79] at specified disposal sites, and its scope is to cover territorial sea and inland waters. MPRSA regulates (1) the transportation by any person of material from the United States and, in the case of United States' vessels, aircraft, or agencies, the transportation of material from a location outside the United States, when in either case the transportation is for the purpose of dumping the material into ocean waters, and (2) the dumping of material transported by any person from a location outside the United States, if the dumping occurs in the territorial sea or the contiguous zone of the United States[80].

The dumping of all types of materials into ocean waters is regulated in the other act being the MPRSA. The USA Congress enacted the MPRSA in 1972[81], and amended and complemented several times.

The Act declares that it is the policy of the United States to regulate the dumping of all types of materials into ocean waters and to prevent or strictly limit the dumping into ocean waters of any material which would adversely affect human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities.[82]

''Material'' means matter of any kind or description, including, but not limited to, dredged material, solid waste, incinerator residue, garbage, sewage, sewage sludge, munitions, radiological, chemical, and biological warfare agents, radioactive materials, chemicals, biological and laboratory waste, wreck or discarded equipment, rock, sand, excavation debris, and industrial, municipal, agricultural, and other waste except sewage from vessels. Oil, within the meaning of section 311 of the Federal Water Pollution Control Act, shall be included only to the extent that such oil is taken on board a vessel or aircraft on the purpose of dumping.[83]

[79]CWA, Sec.502, (7) definite "The term of "navigable waters" means the waters of the United States, including the territorial sea".
[80] MPRSA of 1972, Sec.2c. [33 U.S.C. 1401].
[81] Marine Protection, Research, and Sanctuaries Act of 1972 was enacted by the Senate and House of Representatives of the United States of America in Congress assembled, [33 U.S.C. 1401 nt] to regulate the transportation for dumping, and the dumping, of material into ocean waters, and for other purposes.
[82] MPRSA of 1972, Sec.2b. [33 U.S.C. 1401]
[83] MPRSA of 1972, Sec.3. [33 U.S.C. 1402]

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 Act[84]. In relation to radiological, chemical, and biological warfare agents, high-level radioactive waste, and medical waste, no permit may be issued[85]. 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, and where the Administrator determines that such dumping will not unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological system, or economic potentialities. The Administrator shall also establish and apply criteria for reviewing and evaluating such permit applications, which shall require consideration on: The need for the proposed dumping; The effect of such dumping on human health and welfare, including economic, esthetic, and recreational values; The effect of such dumping on fisheries resources, plankton, fish, shellfish, wildlife, shore lines and beaches; The effect of such dumping on marine ecosystems, particularly with respect to (i) the transfer, concentration, and dispersion of such material and its byproducts through biological, physical, and chemical processes, (ii) potential changes in marine ecosystem diversity, productivity, and stability, and (iii) species and community population dynamics; The persistence and permanence of the effects of the dumping; The effect of dumping particular volumes and concentrations of such materials; Appropriate locations and methods of disposal or recycling, including land-based alternatives and the probable impact of requiring use of such alternate locations or methods upon considerations affecting the public interest; The effect on alternate uses of oceans, such as scientific study, fishing, and other living resource exploitation, and nonliving resource

[84] MPRSA of 1972, Sec.101. [33 U.S.C. 1411]
[85] MPRSA of 1972, Sec.102.(a) [33 U.S.C. 1411].
[86] MPRSA of 1972, Sec.102.(a) [33 U.S.C. 1411].

exploitation; in designating recommended sites.

Designation of dumping sites for certain materials is another duty of the EPA. In conjunction with the Secretary[87], 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 Administrator appropriate information concerning the permit, and the Administrator will evaluate the proposed permits[89].

The Coast Guard operates for the monitoring and surveillance of the transportation or dumping of materials after they have a permit.[90]

In addition, the Act contains detailed provisions related to the dredged material disposal sites and the requirement of a permit. Firstly, the Act provides the conditions taken into account during the process of development of a site management plan for each site. They are 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 the 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. A

[87] According the MPRSA of 1972 , Sec 3 (h)[33 U.S.C. 1402]: "The Secrectary" means the Secrectary of the Army.
[88] MPRSA of 1972, Sec.102.(c) (3) [33 U.S.C. 1411].
[89] MPRSA of 1972, Sec.103.(a), (b), (c) [33 U.S.C. 1411].
[90] MPRSA of 1972, Sec.104.(a) [33 U.S.C. 1411].

schedule for review and revision of the plan shall not be more than 10 years after the adoption of the plan, and every 10 years thereafter[91]. Further, permits issued under this Act shall designate and include: (1) the type of material authorized to be transported for dumping or to be dumped; (2) the amount of material authorized to be transported for dumping or to be dumped; (3) the location where such transport for dumping will be terminated or where such dumping will occur; (4) such requirements, limitations, or conditions as are necessary to assure consistency with any site management plan approved pursuant to regulation of this Act; (5) any special provisions deemed necessary by the Administrator or the Secretary, as the case may be, after consultation with the Secretary of the Department in which the Coast Guard is operating, for the monitoring and surveillance of the transportation or dumping; and (6) such other matters as the Administrator or the Secretary, as the case may be, deems appropriate. Permits issued under this title shall be issued for a period of not more than 7 years.[92]

Furthermore, the Act regulates fees as well as punishment for the offences under its provisions. There are provision for comprehensive research on ocean dumping under the Act, which is implemented by the Secretary of Commerce, in coordination with the Secretary, the Coast Guard and the Administrator of EPA. This research regards the effects of the dumping of material into ocean waters.[93]

A Regional Marine Research Program was also established under Title IV of the Act, to set priorities for regional marine and coastal research in support of efforts to safeguard the water quality and ecosystem health of each region, and carry out such research through grants and improved coordination. Title V of the Act established a comprehensive national program for consistent monitoring of the Nation's coastal ecosystem.[94]

1.3 Integrated coastal zone management – United States of America

The Coastal Zone Management Act of 1972 (U.S. Code Title 16 Chapter 33 Sec. 1251-1465) encourages States to be responsible stewards of coastal land by implementing management programs.

The Act was passed because by the 1970s, many of the nation's lakes, streams and rivers were so

[91] MPRSA of 1972, Sec.102.(c) [33 U.S.C. 1411].
[92]MPRSA of 1972, Sec. 104. (a) [33 U.S.C. 1414]
[93]MPRSA of 1972, Sec.201. [33.U.S.C.1441].
[94]MPRSA of 1972, Title IV and V. [33.U.S.C.1441].

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 contentof coastal zone management. The Section 305 requires any coastal State, which has completed the development of its management program, to submit such program to the Secretary[97] for review and approval.

The term "management program" refers, but is not limited to, a comprehensive statement in words, maps, illustrations, or other media of communication, prepared and adopted by the State in accordance with the Act, setting for the objective, policies, and standards to guide public and private uses of lands and waters in the coastal zone.[98]

Furthermore, in the management program, State establish an effective mechanism for continuing consultation and coordination between the management agency designated, a single State agency to receive and administer grants for implementing the management program, and

[95] http://www.dnr.state.oh.us/OfficeofCoastalManagement/aboutCZMA/tabid/9370/Default.aspx
[96] CZMA, Sec.303.
[97] According to the Section 304, (16), the term "Secretary" means the Secretary of Commerce.
[98] CZMA, Sec. 304, (12).

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 not find any mechanism to be effective for these purposes unless it requires that the management agency, before implementing any management program decision which would conflict with any local zoning ordinance, decision, or other action, shall send a notice of the management program decision to any local government whose zoning authority is affected.[99]

In addition, to protect the coastal waters, after submitting the State management program, State shall prepare and submit to the Secretary and the Administrator a Coastal Non-point Pollution Control Program for approval. The purpose of the program shall be to develop and implement management measures for non-point source pollution to restore and protect coastal waters, working in close conjunction with other State and local authorities.[100]

1.4. Land based marine pollution - Australia

Land-based activities account for as much as 80% of pollution in coastal waters and the deep oceans, including by nutrients, sediments and chemicals.[101] The main sources of this problem are the human activities on land and coastal areas. The waste from various industries, urbanization with the increased population, agriculture running off the ocean, adversely affects the health, productivity and biodiversity of the marine environment, including destruction of habitats of vital importance for ecosystem health. Moreover, contaminants which pose risks to human health and living resources are transported long distances by watercourses, ocean currents and atmospheric processes[102].

UNCLOS sets out a duty for its Parties to control and prevent the pollution of the marine environment from land-based activities. It is noticeably an international binding requirement, but it is further developed through a policy framework. In fact, to further implement this general obligation, the Global Programme of Action (GPA) was approved by the international community in 1995. The GPA aims at preventing the degradation of the marine environment from land-based activities by facilitating the realization of the duty of States to preserve and

[99]CZMA, Sec 306, (3) and (6).
[100]CZMA, Sec 306B, (a), (1).
[101]Mainstreaming marine and coastal ecosystems, UNEP, pp1.
[102] Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), Washington, D.C., 23 October - 3 November 1995, Section, Item 1.

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 degradation of the marine environment, as well as to its recovery from the impacts of land-based activities. Achievement of the aims of the Programme of Action will contribute to maintaining and, where appropriate, restoring the productive capacity and biodiversity of the marine environment, ensuring the protection of human health, as well as promoting the conservation and sustainable use of marine living resources[103].

A key component of the GPA framework is the development and implementation of National Programmes of Action for the Protection of the Marine Environment from Land-based Activities (NPAs). A national programme of action is the policy framework envisaged in the Global Programme of Action to facilitate the implementation and mainstreaming of the Programme at the national level. NPA's are iterative processes that call for the phased implementation of priorities identified through a cross-sectoral, participatory approach. These programmes provide a comprehensive yet flexible framework, to assist countries in fulfilling their duty to preserve and protect the marine environment from the major GPA pollution categories.[104]

NPAs address one or more of the following issues: sewage, persistent organic pollutants, radioactive substances, heavy metals, oils (hydrocarbons), nutrients, sediment mobilization, litter, and the physical alteration and destruction of habitat. They enable stakeholders progressively to identify and address threats and impacts to coastal environments, by making prioritization possible over both the short and long-term, and facilitate reviewing and updating. This, in turn, can feed into mainstreaming efforts that target relevant institutional, budgetary and policy frameworks.

Until now, many countries have applied this approach in their effort to protect the marine environment from land–based sources. Australia is an example.

The Australia State of the Marine Environment Report in 1995 found that pollution from the land contributes up to 80% of all marine pollution and is a major threat to the long–term

[103] Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), Washington, D.C., 23 October - 3 November 1995, Section I, Item 3

[104] http://www.gpa.unep.org/index.php/national-regional-activity

health of the marine system. It affects ecological processes, public health and social and commercial use of marine resources[105].

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 average[106].

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 pollution[108]. 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 government scale, non-government organizations and industry[109]. The NPA creates a series of actions as follows:

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[105] www.enviroment.gov.au/coasts/pollution/index.html#land
[106] Australia's NPA, pp.4.
[107] Australia's NPA, pp.4
[108] Australia's NPA, part 2.
[109] Australia's NPA, part 3, p.10.

Actions that are national actions, such as a Framework for a National Cooperative Approach to Integrated Coastal Zone Management endorsed to address ecologically sustainable use and development issues affecting the coastal zone that benefit from a national approach and other actions such as National Water Quality Management Strategy. The National Pollutant Inventory; the Natural Heritage Trust and the National Action Plan for Salinity and Water Quality; National Water Initiative; State of the Environment Reporting are the other actions.[110]

For Actions at the bilateral level, the NPA identifies Coastal Catchments Initiative; Reef Water Quality Protection Plan; Queensland Wetlands Programme. Furthermore, Australian Government Action is responsible for the legislation, policies and strategies, programs, research, monitoring and education. Actions of States, Territory and local governments are also clarified by the NPAs. Up to now, Australia's NPA has completed 24 case studies[111].

In addition, NPA also focuses on lessons learned on co-operative approaches, strong leadership networks, setting a baseline, a long term vision and targets, change management, monitoring, evaluation and review, etc.

2. Biodiversity conservation

In the broader context of marine biodiversity conservation, and in view of the scope of this research and needs of Viet Nam, this subsection focuses on State practice in biodiversity conservation and sustainable use of small islands, especially uninhabited islands.

There are about 175,000 islands on Earth. Their area and oceans surrounding represent one-sixth of the Earth's total area, and supports many of the most unique and isolated natural systems including more than half of the world's marine biodiversity, seven of the world's 10 coral reef hotspots, ten of the 34 richest areas of biodiversity in the world, and 64% of recorded extinctions are on islands.[112] However, island biodiversity is damaged due to a wide range of problems caused directly or indirectly by human activities. When tiny, remote and low-lying in the ocean, islands vanish early by natural disasters and there is potential for climate change impacts in both inhabited islands and uninhabited islands. In addition, they experience extreme pollution caused by both the activities in islands, and the waste from land activities.

[110] Australia's NPA, part 3.
[111] www.enviroment.gov.au/coasts/pollution/npa/index.html
[112] See at: http://www.cbd.int/islands/doc/glispa-brochure-march-2010-en.pdf

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 development[113]. 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.
[114]China Island Protection Law, art.3.
[115]China Island Protection Law, art.8.
[116]China 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 research[118].

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.[119]The 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]

2.2. The Republic of Korea

The Republic of Korea (South Korea) is a Peninsula with 8640 kilometres of coastline and 3579 islands. With a huge marine area, South Korea has various tools to protect and manage marine resources and the environment, such as the Marine Environment Management Act and the Integrated Coastal Management Act. Under these Acts, Korea focuses on the marine biodiversity preservation.

The Minister of the Environment designates and manages protection areas such as Special Islands, Ecosystem and Landscape Conservation Areas and Wetland Protected Areas. Each protection area has its root in relevant law with a specific plan for the conservation and management. For the effective implementation of such plans, there is a holistic scheme to implement all the separate plans. The Ministry of the Environment focuses on the inland ecosystem conservation through conducting surveys on the natural environment and designation of Ecosystem and Landscape Conservation Areas, Natural Parks and Wetland Protected Areas. The Ministry of the Environment established the Natural Environment Conservation Basic Plan

[117] China Island Protection Law, art 14 and 15.
[118] China Island Protection Law, section1, chapter 3.
[119] China Island Protection Law, art.4.
[120] China Island Protection Law, section 3, chapter 3

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 Gyeonsangnam-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 protection[123]. 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]

[121]See at: http://www.paforum.or.kr/area/area.html?cate_idx=31
[122]Specific Act on Ecosystem Preservation in the Island Areas Including Dokdo, Art 1.
[123]Specific Act on Ecosystem Preservation in the Island Areas Including Dokdo, art 2, par 1.
[124]Specific 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 standing trees and bamboos; gathering of soil, sand, gravels, stones, and mining of minerals or development of groundwater, etc… The other activities such as installation of trails, esplanades, roads, public rest rooms or pavilions by the state or local government; activity for the purpose of research and investigation of natural ecosystem; repair or reconstruction of existing buildings and structures etc, need to have a permit. In addition, the Act authorizes the Minister to ban or restrict some activities if it is necessary to protect/nurture the island or ensure recovery of the damaged natural ecosystem.[127]

3. Climate change adaptation

Although national and local efforts to mitigate the effects of natural hazards, such as typhoons, flooding and earthquakes, are being instituted and operational across the region, these seem inadequate given the frequency and severity of disasters in recent years. Government leaders are aware of the urgency of the situation, but to date comprehensive national policies and programs to address these challenges are lacking[128]. To adapt to the sea level rise as well as the natural disasters caused by climate change, the ICM framework is considered as an effective tool for the coastal State to strengthen the health of ecosystems of coastal areas. It has been shown

[125]Specific Act on Ecosystem Preservation in the Island Areas Including Dokdo, art 5.
[126]Specific Act on Ecosystem Preservation in the Island Areas Including Dokdo, art 6.
[127]Specific Act on Ecosystem Preservation in the Island Areas Including Dokdo, art 8, 9 and 10.
[128]2nd EAS Partnership Council Meeting Agenda Item 3.0:Technical Session, PC/08/DOC/30b, 7 July, 2008, Adaptation to Climate Change through Integrated Coastal Management (ICM), P.1.

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 vulnerabilities[129].

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".[130]The promotion of all sectors and scales in the process of climate adaptation is identified obviously in the National Climate Change Adaptation Framework, from the goals to actions.

The Framework confirms that adaptation is the principle way to deal with the unavoidable impacts of climate change. It is a mechanism to manage risks, adjust economic activity to reduce vulnerability and to improve business certainty. A key focus of the Framework is to support decision-makers in understanding and incorporating climate change into policy and operation at all scales and across all vulnerable sectors in the next five to seven years. Therefore, the long-term goal of the Framework is to position Australia to reduce the risks of climate change impacts and realise any opportunities[131].

The Framework also indicates that all governments recognise that adaptation is a long-term agenda and that it will take time to quantify risks of climate change impacts and to build capacity to minimise costs and to take advantage of any benefits[132].

[129] 2nd EAS Partnership Council Meeting Agenda Item 3.0:Technical Session, PC/08/DOC/30b, 7 July, 2008, Adaptation to Climate Change through Integrated Coastal Management (ICM), p.2.
[130] See at: http://www.climatechange.gov.au/climate-change/adapting-climate-change/adaptation-framework
[131] Australia National Climate Change Adaptation Framework, p.2.3.
[132] Australia National Climate Change Adaptation Framework, p.3.

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 sectors[133].

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 coastal vulnerability assessment; and socio-economic analysis of impacts; develop and apply models for analysing coastal responses to changes in sea level, wave action, storm surge and near shore current activity and; assess the vulnerability of infrastructure, settlements, and environments of significance using biophysical and socio-economic scenarios and inundation modelling.

The second action is to identify vulnerable coastal areas and apply appropriate planning policies, including ensuring the availability of land, where possible, for migration of coastal ecosystems[134].

To implement the adaptation of the coastal region, the Climate Change Risks to Australia's Coasts report was conducted. This report presents the findings of the first national

[133] Australia National Climate Change Adaptation Framework, item 2.2 (b). p.12.
[134] Australia National Climate Change Adaptation Framework, item 2.2. p.12.

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.climate change.gov.au/climate-change/adapting-climate-change/australias-coasts-and-climate-change/coastal-risks-0/climate

[136]Climate Change Risks to Coastal Buildings and Infrastructure, Department of Climate Change and Energy Efficiency, Australian Government,p.2. www.climate change.gov.au/climate-change/adapting-climate-change/australias-coasts-and-climate-change/xxxx-adapting-coastal—2

Chapter 2. Status of coastal area and island governance in Viet Nam

Section A. Current legal and policy framework

1. Claim on the marine areas under the jurisdiction of Viet Nam

1.1 Declaration and legislation on marine areas

Viet Nam has been the State Party of UNCLOS since the Resolution of the ratification of the National Assembly on 23 June 1994.Before this event, Viet Nam declared the marine areas under its sovereignty and, after becoming a Party, Viet Nam approved some legal documents relating to these issues. Both of them reflect the provisions of UNCLOS.

In 1977, the Viet Namese Government declared its territorial sea, contiguous zone, exclusive economic zone, and continental shelf (the Declaration 1977). According to this Declaration, Viet Nam creates all waters in conformity with UNCLOS. Under this Declaration, Viet Nam defines a breadth of 12 nautical miles of the territorial sea measured from a baseline which link the furthest seaward points of the coast and the outermost points of Viet Namese offshore islands, and which is the low-water line along the coast. Viet Nam exercises full and completes sovereignty over its territorial sea as well as the supper adjacent air space and the bed and subsoil of the territorial sea.

The contiguous zone of Viet Nam is a 12-nautical-mile maritime zone adjacent to and beyond the Viet Namese territorial sea, which establishes altogether a zone of 24 nautical miles from the baseline used to measure the breath of the territorial sea. In this area, Viet Nam exercises the necessary control in order to see to its security and custom and fiscal interests and to ensure respect for its sanitary, emigration and immigration regulations within the Viet Namese territory or territorial sea. The exclusive economic zone of Viet Nam is adjacent to the Viet Namese territorial sea and forms with it a 200-nautical-mile zone from the baseline used to measure the breadth of Viet Nam's territorial sea. The Declaration also declares the continental shelf of Viet Nam comprising the seabed and subsoil of the submarine areas that extend beyond the Viet Namese territorial sea throughout the natural prolongation of the Viet Namese land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baseline used to measure the breadth of the Viet Namese territorial sea, where the outer edge of the continental margin does not extend up to that distance.

Concerning the marine area of the surrounding islands and archipelago, which forms an integral part of the Viet Namese territory and which are located beyond the Viet Namese 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’

To implement Article 76, paragraph 8of UNCLOS, on 7 May 2009, Viet Nam submitted the Commission on the Limits of the Continental Shelf information on the limits of the

continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured in respect of the North Area.

Furthermore, the Viet Namese National Assembly approved Law on National Boundary in 2003 and Law on Viet Namese Sea in 2012. These Laws identify once again waters, which are under the jurisdiction of Viet Nam and their width, along with the jurisdiction of Viet Nam over these waters based on the provisions of UNCLOS.

1.2. Delimitation on overlapping areas with other countries

Viet Nam has a common maritime boundary with China, Indonesia, Malaysia, Thailand, Cambodia, and dispute on the sovereignty of Spratly and Paracel islands with China and other countries. Until now, based on the principle provisions of UNCLOS and the agreement among countries, Viet Nam has had Agreements on the delimitation of the maritime boundary with a number of countries.

On 9August 1997, Viet Nam and Thailand signed an Agreement on the delimitation of the maritime boundary between the two countries in the Gulf of Thailand. The Agreement confirmed Tho Chu Island belonging to Viet Nam accounting for a 32.5% effect. The maritime boundary delimited by the two countries shall constitute both the boundary between the continental shelf of Thailand and the continental shelf of Viet Nam, and constitute the boundary of the exclusive economic zone between the two countries. Both countries confirmed the jurisdiction of each country over marine areas delimited as mentioned above.

On 25December, 2000, Viet Nam and China signed Agreements[137] on the delimitation of the marine boundary in the Tonkin Gulf. Based on the principles of mutual respect for independence, sovereignty and territorial integrity, nonaggression, no-interference into one another's internal affairs, equality, mutual benefit, and peaceful coexistence, the two Contracting Parties agreed on the delimitation line of the territorial sea, exclusive economic zone and continental shelf between the two countries defined by the straight lines connecting 21 points specified by coordinates. The delimitation line from point 1 to point 9 defined in Article II of this Agreement shall be the border of the territorial sea between the two countries in the Tonkin Gulf.

[137] Agreement between the Socialist Republic of Viet Nam and the People's Republic of China on the Delimitation of the Territorial Sea, Exclusive Economic Zone and Continental Shelf between the Two Countries in the Tonkin Gulf, signed in Beijing, on 25 December 2000.

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 Economic Zone and Continental Shelf between the Two Countries in the Tonkin Gulf, art II and III.

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 Namese 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 written environmental protection commitments.[139]

Marine pollution from land – based sources, waste discharged from land, production, business and trading establishments, urban centres and residential areas located in coastal regions, in the sea or islands must be surveyed, enumerated and assessed to work out measures to prevent and limit adverse impacts on the marine environment.[140]

In addition, this Law provides for a number of environmental standards to measure the environmental quality. They are a group of environmental standards of air in urban areas and rural residential areas, a group of environmental standards of soil for agricultural production, forestry, fisheries and other purposes, a group of environmental standards of water surface and groundwater for supply of water for drinking, daily life, industries, aquaculture, agricultural irrigation and other purposes[141].

[139] Viet Nam Law on Environmental Protection, Chapter III, Section 1,2, 3.
[140] Viet Nam Law on Environmental Protection, art.57.
[141] Viet Nam Law on Environmental Protection, art.10.

Viet Nam Law on Water Resource[142] 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 Namese 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 regulations[149]. A number of environmental standards on coastal seawater for aquaculture, entertainment, recreation and other purposes apply in the coastal area.[150]

In addition, sector laws regulate on the control and protection of the marine environment of all activities at sea. This content is a vital condition to have a permit for exploration and exploitation of marine resources. Vessels also need this condition if not they can be temporarily arrested or in case, there is an evidence to show that these vessels harm the environment.[151]

Under the Maritime Code[152], all vessels for flying the Viet Namese flag only operate when they get permits from the competent authority concerning the conditions of vessels to meet the environmental standards. All vessels including foreign flags operating in the Viet Namese seaport waters shall own the condition related to environmental standards mentioned above. The operations of vessels at Viet Namese seaports causing pollution are prohibited or strictly controlled. Vessels carrying the hazardous substances shall meet the special requirements based on Viet Nam regulations.[153]

Under the Law on Water Resources, individuals and organizations conducting their activities at sea have responsibilities to develop the plan, facilities and human resources to ensure the prevention and limitation of marine pollution. In case of incidents, taking actions to respond is obligatory unless the owners have to compensate in case of damage to the marine environment.[154]

In Law on Fisheries[155], discharging waste and other matters from aquatic resource-breeding establishments or aquaculture establishments, aquatic product-preserving and/or –

[149] Viet Nam Law on Environmental Protection, art 57.
[150] Viet Nam Law on Environmental Protection, art 10.
[151]Maritime Code, art.68.
[152]Maritime Code was approved by the National Assembly on 14 June 2005.
[153]Maritime Code, Chapter II, section iv and v, and Chapter IV.
[154]Law on Water Resources, art.34.
[155]The National Assembly adopted the Law on Fisheries on 26 November 2003.

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 quality and technical safety standards as well as environmental protection standards.[158]

Under Law on Minerals[159], environmental protection is a mandatory requirement all activities of mineral exploration and exploitation, from the process of planning of the competent authorities to be done over the course of carrying out exploration and exploitation of minerals. One obligatory factor in the process of planning for mineral exploitation and exploration in the entire country is the report of strategic environmental assessment based on the Law on Environmental Protection[160]. In the course of mineral mining, owners of projects shall use advanced technology, which brings minimum harm to the environment. They are responsible for the recovery and improvement of the environment within or after their activities. In addition, commitment to environmental protection is an obligatory condition to obtain the permit for mineral mining. The owners of these projects also shall pay an amount of environmental security for the recovery and improvement of the environment. In case of damage to the environment, the permits are revoked if within 90 days no action is taken to recover or improve the environment.[161]

The Law on Petroleum approved in 1993, amended and supplemented in 2000 and 2008, provides for the obligations of individuals and organizations in the course of carrying out oil and gas activities; after completing a work step, a work phase or an entire oil and gas contract, shall clear up fixed works, equipment and means for oil and gas activities no longer in use and restore the environment according to the Law.[162]

2.3 Pollution from trans-boundary waste

[156]Law on Fisheries, art 6, par.16.
[157]Law on Fisheries, art 24, 26, 31.
[158]Law on Fisheries, art 38, par1.
[159]The National Assembly adopted Law on Minerals in 17 November 2010.
[160]Law on Minerals, art 12.
[161]Law on Minerals, art, 30, 47, 53, and 58.
[162]Law on Petroleum in 1993, art 13 amended and supplemented in 2008 in item 7.

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 management. In case of causing serious consequences to the environment, their owners shall, depending on the nature and severity of their violations, administratively handle or face penal liability. If causing any damage, their owners must pay compensation according to the provisions of the Law. Transit of goods, equipment and means potentially causing environmental pollution, degradation or incidents through the Viet Namese territory shall be subject to permission and environmental supervision by state management agencies in charge of the environment.[163]

In terms of the importation of scraps, they shall meet the environmental protection requirements. They have been sorted and cleaned and are not mixed with materials, articles and goods banned from import by Viet Namese laws or treaties to which the Socialist Republic of Viet Nam is a contracting party, and not containing hazardous wastes and impurities, except loose harmless impurities left out during loading, unloading and transportation. In these cases, they are on the list of scraps permitted for import, issued by the Ministry of Natural Resources and Environment.

Organizations and individuals using scraps as raw materials in production or reprocessing must meet all the following conditions to be granted permits to import scraps: having separate warehouses and yards for storage of scraps, meeting environmental protection conditions; being capable of treating impurities accompanying imported scraps; Having

[163]Law on Environmental Protection, art 42.

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

Organizations and individuals importing scraps shall have the following responsibilities. Firstly, they shall implement the provisions of the Law on Environmental Protection and other relevant laws. Secondly, at least five days before loading or unloading scraps, they shall notify in writing the kind, quantity and weight of scraps, border gate of importation, route of transportation, warehouse or yard for storage of scraps and place of production using scraps to the provincial-level state management agency in charge of environmental protection of the place where the production establishment, warehouse or yard for storage of scraps is located. Lastly, they have to treat impurities accompanying imported scraps, and do not give away or sell such impurities.

Provincial-level People's Committees shall have responsibilities in this work. They shall supervise, detect, promptly stop and handle law-breaking acts related to the import of scraps. Annually, they shall report to the Ministry of Natural Resources and Environment on the situation of importation and use of scraps and environmental issues related to imported scraps in their localities.

In case of imported scraps, the Ministry of Trade shall assume the prime responsibility for, and coordinate with the Ministry of Natural Resources and Environment, in issuing regulations on business criteria and conditions applicable to organizations and individuals engaged in importing scraps.[164]

To respond to environmental incidents, on 14 January 2013, the Prime Minister promulgated Decision No. 2/2013/QD-TTg the Regulations on the Process to Respond to Oil Spills. This Decision included the principles, orders in the process of response to oil spill with the detailed obligations of all individuals, organizations and governmental authorities related to oil spill as well as their duties under this Decision. In this work, nearly all forces presenting on the sea were catered for.

[164] Law on Environmental Protection, art 42 and 43.

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 Namese 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 Conversation 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 Law[168].

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 resources[170].

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

[167]Law on Biodiversity, art 16.
[168]Law on Biodiversity, art 35.
[169] Law on Biodiversity, chapter IV.
[170]Law on Biodiversity, chapter V.
[171]Law on Biodiversity, art 5, par 1.
[172]Law on Biodiversity, art 29, par 6, and art 31, par 2.
[173]Law on Biodiversity, art 42, par 1.c.

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 Island[175].

Table. 3 The list of MPAs of Viet Nam planned to be established up to 2015[176]

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

[174]Law on Fisheries, art.9.
[175]National Report on Biology Diversity, 2011, p.21.
[176]Annex attached in Decision No.742/QD-TTg dated on 26 May 2010 approved by the Prime Minister on the Ratify of Planning for Viet Nam MPAs System forward to 2020.

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

The National Target Programme on the Climate Change is one of fifteen Programmes in the period of 5 years from 2011 to 2015 approved by the National Assembly in its Resolution No. 13/2011/QH13 on 09 November 2011. To implement this Programme, the Government has taken a series of actions.

The List of National Target Programmes from 2012 to 2015 of the Prime Minister issued under Decision No.2406 on 18 December 2011. Three Projects are under this Decision, with an emphasis on assessing the level of climate change and sea level rise, building and conducting action plans to respond to climate change, and effective implementation.

The milestone in this progress is the adoption by the Prime Minister of the National Strategy on Climate Change via Decision No.2139/QD-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 dams, protecting and developing forest and biodiversity are taken into account in this process. In addition, the strategy encourages the participation of local communities and efficient energy use.

Action Plan

Furthermore, the Committee of the National Target Programme to respond to climate change, established according to Decision No. 447/QD-TTg approved by the Prime Minister on 8 April 2010, provides the operating mechanism.

Decision No.1474/QD-TTg on 5 October 2012 on the Action Plan to implement the strategy with 65 actions, focused on the actions for adaptation to climate change and reduction of greenhouse gas emissions. Developing a monitoring system, tsunami warning system, plants and animals adapting to climate change; improving and recovering wetland area and protective forests; developing criteria for building dams and structures at the estuaries; preventing and recovering coastal erosion; integrated water resources at two main deltas; enhancing the public awareness/ developing local communities to adapt to climate change and developing social economy of inhabited islands to adapt to climate change are the main actions of the Plan. To reduce greenhouse gas emission, the aim is to develop a plan to reduce emissions; control and treat waste to reduce the amount of CH4; develop renewable energy and advanced technology. Strengthening the human resources and international cooperation in addition to building the Scenario on Climate Change Response are also in this Plan.

Furthermore, the Prime Minister adopted Decision No. 1183/QD-TTg dated August 30, 2012ontheNationalTarget Program to Respond to Climate Change, in theperiod2012-2015,

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 ratified Decision No. 23/2013/QD-TTgdated04/26/2013promulgating Coordination Regulation on the integrated management of natural resources and environmental protection of the sea and islands.

Meanwhile, the development of the legal framework has been the foundation to provide practice lessons on a smaller scale before applying to all the country and regulating formally in terms of the legislation:

- DecisionNo.47/2006/QD-TTg of the Prime Minister approving the Master Plan of the basic investigation and management of marine resources by 2010, with a vision to 2020, created many projects to carry out the investigation of marine resources and the environment as well as

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/QD-TTg dated on 9 October 2007, an integrated management Program of North Coast and Central Coast of Viet Nam until 2010and with a vision to2020. 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 laws[179] for investors to favour the islands over other locations.

Furthermore, a sound policy for inhabited islands is the Economic Development Planning of Viet Namese Islands to 2020 under DecisionNo.568/QD-TTg of the Prime Minister dated on 28April 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.

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

its jurisdiction over its maritime areas: being internal water, territorial sea, contiguous zone, exclusive economic zone and continental shelf.

2. Marine environmental protection

Viet Nam has one of the densest populations in the world. The population is third highest in South-Asia and fourteenth in the world. In 2010, the total population in Viet Nam was 86.93 million people. The rapid growth in population requires an increase in housing, transportation, health care, etc, and creates high pressure to the natural and social environment.[180] This together with the explosion of industrialization, means that a great amount of untreated waste is released into the environment. In the whole country from 2003 to 2008, the solid waste increased on average 150 – 200%, especially high was domestic waste from urban areas. The aquaculture areas grow 17.5 % per year with the waste disposed in the environment without treatment. The development of agriculture, navigation, fisheries, etc, in the coast and marine areas contributes to the pollution of the marine environment.

The shortcomings of the legal framework to deal with this issue are another reason leading to the pollution of Viet Namese marine areas as explained below.

2.1. Lack of unified management

The basic matters relating to the increased marine pollution is dealt with in a number of legal documents relating to the Law on Environmental Protection and sectoral Laws. On one hand, Laws create a wide range of provisions to prevent and control waste arising from various sources; on the other hand, it causes a lack of unified management.

The Law on Environmental Protection represents the general environmental standards and principles in management of the environment. However, this Law lacks provisions to control the marine environment. Some general principles of this Law have not been strong and sound enough to the marine environment, so sectoral Laws have their own such provisions. Therefore, a compressive regime of the marine environment has not been created. The statistics and reports, which provide the real evidence to the decision-makers, lack numbers for all sectors. For instance, no one knows the amount of ballast water discharged at seaports or marine pollution caused by oil spills or from oil–rig platforms, except the port authorities. In

[180]National Report on Environment in 2011.

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 services[182]. 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 Seaport[183], 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 Namese 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]

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[181]National Report on Environment in 2010, pp.23

[182]Tran Cong Huyen, Seaports and Marine Environment extracted from the web: www.vpa.org.vn/vn/news/cbmtbien.jsp

[183]Decision No. 2190/QD-TTg of December 24, 2009, approving the master plan on development of Viet Nam's seaport system through 2020, with orientations toward 2030.

[184]Viet Namese Law on Sea, art.35, pragraph.3

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.

Therefore, the dumping of other waste and waste materials has not been regulated in any legal document or the authority responsible for the management of dumping at sea.

3. Climate change adaptation

In Viet Nam, over 50 years, the mean temperature has increased by 0.5-0.7^{0}C, and the sea level has risen by 20 centimetres. El Nino and La Nina cause more and more impacts. Climate change has really made natural disasters, especially storms, floods and droughts, increasingly violent.

Over the past 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 imposing negative impacts on the environment. In the last decade (2001-2010), such 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 damaging about 1.5% of annual GDP.

Climate change seriously threatens food security and agricultural development: agricultural lands are narrowed, especially a significant area of low-lying coastal lands; the Red River Delta and the Mekong Delta have been flooded by salt water due to the sea level rising. As a result, growth and productivity of crops as well as cultivation schedules are affected; the risk of pestilent insects increases; the time of adaptability of tropical plants expands while that of subtropical ones reduces; domestic animals' reproduction, growth, and ability of resisting epidemics are negatively influenced.[185]

Responding to climate change includes both the reduction of GHG emissions and adaptation to climate change. The reduction of GHG is to gradually limit the change of the climate in the future, while adaptation is necessary to deal with the unavoidable impact of climate change in the long term.

Even if one of these two solutions (produce less greenhouse gases and remove the greenhouse gases from the atmosphere) is implemented tomorrow the Earth would not stop warming. Greenhouse gases have a lifetime in the atmosphere of between 10 and several thousand years.

[185]The National strategy on climate change was issued by the Prime Minister in Decision 2139/QĐ-TTg on December 05, 2011

Hence, even if we stop increasing our emission of greenhouse gases today, we are committed to future warming and sea-level rise[186].

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 climate change has not been considered in the Strategy on Climate Change. In fact, during the process of building and implementing ICM, the components relating to climate change have not been taken into account fully. This reduces the effect of ICM in strengthening the ability to adapt to the climate change. In fact, although ICM was approved and is being conducted, factors of the negative impact of the climate change to coastal areas have not properly been taken into account.

Marine Spatial Planning[188] is a further step to harmonize the conflict among the sectors to further the sustainable development in Viet Nam. All aspects referring to the marine environment and biodiversity are considered in the development and implementation of the Planning. However, the climate change adaptation is not clear. Especially, this content has been drafted in a Bill on Natural Resources and Environment of Seas and Islands, which has more power to foster the ability to respond to the huge change in the climatic condition. The lack of consideration of Marine Spatial Planning as a factor in the context of climate change reduces the effect of the basic instrument in maintaining the health of the marine ecosystem in severe conditions.

[186]Emma L. Tompkins, Sophie A. Nicholson-Cole, Lisa-Ann Hurlston, Emily Boyd, Gina Brooks Hodge, Judi Clarke, Gerard Gray, Neville Trotz and Lynda Varlack, 2005, Surviving Climate Change in Small Islands –A guidebook, p12.
[187] Ibid, p35.
[188]Marine Spatial Planning is one of five main contents of integrated management and protection of resources and environment of seas and islands inDecree No.25/2009/ND-CP of the Government on integrated management and protection of natural resources and environment of seas and islands dated on 6 March, 2009.

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 change. Whereas, uninhabited islands with various marine biodiversity will be in danger without a reasonable policy soon; the vanishing of these islands will occur soon, with negative impacts to the marine ecosystem and as well as in terms of establishing marine boundaries. Indonesia is an example, which Viet Nam should consider:

> According to the Department of Marine Affairs and Fisheries, in just two years (2005-2007), Indonesia has lost 24 small islands: three in Nanggroe Aceh Darussalam (NAD), three in North Sumatra, three in Papua, five in Riau Islands, two in west Java, one in South Sulawesi, and seven in the region of Seribu Islands, Jakarta. Most of these islands are lost because of erosion, worsened by commercial mining activity. In addition, the Aceh tsunami in 2004 also destroyed three local small islands. The loss of these islands, particularly along the boundary with other States will have legal impact that will harm Indonesia. The loss of these islands (originally used as a reference point for the boundary between Indonesia and other States) will reduce the area of Indonesian seas.[189]

The islands in Viet Nam play an important role in the delimitation of the marine boundary with their neighbours, especially in the Tonkin Gulf despite their small area. The areas of Bach Long Vi Island, Con Co island, Chang Tay island are 3.05 km^2, 4.5 km^2respectively. Bach Long Vi island, which is 15 nautical miles from the marine boundary delimitated between Viet Nam and China, is located in the Tonkin Gulf. Its location accounted for a 25% effect. Con

[189]National Action Plan Addressing the Climate Change, 2007, Chapter 1, section 1.2, p3.

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 Indonesia[190]. 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 on coastal areas in the early 1990s have continued to intensify. Coastal fisheries in much of the world have continued to decline rapidly while the demand for coastal resources and the pollution of coastal waters has increased in most areas due to a variety of factors including increases in coastal populations.[191]

There are many international organizations and some developed countries taking a lead in the progress to tackle this issue through integrated coastal management (ICM). The ICM approach was formally supported in Agenda 21, Chapter 17, Programme Area A, ″Integrated Management and Sustainable Development of Coastal and Marine Areas, including Exclusive Economic Zones″ as a

[190]Le Duc An, 2008, Coastal Island System in Viet Nam: Natural Resources and Development.
[191] FAO Legislative Study 93, Integrated coastal management law: Establishing and strengthening national legal frameworks for integrated coastal management, Foreword.

document of the UN Conference on Environment and Development Rio de Janerio, Brazil in 1992. The trend towards ICM based on ecosystems remains a challenge in many coastal countries in an effort to reduce the conflicts among sectors in their activities in such areas for sustainable development.

Following up this advanced approach, and recognizing the importance of ICM in the sustainable development of coastal areas as well as the other waters, Viet Nam has established an ICM legal and policy framework to deal with the result of the conflicts of sector activities— being the serious pollution of the marine environment and the rapid exhaustion of marine living resources. The highest level of legal document in this area is a Decree[192], which is marked as a milestone in the progress of the application of ICM in Viet Nam. However, the implementation of regulations in this Decree, especially Marine Spatial Planning (MSP) and ICM, has many obstacles. MSP is considered as a foundation for all activities at sea. However, the exploration and exploitation of activities at sea in Viet Nam are under the sector Planning. On one hand, MSP has been only building, but on the other hand, according to the regulations of Law on Development and Promulgation of Legal Documents[193], the Laws only comply with the Constitution, and the Decree is lower level than Law in the legal system. Therefore, there is a limitation when MSP is regulated in the Decree. Consequently, after four years of the adoption of the Decree in this area, the MSP has not been completed. Even though in the case of the MSP promulgated by the Government, there is no insurance in the effective implementation due to the reason above.

Fragmentation and shared responsibilities among sectors are still likely to prevail. The key component in this situation is to concentrate on adequate cross-sectoral, co-ordination mechanisms in a full institutional integration. A solution must recognize that all economic, physical and social systems are interconnected, and the Government should develop mechanisms to cope with as many interconnections that fit the economic and political circumstances in Viet Nam.

Overall, the proper implementation of ICM and the coordination among sectors and governmental levels is a key factor. Although a coordination regime regulating the rights and

[192]Decree No. 25on integrated management and protection of natural resources and environment of seas and islands of the Government dated on 6 March, 2009.
[193] Law No. 17/2008/QH2012 was approved by the Viet Namese National Assembly on 3 June, 2008

obligations of ministries is built under the Decision of the Prime Minister[194], it reveals a number of limitations. Its legal value is low. The coordination is to base on the duties of ministries and sectors, which has exposed the weakness in the course of conducting.

4.2. Management of islands and their biodiversity

In Viet Nam, among 2773 islands located in the coastal area only 84 islands have an area over one km square, the rest are small and very small. With their small and narrow area, the isolation in the sea, and with the strong negative impact of nature such as erosion, natural disasters, all islands bring with them a vulnerable ecosystem and the difficulty of recovery or no recovery if damaged severely. This requires a reflection in the course of activities such as the exploitation of natural resources of islands or the use of them for tourism.[195]

There are 1,311 types of plant in 191 groups, with 5 branches in the islands in Viet Nam. Marine areas surrounding the islands provide a good condition for marine ecosystems, such as coral reef, wetland, sea-grass in almost all the islands. However, the ecosystem of both islands and marine areas surrounding them are severely threatened. For example, in the South-east of Cat Ba islands, among 19 coral reefs investigated, 11 coral reefs with a 58% area have been destroyed or are decreasing. Only one of six checked points in Nha Trang Gulf is under the cover of coral reef (26.7%), the rest are completed damaged.

Viet Nam has taken some actions to manage and protect the biodiversity of islands, but they are insufficient. In virtue of the high vulnerability of the ecosystem of islands, in addition to the impact of climate change, the living conditions of islanders as well as their ecosystem are at risk. Meanwhile, there are a number of separate projects on islands without closely connecting as a comprehensive mechanism.

Although the Master Plan of Marine Protected Areas[196] with 16 marine protected areas (MPAs) will be established in 2015 and some of them have been approved, only some groups of islands are included in this Plan. Therefore, the rest of the biodiversity has been under

[194]Decision No.23/2003/QD-TTg approved by the Prime Minister on 26 April 2013 on Coordination Regime in Integrated Management of Seas and Islands.
[195]Le Duc An, 2008, Island System in Viet Namese Coast: Natural Resources and Development, p.73
[196]Decision No.742/QD-TTg approved by the Prime Minister on 26 May 2010 on Master Planning for Viet Nam MPAs System forward to 2020.

unproperadministration due to the low importance of the ecosystem. Based on this reason, the ecosystem in these islands is increasingly being reduced. Together with the pollution of the environment occurring, uninhabited islands are deeply affected.

With respect to the islands, State policies focus mainly on aspects of economics, issues such as the protection of the environment and biodiversity mentioned in a disadvantaged position. Implementation in Viet Nam is weak, which leads to ineffective protection of such ecosystems. In addition, there are scattered legal documents including some encouraging policies in the economic development of islands. Therefore, the aspects of islands have not been considered as a whole, while islands are threatened by various components. The implementation of island policies under the MSP is necessary due to issues on environmental protection, ecosystem preservation, economic development taken into account by MSP simultaneously, while this issue has not been of importance in the process of island administration in the legal and policy system in Viet Nam. Conducting the management of islands according to MSP will contribute to the conflict between the development and conservation of marine biodiversity. This maximises the success of MPAs, creating a thriving island ecosystem to serve for the economic development of islands, particularly in tourism.

On the other hand, regarding island governance, there are 12 island districts, which are inhabited islands. Almost all the legal and policy documents concentrate on these islands. There is no identification of government authority in the administration of uninhabited islands, while there are demands for the use of such islands of individuals and organizations. Therefore, the protection of the environment and biodiversity has more obstacles.

A further barrier in the management of islands is unnamed islands and a lot of them have not been mentioned on the map. The statistics of islands mainly base on the result of certain projects, which are not institutionalized in the formal documents in the process of administration of the State, especially small and very small islands.

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 more duty for Ministry of Natural Resources and Environment (MONRE) on the unified and integrated management of

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

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

conditions and application procedures of a permit of the owners of this waste, the Ministry of Agriculture and Rural Development manages the solid waste from rural areas and trade villages. In addition, the response of environment incidents and climate change is another duty of the National Search and Rescue Committee in collaboration with relevant agencies such as MONRE, Ministry of Transport and Ministry of Defence.

- Regarding the marine biodiversity, there are two ministries in charge of it. MONRE is responsible for managing the biodiversity in all aspects except MPA system, which is the assignment of Ministry of Agriculture and Rural Development.

- Climate change is an assignment of MONRE. MONRE is also an agency in charge of the management of land (including coastal land and land of inhabited islands), water resources (including water resources in coast onshore from the outer limit of the territorial sea), mineral resources (in all marine areas under the jurisdiction of Viet Nam); survey and map; biodiversity.

- Concerning other areas of marine management, besides the assignment of Ministry of Agriculture and Rural Development in the establishment and management of MPAs, it is in charge of the activities relating to the fisheries, aquaculture and mangrove forests. Ministry of Industry and Trade performs its duties in the areas of new energy, renewable energy**,** the exploration and exploitation of oil and gas in marine areas. The administration of navigation is a duty of the Ministry of Transport consisting of sea lanes, shipping, sea-port and other related issues.

- To control and ensure the implementation of individuals and organizations in the marine areas, the Viet Namese Coast Guard under the Ministry of Defence is in charge of the State for performing the management of security, public order and safety and ensuring compliance with the laws of Viet Nam and international treaties concerned with the Socialist Republic of Viet Nam.

1.2. Human resources

In the past, there were some agencies managing the use of marine natural resources and protection of the marine environment. However, there are an increasing number of organisations paying attention in this field, especially non-governmental organizations and local communities. Therefore, the number of staff working in such areas has rapidly grown both quantity and

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/QĐ-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 time, Viet Nam is engaged as a member of some regional organizations such as Association of

[198] The National Strategy on Environment Protection to 2020, with Visions to 2030 was approved by the Prime Minister in his Decision No. 1216/QĐ-TTg on September 05, 2012,Part I, sec. 1.

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 Phillippines, 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 by 7 members of COBSEA except Australia, Korea and Singapore, is currently conducting the third stage in Viet Nam. The Project on Yeosu Sea- Level Rise and Coastal Erosion is for 6 members of COBSEA including Viet Nam. The goal of the Project is to build the capacity of members of COBSEA to foster the stability, management of risks impacting the natural resources of the coastal zone and its ecosystem.

GEF project entitled "Reversing environmental degradation trends in the South China Sea and Gulf of Thailand" was implemented over the period 2002 – 2008 by the United Nations Environment Programme in partnership with seven riparian states bordering the South China Sea (Cambodia, China, Indonesia, Malaysia, the Philippines, Thailand and Viet Nam). The overall goals of the project were stated as being: to create an environment at the regional level, in which collaboration and partnership in addressing environmental problems of the South China Sea, between all stakeholders, and at all levels is fostered and encouraged; and to enhance the capacity of the participating governments to integrate environmental considerations into national

[199]See at: www.cobsea.org/aboutcobsea/background.html

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-based Pollution; An overview of land-based pollution problems in the South China Sea; A model for riverine inputs of nutrients to the South China Sea that can be used in management decision making; and identified areas sensitive to inputs of nutrients from rivers bordering the South China Sea.

Furthermore, PEMSEA, a Manila-based regional program of the Global Environment Facility (GEF) and the UNDP, has been working since 2001 with the Cambodian, Thailand and Viet Namese governments on oil spill preparedness cooperation. The provincial oil spill contingency plans implement the Joint Statement between Cambodia, Viet Nam and Thailand on Partnership in Oil Spill Preparedness and Response in the Gulf of Thailand, which was signed in 2006 within this cooperative framework.[201]

This Project encouraged the cooperation between Cambodia and Viet Nam provinces signing a Memorandum of Understanding (MOU) on sea-grass management. The management teams of both demonstration sites, through joint meeting with the participation of provincial leaders, have agreed to develop a policy and framework for cooperation in the management of coastal ecosystems and natural resources between the two provinces. Under this MOU, the two parties agree to implement the policy and framework for cooperation in management of coastal ecosystems and natural resources between the provinces of Kien Giang and Kampot.[202]

2. Shortcomings of the institutional arrangement, human resources and regional cooperation in Viet Nam

2.1. Institutional arrangement

The institutional arrangement of the seas and islands in Viet Nam has applied the method based on sector and territory. As mentioned above, there are about 15 ministries and sectors having responsibilities for the governance of seas and islands. This causes conflicts with the benefits arising from the use of marine natural resources. The cooperation among them is very

[200] See at: www.unepscs.org
[201] See at: http://www.pemsea.org/print/news/local-oil-spill-contingency-plans-launched-thailand-and-viet-nam
[202]MOU between Provincial People's Committee of Kien Giang Province, Viet Nam and the Governor of Kampot Province, Cambodia, signed on 27 March, 2008, item 2 and 3.

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 higher education and experience focus on the agencies outside of the administrative agencies.

Among staffs in the government agencies, a small number have education in marine international law, oceanography, marine economy. In addition, the selection and the use of human resources are irrational in the arrangement of relevant positions based on their trained area, resulting in the reduction in the capacity of a lot of staff.

In local government, staffs working at the specialized agencies usually hold more than one office. The office in charge of the marine management has less staff than required, particularly in island districts; the staffs working for this area lacks both quantity and quality. In the integrated marine management, this is worse. The staffs educated in this area are very scarce. Almost all of them have experience in state management in general or are trained in other areas.

In addition, Viet Nam has not had a comprehensive strategy in the education and capacity building in order to work in the areas concerning the seas as well as management of the use of natural resources and the protection of environment of the seas and islands. The deficiency of experts to consult on the decision-making for a lot of policies and legal documents in the management of coastal zone in the past years has resulted in insufficiency, conflicts regarding benefits between local community and government agencies in the implementation of legal and policy documents. Trained areas relating to marine science and management lack not only educational facilities but also quality in lectures.

The human resources in environment management are another problem. Currently, total number of staff in this area is about 10,000 people with a rate of 13 staff out of 1 million residents, much lower than the rate of the other countries in the ASEAN. This rate in Thailand, Malaysia and Singapore is 30, 100, and 330 respectively. Among these about 25% are educated in this area.[204]

The involvement of local communities and stakeholders in the protection of the environment is still weak. The regulations allow them involvement in the process of decision-making and implementation is too general. The restricted participation of local communities and

[204]National Environmental Report 2010, pp163.

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. Therefore, 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 marine environment. The rapid movement of pollution causes the negative influence for both original countries and other countries.

Furthermore, most of the countries in the South China Sea (SCS) are State Party of conventions, such as UNCLOS, CBD, UNFCCC. These conventions provide that regional cooperation is an obligation in the control, prevention of marine pollution, biodiversity conservation and climate change response. Therefore, the cooperation among countries in the

[205]National Environmental Report in 2010, pp.188.

[206] Si Tuan Vo, John C. Pernetta, Christopher J. Paterson, Status and trends in coastal habitats of the South China Sea, Ocean & Coastal Management xxx (2013) 1e11,

region, firstly, should aim to protect the marine environment and marine biodiversity in SCS, including in each country, and, secondly, to implement the obligations of each State under international legislation.

However, Viet Nam cooperation with other countries at regional level in marine scientific research, environmental protection and other issues relating has a number of limitations. In particular, the cooperation activities at regional level have been almost funded by the international community. Therefore, such cooperation has not been necessary focused on national priorities.

Furthermore, Viet Nam lacks an effective regime for regional level cooperation in these areas. The Government approved Decision No.80/2008/QD-TTg, dated 13 June 2008, on adoption of Master Project on Marine International Cooperation toward to 2020. This Decision provides for a comprehensive regime of cooperation both at regional and international level in all areas relating to the exploration, exploitation of marine resources in addition to marine environmental protection and biodiversity conservation in Viet Nam waters. However, there are only general contents concerning regional cooperation in this Decision. Detailed actions for such cooperation have not yet been established. Until now, this Project has had some limited results.

According to this assessment (Table below), degraded ecosystems are environmental issues top priority, especially mangroves and coral reefs. Excessive exploitation of aquatic resources is ranked environmental issues next priority, especially for seafood. Pollution problems in the South China Sea are mostly related to household waste, with the resulting advantages Nursing (eutrophication) in some areas.[207]

Table. Ranking Environmental Concerns and issues in the South China Sea (Transboundary Diagnostic Analysis Following, Talaue - McManus, 2000)

Environmental issues	Score rating	Ranking
Ecosystem Degradation	***18.5***	***1***
Mangrove	21	1
Coral Reefs	20	2
Seagrass	17	6
Estuaries	16	7
Over exploitation	***17.5***	***2***
Marine Fisheries	19	3

[207] Vo Si Tuan, 2007, Marine Environment and Environmental Cooperation Priority of Viet Nam, presented at National Science Workshop on "SCS-2007".

Freshwater Fisheries	16	7
Pollution	***14***	***3***
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
Freshwater scarcity	***9***	***15***

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 Namese territory and beyond the Viet Namese 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 delimitations, it will create a good condition for the peace and stability for Viet Nam in the exploration, exploitation and protection of the marine environment in its waters.

1.2. Climate change adaptation of coastal areas and islands

Viet Nam is a country suffering heavily from the climate change, especially sea level rise and extreme weather events. In recent years, the inundation and high tide has been very clear at the Cuu Long Delta and Ho Chi Minh city. The response to climate change has recently been an emerging issue in Viet Nam. Viet Nam has taken a series of actions to cope up with this situation. However, in aspect of integrated marine management, there are some proposals.

Viet Nam is working towards the application of the integrated marine management in the coastal zone and other marine areas. MSP and ICM are tools, which should incorporate the consideration of climate change adaptation in a comprehensive mechanism to respond to the climate change. Research shows that they are good methods in dealing with adaptation to sea level rise and extreme weather events caused by climate change in coastal zones.

In Viet Nam, the scope of MSP is over all marine areas, while ICM is a further step in the management of the coastal zone. For this reason, both of them will contribute to climate change adaptation. The MSP and ICM at the present are regulated in a Decree[208]. Nevertheless, they have not included the special issue of climate change adaptation. In the framework of law development, the National Assembly enacted on 28 June 2013, a Bill on Natural Resources and Environment of Seas and Islands, which will be considered at its second regular meeting in 2014. While the Bill, which incorporates MSP and ICM a higher level instrument in the legal system, is developing, the incorporation of new factors is feasible.

Therefore, the Bill should take into account the following main contents in the articles concerning the MSP.

[208]DecreeNo.25/2009/ND-CP approved by the Government dated 6March 2009 on the integrated management of marine resources and environmental protection of the seas and islands.

- 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.

The marine water quality standard should be based on the designated use of each water body and the water quality criteria for such water body. Further, such standard should accurately reflect the latest scientific knowledge in term of the kind and extent of all identifiable effects on health and welfare including, but not limited to, plankton, fish, shellfish, wildlife, plant life, shorelines, beaches, esthetics, and recreation, which may be expected from the presence of pollutants in any marine water body. In addition, marine water quality should be based on the concentration and dispersal of pollutants, or their byproducts, through biological, physical, and chemical processes. It should also be based on the effects of pollutants on biological 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.

In terms of revisions of certain effluent limitation, if a water body is identified where the applicable marine water quality standard is not attained, any effluent limitation based on a total maximum daily load or other waste load allocation established should be revised, only if the cumulative effect of all such revised effluent limitations based on such total maximum daily load or waste load allocation will assure the attainment of the water quality standard. In addition, the designated use, which is not being attained, should be removed in accordance with the conditions established. If a water body is identified where the quality of marine waters equals or exceeds levels necessary to protect the designated use of such waters or otherwise required by applicable water quality standard, any effluent limitation based on a total maximum daily load or other waste load allocation established, or any water quality standard established or any other standard should be revised, only if such revision is subject to and consistent with the environmental improvement policies.

- Environmental impact statement: Environmental impact statement (EIS) should be required as a condition for a permit in the case that an activity may significantly impact the marine environment. Significant effects should be regulated in the development of EIS: the degree to which the proposed action affects public health or safety; 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; the degree to which the effects on

the quality of the human environment are likely to be highly controversial; the degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks; the degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration; whether the action is related to other actions with individually insignificant but cumulatively significant impacts. "Significant" means that it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by describing an action as temporary or by breaking it down into small component or parts; the degree to which the action may cause loss or destruction of significant scientific, cultural, or historical resources; the degree to which the action may adversely affect an endangered or threatened species or its habitat; whether the action threatens a violation of law or requirements imposed for the protection of the environment.

Further, EISs should include projections for the conditions such as sea levels that will exist at the end of a project's useful life, and a discussion of whether the sitting and design of the project are suitable for those conditions. EISs should also discuss whether the project is as energy efficient and water efficient as possible.

- Marine pollution treatment: require the development of plans to treat marine environmental pollution and recover marine environment and responsibility of agencies in the treatment of the marine pollution:

- Point sources causing marine pollution under the administrative scope of more than one sector, MONRE taking a leading, cooperation with other sector to have plan to treat and recover the marine environment.

- Trans-boundary wastes or wastes from neighbour state activities: the Ministry of Foreign Affairs, on behalf of the Central Government, in coordination with the MONRE and other sectors, based on the obligations of international conventions as a State Party concerning marine environmental pollution, with the aim to built a plan to settle this pollution.

- Obligations of the users of marine natural resources in the marine environmental protection: require the implementation of proper methods based on EIS and have a plan to respond in case of marine pollution incidents; pay costs for the marine pollution treatment and recovery of the marine environment in case of relevant agencies carrying this work.

- 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.

In addition, a National Programme Action to prevent land-based activities should be considered to reduce marine pollution. A Programme to prevent and control non-point source should also take into account to contribute to marine environmental protection.

2.2. Management of dumping at sea

The shortcomings as mentioned above, are gaps in the legal system in the management requirement of dumping at sea of Viet Nam. There are only some general regulations regarding dumping at sea and no agency in charge of dumping management, while dredged materials is disposed at sea and the dumping of the other wastes has no control. Therefore, it is essential to have the necessary regulations to control waste disposal at sea, to prevent marine pollution caused by dangerous wastes damaging the marine ecosystem and human health. Dumping at sea should be a part of the marine environment management of the Bill. Below are some main ideas proposed.

- Scope: Control all waste dumping activities of vessels flying Viet Namese flag or foreign vessels into the marine areas under the jurisdiction of Viet Nam.

- The dumping activities at sea: dredge material disposal, burial of waste, the dumping of vessels and facilities and other wastes at sea; authorize the MONRE in the development of guidelines for dumping activities.

- Dumping wastes: require the building of waste dumping lists, which prohibit dumping in the Viet Nam waters or allows dumping with the permits of competent authorities; authorize the MONRE in the building of waste dumping lists based on the London Convention and its Protocol.

- Dumping sites: establish the conditions to be taken into account during the process of development of a site management plan for each site, especially 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; a schedule for review and revision of the plan which shall not be reviewed and revised less frequently than 5 years after adoption of the plan, and every 5 years thereafter; authorize the MORNE to be in charge of developing a site management plan to submit to the Central Government for the consideration and adoption; and assessing the marine environment impact of each site after 5 years.

The development of such plans should consider and include a basic assessment of conditions at the site and a program for monitoring the site. In addition, special management conditions at each site necessary for protection of the environment should be taken into account.The 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 is essential in the plans.The plan also should anticipate the use of site over the long term and other consideration for the anticipated closure date for the site, and any need for management of the site after its closure . Furthermore, the involvement of local communities and stakeholders should be provided for in the process of plan development, before it is approved.

- Dumping permits: requires conditions of issuing, suspending, repealing permits of waste dumping at sea. The permit shall designate and include the type of material authorized to be transported for dumping; the amount of material authorized to be transported for dumping; the location where such transport for dumping will be terminated or where such dumping will occur; a period permits.

The competent authorities should consider an application for a permit for the dumping of certain materials. Criteria for such consideration should be established, including the need for the proposed dumping, the impact of such dumping on human health, economic development, fisheries resources, marine biodiversity; assessing the transfer, concentration, and dispersion of such material, potential changes in marine ecosystem diversity, productivity, and stability; the persistence and permanence of the effects of the dumping; the effect of dumping particular

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 generated 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 Affair 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 responsible for carrying out the investigation, statistics of uninhabited islands to mark on the map with geography ordinates. Ministry of Internal Affairs should be in charge of giving name and designation of uninhabited island boundary.

In terms of the protection of ecosystem in the content of climate change adaptation and sustainable development of these islands, some main points should regulate as following.

- Investigation of the status of natural resources, ecosystem and environment of uninhabited islands: require the MONRE taking a lead and coordination with concerning sectors in the investigation of natural resources, environment, ecosystem, activities (MPAs, tourism…) on uninhabited islands to create a record.

- Assessment of uninhabited island status: require the MONRE based on the record to assess on the potential natural resources in the economic development, advantages and disadvantages of uninhabited islands; health or vulnerable level of ecosystem, environment, conditions as well as vulnerability of uninhabited island ecosystem in adaptation with climate change to create an investigation report.

- Plan on the use and protection of natural resources, ecosystem and environment of uninhabited islands: require the MONRE developing this Plan to summit to the Central Government; the Plan will be built based on the investigation report, the needs of the State and

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 conservation, environmental recovery, economic development, special purposes (marine security and safety, defences, islands being the designation of baseline, etc); (2) plans for ecosystem and environmental protection to adapt with sea level rise and extreme weather events; (3) plans for economic development.

- Prohibited activities on uninhabited islands: Construction of a housing site, change of land character, and division of land; gathering of soil, sand, gravels, stones, and mining of minerals; taking wild animal disturbing the ecosystem; reclaiming or discarding wastes; destroying geology, topography, or the shape of natural products or similar activities.

- Ecosystem management of uninhabited islands: the competent authorities should investigate and collect figures and characteristics of genetic resources, bio-system in uninhabited islands and in their surrounding waters for the management and development of genetic resources, bio-system of uninhabited islands. Implementing effectively established MPAs and proposing the establishment of new MPAs, including uninhabited islands, should be essential to biodiversity conservation. It is necessary to have a plan to recover damaged and reduced ecosystems. In addition, some uninhabited islands in Viet Nam host rare and endangered species. If they are threatened by sea level rise and natural disasters, competent authorities should plan to move them into reasonable places in case of it is really necessary to protect a special species

- Environmental protection of uninhabited islands: plan to control and prevent wastes arising from various sources; recovering polluted uninhabited islands; protection of marine water environment surrounding uninhabited islands. Wetland areas in or around uninhabited islands should be strictly protected. This should require a plan to develop and recover reduced wetland areas. Encouraging scientific research activities relating to natural resources and environment in uninhabited islands should be considered, in view of its important role for environmental protection. Scientific research could provide full information on natural conditions and other matters in uninhabited islands for decision- makers to establish an effective policy for such islands.

- Climate change adaptation of uninhabited islands: Plan to adapt to climate change based on assessment of uninhabited island risks in relation to by sea level rise, natural disasters; the

ability of uninhabited ecosystem to adapt to climate change; Scenario on Climate Change response of Viet Nam shall include islands;

- Management of the exploitation and use natural resources of uninhabited islands: building conditions, standards for activities on uninhabited islands, strict procedures for the application of permit should be regulated.

Other contents such as obligations of users, punishment for violators should be considered in the regulations concerning the management of uninhabited islands.

2. Institutional arrangement, human resources and regional cooperation

2.1. Institutional arrangement

Instituational arrangement are a key element in the management of marine natural resources and environmental protection. The shortcomings of current institutional arrangement in these fields reduce the efficient utilization of marine nutural resources and environment management. Therefore, improvement should be implemented.

First, Viet Nam should improve and strengthen an effective and sufficient organizational structure for integrated marine management from the central to the local governments. The establishment of an agency in charge of integrated marine management is a milestone in order to manage marine natural resources and environmental protection for sustainable development. This is a key component in order to reduce conflicts amongst sectors and strengthen sector coordination. At present, there are shortcomings causing limited implementation of this approach, such as the lack of an effective coordination mechanism between sectors and of strong agencies for integrated marine management. Therefore, the development and implementation of a coordinating mechanism is voluntary. This would also enhance the coordination between minitries, local authorities and relevant agencies. MONRE should be given the responsibility of implementing a unified and integrated marine management and the lead in establishing a cooperation mechanism to harmonize the interests between central and local levels, between the immediate and long-term in the management of marine natural rerources, and environmental protection.

Sectoral organizational structure also requires an improvement. The sectoral marine management also needs to be further improved, to overcome the shortcomings of management

mechanisms in recent years. The development and implementation of an integrated marine managememt approach requires changes in sectoral duties because the sectors become important players in this approach. In addition, sectors should review, amend, supplement by themself or recommend to the competent authorities to amend and supplement the policies and laws in comformity with the development trend of each sector, and taking into account sustainable development based on integrated marine policies and legal documents. Also, the Govermentshould 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 mangement by the ministries and agencies in the province.

Viet Nam should effectively develope 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 authories dealing with specificsectors. This reduces the amount of national budget investment for advanced techonology of facilities, and training of high quality human resources. Therefore, the implementing authorities should be authorized to be equiped 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 marine scientific research, in order

for it to provide input to mangement of marine resources and eviromental protection, and adaptation to climate change. Resonable budget should be provided to equip with advanced technology necessary for basic investigations, forecasting, early warning of earthquakes, tsunami, sea disasters.

2.2. Human resources

Human resources working at authorities lack of both quality and quantity. The State, first, should develop a strategy to improve humane resources. This strategy should focus on filling necessary positions in authorities, attracting people of high quality, education, training, and enhancing awareness. The State should assess current human resources based on quality and quantiy to determine resonable improvements and policies.

In particular, it is necessary to focus on new agencies in charge of management of operations and exploitation of marine natural resources; controlling marine pollution and environmental degradation, and marine integrated and unified management for all levels. The State should provide a sufficient number of researchers for some fields, such as oceanography, marine environment, international marine laws.

At local level, coastal provincial agencies should improve personel in the divisions in chagre of specialities, focused on quality more than quantity, to meet the requirements of their duties and avoid wasting expenditure for a number of staff with insufficient training.

Secondly, education and training should also be developed. Education should meet demands for short and long term needs. The State should effectively develop and implement policies to support, encourage and attract a number of scientists, experts and administrators owning high qualifications, and significant experience in working in the areas of research, basic surveys, resource management, and environmental protection, especially in integrated marine management. Priority mechanisms should also be implemented for staffs working in remote islands and marine areas in hard conditions.

Training program for special subjects concerning such areas should be improved based on real demand, and quality curriculums should be arranged to ensure high quality trainers. There is an urgent requirement for training in ocean management area, in particular local universities should be encouraged to develop specialized curricula on marine integrated

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 all levels of education should include basic information relating to marine natural resources and environmental protection, and sustainable use of such resources. This would enhance awareness of local communities, and in turn they will contribute in marine environmental protection and sustainable use of marine resources. This would increase the effective participation of local communities in development and implementation of policies and legal documents concerning exploitation and exploration of marine resources and environmental protection.

2.3. Regional cooperation

Regional cooperation in marine environmental protection, biodiversity and climate change is necessary for countries in SCS because it is difficult for individual States to solve relevant issues. The condition of each country in terms of finance, human resources, science and technology to deal with these issues is different. The increasing pollution and biodiversity degradation and negative impacts of climate change create more pressure to living conditions and economic development of a country, which already invests insufficient attention or financial budget for these issues. This is even more harming for the marine environment and biodiversity, and creates a vicious circle. The adverse influence of marine pollution and biodiversity reduction in one country extends its impacts to marine areas of bordering countries in the SCS, which is a semi-enclosed sea. The marine environment and biodiversity are considered as a unified entity. Implementing the duties of State Parities under relevant international conventions is another reason to enhance regional cooperation.

In this context, Viet Nam should focus on two main aspects: regional cooperation in the region and a national regime to enhance its capacity for regional cooperation.

Viet Nam should, first, be active at the regional level to call for the cooperation of regional countries to establish a regional comprehensive formal cooperation agreement in all

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 an ecosystem-based approach and integrated marine management, and institutional arrangements for this new management approached was established in order to limit the conflicts between sectors in the management of marine resources and environmental protection. The awareness of both local communities and officials of authorities is enhanced at a higher level.

However, the implementation of such approaches still reveals some shortcomings, and Viet Nam still faces up with a number of challenges. The discharges from most sources of marine pollution have not been prevented and controlled effectively. Integrated marine management has not taken into account climate change adaptation, and islands have not been considered fully in the context of climate change response, especially uninhabited islands. In addition, institutional arrangements and human resources still have considerable limitations, such as a lack of a successful coordination between sectors in integrated marine management, and limited availability of high quality human resources. Regional cooperation in marine pollution control and biodiversity conservation in SCS is another limitation in context of the implementation of obligations of Viet Nam as a State Party of international conventions, particularly in view of the regional characteristics as a semi-enclosed sea, in which it is difficult to solve problems for individual States.

To implement obligations as a State Party of conventions, and to protect the marine environment, and for climate change adaptation, Viet Nam should focus and improve its legal

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.

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