



IMO
INTERNATIONAL MARITIME LAW INSTITUTE
Established under the auspices of the International Maritime Organization
A specialized agency of the United Nations



**LEGAL ANALYSIS OF INTERNATIONAL
CONVENTIONS FOR THE PREVENTION OF
VESSEL-SOURCE MARINE POLLUTION: A
MALDIVIAN PERSPECTIVE**

**A Dissertation submitted in partial fulfillment of the requirements for
the award of the Degree of Master of Laws (LL.M.) in International
Maritime Law at the IMO International Maritime Law Institute**

Submitted By: Ms. Aminath Zeeniya (Maldives)

Supervisor: Mr. Ruben Maceda

Academic Year 2012/2013

LIST OF ABBREVIATIONS

AFSC	International Convention on the Control of Harmful Anti-fouling Systems on Ships
BWMC	International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004
EEZ	Exclusive Economic Zone
EPP ACT	Environment Protection and Preservation Act of 1993
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Pollution
Hong Kong Convention	The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009
IMCO	Inter-Governmental Consultative organization
IMO	International Maritime Organization
IOMOU	Indian Ocean Memorandum of Understanding
IMDG Code	International Maritime Dangerous Goods Code
LNG	Liquefied Natural Gas
MEPC	Marine Environmental Protection Committee
MARPOL	International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto
NLS	Noxious liquid Substances
NO _x	Nitrogen Oxides
OPRC 1990	International Convention on Oil Pollution Preparedness, Response and Co-operation
OILPOL 1954	International Convention on the Prevention of Pollution of the Sea by Oil 1954
SOLAS	International Convention for the Safety of Life at Sea, 1974
SO _x	Sulfur Oxides

TBT	Tributyltin
UN	United Nations
UNCLOS	1982 United Nations Convention on the Law of the Sea
VOCs	Volatile Organic Compounds

TABLE OF CONVENTIONS

United Nations Convention on the Law of the Sea, 1982 (UNCLOS), done at Montego Bay, 10th December 1982.

International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL) done at IMO, London.

International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFSC), done at London, 5th October 2001

International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWMC) done at IMO, London, 13th February 2004.

The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (Hong Kong Convention) done at Hong Kong, China, 15th May 2009.

International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC Convention), done at IMO, London, 30th November 1990.

International Convention on the Prevention of Pollution of the Sea by Oil 1954 (OILPOL 1954), done at London, 12th May 1954.

International Convention for the Safety of Life at Sea, 1974 (SOLAS), done at IMO, London, 1st November 1974.

Convention for the Prevention of Marine Pollution from Land-Based Sources, 1974, done at Paris, 4th June 1974.

TABLE OF STATUTES

Constitution of the Republic of Maldives 2008

Maldives Environment Protection and Preservation Act of 1993(Act no. 4/93)

Armed Forces Act of Maldives (Act no. 1/2008)

Maldives maritime Zones Act (Act no. 6/96)

Maldives Maritime Navigation Act (Act no. 69/78)

TABLE OF CONTENTS

<i>TITLE PAGE</i>	Page I
<i>DECLARATION</i>	II
<i>DEDICATION</i>	III
<i>ACKNOWLEDGEMENTS</i>	IV
<i>LIST OF ABBREVIATIONS</i>	V
<i>TABLE OF CONVENTIONS</i>	VII
<i>TABLE OF STATUTES</i>	VIII
<i>TABLE OF CONTENT</i>	IX

TABLE OF CONTENTS

CHAPTER 1	1
1. INTRODUCTION	1
1.1 Historical background	1
1.2 Definition of marine pollution	3
1.3 Scope, Structure & limitations	4
CHAPTER 2	6
2. SOURCES OF MARINE POLLUTION	6
2.1 Sources: overview	6
2.2 Land-based pollution	6
2.3 Pollution from activities in the sea-bed	7
2.4 Pollution from activities in the Area	8
2.5 Pollution by dumping	8
2.6 Pollution from or through the atmosphere	8
2.7 Vessel source pollution	9
2.7.1 Operational pollution	9
2.7.2 Accidental pollution	10

CHAPTER 3	13
3. INTERNATIONAL LEGAL FRAMEWORK FOR VESSEL SOURCE POLLUTION	13
3.1 Introduction	13
3.2 General legal framework	14
3.2.1 United Nations Convention on the Law of the Sea 1982 (UNCLOS)	14
3.2.1.1 Provisions for vessel source prevention	14
3.2.1.2 Flag State jurisdiction	15
3.2.1.3 Port State jurisdiction	17
3.2.1.4 Coastal State jurisdiction	18
3.3 Specific legal framework	21
3.3.1 Historical background	21
3.3.2 International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto. (MARPOL)	22
3.3.2.1 MARPOL: Substantive rules for vessel source pollution	23
3.3.2.2 MARPOL: Implementation and compliance	24
3.3.3 Other Convention	29
3.3.3.1 International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFSC)	29
3.3.3.2 International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWMC)	30
3.3.3.3 The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (the Hong Kong Convention)	31
CHAPTER 4	34
4. PREVENTION OF VESSEL SOURCE POLLUTION IN THE MALDIVES	34

4.1	Introduction	34
4.2	Economic activities connected with marine environment	34
4.3	Position in international shipping route	35
4.4	Prevention of vessel source pollution	36
4.4.1	Introduction	36
4.4.2	Existing legal framework for pollution prevention	37
4.4.3	Maldives: State's jurisdictions over vessel source pollution	39
CHAPTER 5		42
5.	CONCLUDING REMARKS	42
5.1	Problems and Recommendations	42
BIBLIOGRAPHY		46

CHAPTER 1

1. INTRODUCTION

1.1 Historical background

The historical functions performed by the seas for trade, navigation and as a medium of communication and its content of living and non living resources, have induced the international development of legal rules for its delimitation, usage and exploitation in the course of which the marine environment had been exposed to pollution and damage.¹

Notwithstanding this, in the past, it was widely assumed that the oceans are so vast and deep and no matter how much trash and chemical humans dumped or spilled into them, the effects would be negligible. And it is not wrong to say that, marine pollution as a global concern is relatively a recent phenomenon. The protection of ocean was largely neglected although there is a general emergence of environmental consciousness in the past few decades. As quoted by *Ramlal Soni*; “although there has been a localised concern with the problem of pollution since at least the 16th century, the recognition of water pollution as a problem of global dimension is of relatively recent origin and is only now beginning to find legal expression.”²

Statistical sources states that over 90% of all trade between countries is carried by ships. Some 50,000 merchant ships sail the world's oceans, transporting everything from food and fuel to construction materials, chemicals, and household items. In 2003, around 6.1 billion tonnes of cargo was shipped by sea, covering a collective distance of over 6 million kilometres.³ Subsequently, the level of pollution caused by shipping increases as does the chance of spills and accidents. This is a global problem as shipping is an international business. Invariably, this problem affects all States.

¹ <http://www.mikejgbokwe.com/new1/UNCLOS%20&%20MARINE%20POLLUTION%20REGULATION.pdf>.

² Soni, Ramanlal; Control of Marine Pollution in International Law; Juta & Co, Ltd, South Africa, 1985, p.119.

³ http://wwf.panda.org/about_our_earth/blue_planet/problems/.

Protection and preservation of marine environment has become one the most important ecological issues of modern time.⁴ The sources of human induced source of marine pollution are numerous. Among the sources, one is ship source pollution.

There is a need for the protection of man from activities that may cause damage to his property, his physical existence or his legitimate activities. In this regard, marine pollution has to be controlled because it causes damage. From an ecological perspective, ocean is an essential component to sustain lives on earth. Humans survive on various blessings from diverse organisms and the ecosystems in the oceans. The various aspects of marine ecosystem are closely interconnected and no constituent part is able to continue without the support of the other.⁵ Harm to one part may affect the rest of these constituent parts. If such a cycle is interrupted, humans will not be completely protected unless the ecosystem is well preserved.

More importantly, in the last decade or two there has been an amazing development of technical expertise and mastery over the use of the sea and its resources. This has taken place in almost every maritime activity: the expansion of global shipping and port activities in international trade, the enormous expansion of the fishing industry, the construction of super-tankers, the development of submersibles and submarines that plunge into the abyss of the sea, and more especially the superior skill now possessed in mineral extraction from the sea-bed and subsoil, particularly of the premium commodity ‘manganese nodules’. All these ‘causes’ have the effect of increasing the scale and the sources of pollution.⁶

However little has been done legally until late 1960s. It was the marine pollution caused by the Liberian vessel, the *Torrey Canyon*⁷ in 1967 that brought about more international concern and collective arrangements for the regulation and enforcement of regulations on marine pollution for the protection and preservation of the marine environment. Attempts to solve marine pollution on national levels were equally inadequate since it occurs mainly

⁴ Jin-Tan, Alan Khee; *Vessel-Source Marine Pollution*; Cambridge University Press; Cambridge, 2006, p3.

⁵ Soni, Ramanlal; *op. Cit.*, p.39.

⁶ Soni, Ramanlal; *op. Cit.*, p.37.

⁷ regarded as the world’s first major marine oil spill in which a Liberian tanker, *Torrey Canyon* with a capacity of 120,000 tons, struck Pollard’s Rock between the Cornish coastline and the Isle of Scilly causing a major oil spill in the history.

on the high seas and therefore concerted international efforts were necessary for a successful solution to marine pollution.⁸

1.2 Definition of marine pollution

The term ‘marine pollution’ as commonly understood, refers to an action or a situation that changes the quality of sea water for the worse. The *Oxford English Dictionary* defines pollution as “the presence in or introduction into the environment of a substance which has harmful or poisonous effects”.⁹ The Merriam-Webster Dictionary defines pollution as “the action of polluting especially by environmental contamination with man-made waste.”¹⁰ From both definitions are explanations and are not definitions per se. They do not suggest the elements of qualification which is vital for the application and operation of any pollution laws. So marine pollution would be as defined above but caused to the marine environment.

Surprisingly, given the importance of prevention of pollution, it is noteworthy that the earlier documents such as Canadian Arctic Waters Pollution Prevention Act and Convention of IMCO¹¹ do not in fact define the term pollution within the text itself.¹² The first major effort to formulate an express definition of marine pollution in the legal sense was that of the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP).¹³ Their definition of pollution is as follows:

“...the introduction by man, directly or indirectly, of substances or energy into the marine environment (including estuaries) resulting in such deleterious effects as harm to living resources, hazards to human health,

⁸⁸<http://www.mikeigbokwe.com/new1/UNCLOS%20&%20MARINE%20POLLUTION%20REGULATION.pdf>

⁹ <http://oxforddictionaries.com/definition/english/pollution?q=pollution>

¹⁰ <http://www.merriam-webster.com/dictionary/pollution>

¹¹ Inter-Governmental Maritime Consultative Organization, the predecessor of IMO.

¹² Soni, Ramanlal; *op. cit.*, p.36.

¹³ Nan, Meng Qing; Land-based Marine Pollution; 1st edition, Graham & Trotman Limited, London, UK; 1987.p 5.

hindrance to marine activities including fishing, impairment of quality for use of sea water and reduction of amenities”.¹⁴

Consequently, similar notions were used in defining marine pollution in later international and regional instruments relating to the protection of marine environment. Interestingly, the same formula was also adopted with slight amendments by the United Nations Convention on the Law of the Sea, 1982 (UNCLOS).¹⁵

1.3 Scope, Structure & Limitations

While marine pollution can be categorized as vessel and non vessel sources, the scope of this dissertation is to analyse the International Instruments relating to prevention of vessel source pollution with emphasis on Maldives legal framework for vessel source pollution prevention.

The dissertation consists of 5 chapters. The introductory chapter describes the marine pollution concept in general. The chapter 2 will give the readers an overview of different sources of marine pollution. Then it analyses the vessel source marine pollution, the types of vessel source pollution and its prevention.

The core chapters of the dissertation are chapter 3 and 4 which analyses the international legal framework for vessel source pollution and Maldives national legal framework for vessel source pollution prevention respectively.

Finally, chapter 5 concludes the dissertation highlighting some major problems and certain recommendations.

Although there are various International instruments which indirectly plays a role in the prevention of vessel source pollution in terms of ship construction, design, equipment, other safety measures and manning standards etc, this dissertation primarily focuses on the

¹⁴ GESAMP; Reports and Studies; The State of Marine Environment (No.39, 1990). p.5.

¹⁵ Article 1(1.14) of the 1982 UN Convention of the Law of the Sea done at Montego Bay, 10th December 1982.

main instruments namely UNCLOS, International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL), International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWMC)¹⁶, International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFSC)¹⁷ and the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (Hong Kong Convention)¹⁸ which provides preventive framework for vessel source marine pollution.

International conventions such as the International Convention for the Safety of Life at Sea, 1974 (SOLAS)¹⁹, International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC 1990)²⁰ and its Protocol of 2000 etc. have not been discussed and those are the limitations. Nevertheless the author acknowledges those instruments compliment the regime for the prevention of vessel source pollution. Moreover, the compensation and liability regime for vessel source pollution is also not covered.

¹⁶ Done at IMO, London, 13th February 2004.

¹⁷ Done at IMO, London, 5th October 2001.

¹⁸ Done at Hong Kong, China, 15th May 2009.

¹⁹ Done at IMO, London, 1st May 1974.

²⁰ Done at IMO, London, 30th November 1990.

CHAPTER 2

2. SOURCES OF MARINE POLLUTION

2.1 Sources: Overview

The sources of human-induced marine pollution are numerous ranging from discharges from land based activities to ship operations and activities at open sea. This dissertation is focused on an analysis of marine pollution of the sea emanating from both deliberate as well as accidental discharges by sea-going vessels.²¹

Tackling marine pollution is facilitated by treating the various sources of pollution separately. Generally, it has been classified into 6 forms in terms of sources of harm and hazard. The 6 forms of marine pollution are;

- (i) Land-based pollution
- (ii) Pollution from sea-bed activities
- (iii) Pollution from activities in the Area
- (iv) Pollution by dumping
- (v) Pollution from or through the atmosphere
- (vi) Vessel source pollution.²²

This classification has been commonly employed in most of international instruments including UNCLOS. It is likely that future instruments will use the same classification.

2.2 Land-based pollution

Land-based pollution can be defined as pollution of maritime zones caused by discharges from coastal establishments or other sources situated on land or artificial structures.²³ It

²¹ The term 'vessel' and 'ship' is used interchangeably, as in UNCLOS.

²² Nan, Meng Qing; *op cit.*, p. 15.

²³ <http://www.unitar.org/ilp/ilp/land-based-marine-pollution>

represents the single most important cause of marine pollution. The threat of land-based pollution to the marine environment is a serious one since it mainly affects coastal waters, which are sites of high biological productivity.²⁴ Through this source, such as direct discharge or disposal of domestic sewage, agricultural runoff such as chemical fertilizers made artificially such as pesticides, insecticides and industrial wastes of all varieties comes from land. And on various occasions, these land-based pollution sources are deliberately dumped into the sea. According to Article 207 of UNCLOS, “land-based sources” includes rivers, estuaries, pipelines and outfall structures. Although UNCLOS provides articles for regulating and preventing this source of marine pollution, it is largely regulated by domestic laws and regional agreements.

2.3 Pollution from activities in the sea-bed

Seabed activities include exploration and exploitation of both territorial sea or continental shelf and the international seabed. However, under this heading, the discussion is on activities carried out in the territorial sea and continental shelf subject to national jurisdiction. Pollution from sea-bed activities is caused by the release of harmful substances arising directly from the exploration, exploitation and processing of sea-bed resources. It accounts only 1% of pollution of the marine environment although it may be higher in certain regions due to higher rate of exploration activities.²⁵ The legal instruments for this area are still under development. However UNCLOS establishes a basic framework of general commitments with regard to this source. There are also regional agreements. This type of marine pollution arises in cases where oil spillages or gas escape during the process of exploration or transmission. Normally spillages and escapes rarely happen except for accidents.

²⁴ <https://docs.google.com/viewer?a=v&q=cache:L1yOW2oC8XYJ:www.zaoerv.de/66_2006/66_2006_3_a_535_574.pdf+what+is+landbased+marine+pollution?&hl=mt&gl=mt&pid=bl&srcid=ADGEESgcdrZGGoSemeNxYyCvSgncjLNO6q_jUF7_7_U_Oz74cTT01gqjDqV5X7HogaZuE9r8-c-mm3DnuR9UAFL_xaEKEni9WJdGnXhiziJ5e-HFqdErigungXebG11BLkRP-F_3ueR&sig=AHIEtbS3pHyw_m_LbSjzlpKr7F7CtCdOCg>

²⁵ Sands, Philippe; Principles of International Environmental Law; 2nd Edition, Cambridge University Press; Cambridge 2003; p. 445.

2.4 Pollution from activities in the Area

As discussed in 2.3, pollution from sea-bed activities is caused by the release of harmful substances arising directly from the exploration, exploitation and processing of sea-bed resources in the international seabed area, and with regard to international sea bed area it is mostly due to mining activities. This area is beyond national jurisdiction and needs international response to reduce pollution of such activities.

Article 145 of UNCLOS provides that International Seabed Authority is to adopt rules to prevent pollution from deep seabed mining, particular attention being paid to the consequences of such activities as drilling, dredging, excavation, disposal of waste, construction and operation or maintenance of installations, pipelines and other devices related to such activities.²⁶ In addition, Article 209 of the UNCLOS required States to adopt national legislation which is no less effective than the Authority's regulations for vessels flying their flag or of their registry.²⁷

2.5 Pollution by dumping

Wastes dumped deliberately at sea constitute only 10% of the overall sea pollution.²⁸ Waste dumping has been regulated by the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other matters.²⁹ The implementation of this Convention is left to Flag States, Port States and Coastal States in their territorial seas and EEZs and for the enforcement of the Convention in the high seas, state parties have agreed to cooperate.

2.6 Pollution from or through the atmosphere

Pollutants often originate from land and are transported to the ocean via rivers or through the air. Pollutants that are transported through the air to the oceans are often categorized as

²⁶ R.R Churchill et al; *The Law of the Sea*; 2nd edition, Manchester University Press, UK, 1988, p.276.

²⁷ *Ibid.*

²⁸ Louka, Elli; *International Environmental Law, Fairness, effectiveness and world order*; Cambridge University Press; New York; 2006; p.148.

²⁹ Done at London on 29th December 1972.

marine pollution through the atmosphere. For example, acid rain from the atmosphere enters the ocean causing acidification of the marine environment. Atmospheric pollutants emanate mainly from exhaust emissions from land, which contain Sulphur Oxide and Nitrogen Oxide and Carbon Dioxide. The first two cause acid rain which results in acidification of the ocean; while the third contributes to global warming which brings a result of rising temperature of the ocean.

Marine pollution via the atmosphere is treated as a separate matter from land-based marine pollution in UNCLOS; other conventions such as the Convention for the Prevention of Marine Pollution from Land-Based Sources³⁰, did not mention it. Indeed, it is a discharge from land-based source and can fit into that category. However, there is a specific reason for the separate treatment since there is a special characteristic attached to it in the sense of legal implications. Pollution via atmosphere may not at all affect the marine environment of the state on whose land the sources are located.³¹ Therefore it directly calls international regulations.

2.7 Vessel source pollution

Vessel source pollution simply means pollution caused due to shipping activities. It covers both accidental spillages of pollutants carried or from the operational activities of the vessel. Thus essentially there are two forms of vessel source marine pollution. They are pollution caused by ships' operational discharges and pollution due to accidents.

2.7.1 Operational pollution

The first form of vessel source pollution is caused by operational discharges. These can occur for variety of reasons. They include the discharge of bilge water from machinery spaces, fuel oil sludge, and oily ballast water from fuel tanks. Commercial vessels other than tankers also contribute operational discharges of oil from their machinery spaces to the

³⁰ Done at Paris on 4th June 1974.

³¹Nan, Meng Qing; *op cit.*, p173.

sea. In addition to ship related discharges, there are cargo-related operational discharges from tankers which include the discharge of tank-washing residues and oily ballast water.³²

As seen above, the main pollutants from ship operation are oil and other oily wastes. Oil tankers transport some 1,800 million tons of crude oil around the world by sea.³³ However, hazardous chemicals and noxious substances which contain bilge waters can also be released into marine environment causing pollution.

Large vessels such as container ships and tankers have ballast tanks which are loaded and unloaded to maintain the stability of the ship whilst adding or removing cargo. As stated earlier, shipping moves over 90% of the world's commodities and transfers approximately 3 to 5 billion tons of ballast water internationally each year. This potentially transfers huge amount of invasive marine species into new environment and causes ecological damage to marine environment. And this has been identified as one of four greatest threats to the world oceans and to biodiversity globally³⁴ and is one of the ways in which marine environment is polluted by ship's operational means. This type of pollution caught public attention in recent years.

2.7.2 Accidental pollution

Accidental pollution is unintentional and it arises due to accidents at sea. This happens when ships are involved in accidents for structural failures, grounding, and collisions and to lesser extent explosions, breakdowns, fire and ramming.³⁵ The causes of this type of pollution may be because of the size and the age of ship, failure of crew on board the ship, or due to bad weather or force majeure events. A minor form of accidental pollution is the so called 'terminal spills' which occur during loading and unloading operations.

³² <http://oils.gpa.unep.org/facts/operational.htm>

³³ http://www.imo.org/blast/mainframe.asp?topic_id=231

³⁴ <http://globallast.imo.org/index.asp?page=problem.htm>

³⁵ Molenaar, Erik Jaap; Coastal State Jurisdiction Over Vessel-Source Pollution; Kluwer Law International; the Hague, the Netherlands; 1998, p.19.

Although large cargo-ships such as tankers and bulk carriers pose the largest threats, incidents with other ships can also cause considerable pollution and it all depends on the cargo it carries while the fateful incident occur.

Accidental pollution is well known due to many notorious oil tanker spills starting from 1960s. Examples of these accidents include the “*Torrey Canyon*” (1967), the *Argo Merchant* (1976), the *Amoco Cadiz* (1987), the *Exxon Valdez* (1989), the *Erika* (1999) and the *Prestige* (2000) are vessel source pollution incidents. However, it contributes relatively small percentage of the total marine pollution by vessel source.

Contrary to common misconception, vessel source pollution is not synonymous with oil pollution. Oil pollution is only one subset of vessel source pollution and it is the commonest instance of pollution from vessels, whether caused intentionally by the discharges of shipping activities or arising out of accidents including collisions and stranding.³⁶ In addition to oil, toxic chemicals, liquefied natural gas (LNG) and other hazardous materials are all potential pollutants which should be regulated by vessel source pollution prevention. It all depends on different types of ships as their cargoes generate different types of pollution.

Pollution caused by ships is relatively less when compared with land-based marine pollution. It is estimated that some 20% of sea pollution comes from the deliberate dumping of oil and other wastes from ships, from accidental spills and offshore oil drilling. But of all the sources of marine pollution, the discharge of oily engine wastes and bilge from day-to-day shipping operations may be the worst, because it is steady and occurs everywhere.³⁷ This is because, ships remain the cheapest form of long-haul transport for goods in bulk, so thousands of tankers ply the world’s oil routes, with regular spills and discharges that can clog holiday beaches, killing off wildlife and destroying local tourist and fishing economies for months if not years. Invasive species are transported in the holds on ballast waters of ships, threatening biodiversity around the globe by preying upon or out-competing native species of animals and plants.³⁸

³⁶ Soni, Ramanlal; *op. cit.*, p.128.

³⁷ <http://www.unep.ch/regionalseas/home/shipping.htm>

³⁸ UNEP; Regional Seas; Strategies for Sustainable Development; report published in August 2002. p.4.

Although vessel source pollution only contributes a relatively small amount to the overall marine pollution when compared to other sources specifically land based sources, it happens to be the first source of marine pollution that the international community responded to. This is because of the series of accidents that happened during 1970s. Moreover, vessel source pollution never stops attracting the attention of international community as major oil spills keeps happening at frequent intervals. And it is often stated that maritime law develops and progresses through maritime disasters, and this is the same as in the prevention of marine pollution by ships.

The next chapter outlines the international legal framework for vessel source marine pollution.

CHAPTER 3

3. INTERNATIONAL LEGAL FRAMEWORK FOR VESSEL SOURCE MARINE POLLUTION

3.1 Introduction

Despite the far greater contribution of land based pollutants, the bulk of international regulatory attention has traditionally been paid to vessel- source pollution.³⁹ The reason for this is understandable because, ships are mobile and they transverse around between different countries. The Flag States have jurisdiction over the ship, however ships affects the interests of the different States when they come to their jurisdictions. Therefore unlike land based pollution prevention, vessel based marine pollution prevention cannot only be dealt with national legislations and it needs much broader legal framework because of these characteristics attached to it. Consequently, it is international conventions that need to be put in place for its prevention.

Various international conventions have been adopted to regulate vessel source marine pollution constituting the international legal framework for the prevention of vessel source marine pollution. These series of international conventions ranges from prevention, mitigation to compensation for damages it causes.

The main International Convention for vessel source pollution is the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL). In addition, there are other conventions which help to prevent marine pollution in one way or the other from ships. Among them include International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFSC), 2001, International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWMC), The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (Hong Kong Convention). In addition, the UNCLOS provides the general framework for vessel source pollution prevention.

³⁹ Jin-Tan, Alan Khee; *op. cit.*, p12.

3.2 General legal framework

3.2.1 United Nations Convention on the Law of the Sea 1982 (UNCLOS)

3.2.1.1 Provisions for vessel source pollution prevention

As described by many Authors, the UNCLOS is the primary instrument in the international legal framework for the preservation and protection of marine environment. As regards to the vessel source pollution, Part XII of UNCLOS provides the main core provisions and provides a jurisdictional legal framework for the protection of marine environment in terms of flag, coastal and port States jurisdictions. This is a broad jurisdictional framework within which the specific regulations for prevention of marine pollution can be created.⁴⁰ In fact, Article 237 of UNCLOS states that the Convention only provides general obligations and agreements can be concluded in furtherance of these general principles.

Article 194 paragraph 3(b) specifically requires that States take measures to minimize pollution from vessels. Such measures shall be designed in a way to prevent accidents, deal with emergencies and to ensure the safety of operation and so as to prevent intentional and unintentional discharges. It also shall regulate the design, construction, equipment, operation and manning of vessels as a preventive measure.

One of the distinct features of the vessel source pollution is that its effect is not only on one State, it causes trans-boundary pollution as seas are connected between States and shipping is the main mode of carriage of cargo. Article 195 of UNCLOS prescribes obligations on States to prevent such trans-boundary pollution. In this regard, Article 196 of UNCLOS requires States to take appropriate measures to control pollution of the marine environment from intentional and accidental introduction of species, aliens or new, to a particular

⁴⁰ Jin-Tan, Alan Khee; *op. cit.*, p.192.

part of marine environment which may cause significant and harmful changes thereto. The article was said to be the basis for a later IMO convention on that subject.⁴¹

The main provision dealing with vessel source pollution in UNCLOS is Article 211. It lays down general obligations to establish international rules regarding vessel source pollution through the competent International Organization (IMO) and through general diplomatic conference and to examine them from time to time.

The Convention vests a prescriptive as well as enforcement jurisdictions on the Flag States, Port States and Coastal States. It is to be noted that, although UNCLOS provides Port and Coastal State jurisdictions for vessel source pollution, it tried to retain the exclusive jurisdiction of flag states balancing the rights and interests of traditional Flag State rights.

Further it also provides in Section 2 Part XII for International Corporation regarding marine pollution prevention. It is apparent that this general provision is the starting point for later adoption of OPRC Convention by the IMO.

3.2.1.2 Flag State jurisdiction

The international nature of maritime navigation makes it imperative to adopt global standards to prevent marine pollution from ships. However, it creates problems because if pollution recognizes no boundaries therefore enforcement of these standards becomes difficult when it comes to sovereignty of the state and freedom of navigation. In order to overcome these problems, UNCLOS attempts to demarcate various jurisdictions to deal with pollution prevention. The Flag State, Coastal State and Port State jurisdictions being prescribed to provide a

⁴¹ International Convention for the Control and Management of Ship's Ballast Water and Sediments 2004.

regime which provides an equitable balance between the maritime and coastal interests.

Prescriptive or legislative jurisdiction of the Flag State is provided under Article 211 of the UNCLOS. Under Article 211 (1), the States are required to adopt laws and regulations that have at least same effect as the international standards. Paragraph 2 deals with the flag state controls over vessel source pollution by providing an obligation to adopt laws and regulations for the prevention, reduction and control of pollution from vessels flying its flag and such laws and regulations shall atleast have the same effect as that of generally accepted international rules and standards established through the competent international organization or general diplomatic conference. This gives discretion to the flag state and thereby permitting to enact standards more stringent than the global minimum standards.

Consequential to prescriptive jurisdiction, Article 217(1) of UNCLOS provides enforcement powers to the flag state over vessel source pollution prevention laws and regulations. Such enforcement powers can be exercised where ever the violation occurs. The Flag State is obliged to ensure compliance by vessels flying its flag with applicable international rules and standards also with the laws and regulation which it adopts in accordance with the UNCLOS for the prevention, reduction and control of pollution from vessels. In addition, the Flag State is also obliged to take other measures for the implementation of such rules.

The enforcement measures by the Flag State under Article 217 includes, prevention of ships sailing until they can proceed to the sea in compliance with the requirements of international rules provided in the Article, ensuring whether the ships carry necessary certificates required to be carried, by periodically inspecting them to verify that such certificates are in conformity with actual conditions of the ship, in case of violating to carry immediate investigations and where appropriate institute proceedings against any violations.

Furthermore, an administrative and enforcement role is vested upon the Flag State under Article 94 of UNCLOS. The flag State has a duty to take such measures for ships flying its flag as are necessary to ensure safety at sea and includes measures to prevent, reduce and control marine pollution.⁴² In fact, Article 217 extends the scope of Article 94(3) to the protection of marine environment.

3.2.1.3 Port State jurisdiction

Several Articles of UNCLOS refers to the jurisdictional powers of States over foreign ships voluntarily in their ports in connection with the implementation of measures for the prevention, reduction and control of pollution from ships.⁴³

Article 211(3) provides the to establish particular requirements for the prevention, reduction and control of pollution of marine environment as a condition for the entry of their ports, internal waters and such rules must be publicized and also shall have to be communicated to the competent organization. This is known to be Port State Control measures. Emphasis is made on the exercise of right of innocent passage or the application of Article 25(2) of UNCLOS when dealing with Port State Controls.

Article 218 of UNCLOS deals with enforcement of such laws and regulations. It provides the power to the Port State to undertake investigations where the evidence so warrants in respect of any discharges from vessels outside its maritime zones in violation of international rules and standards. Further, under Article 219, where a vessel in its port is in violation of international rules and standards relating to seaworthiness of vessel and thereby threatens damage to the marine environment, Port States must as far as practicable take necessary

⁴² Article 94(4)(c) of UNCLOS.

⁴³ <http://www.imo.org/OurWork/Legal/documents/implications%20of%20unclos%20for%20imo.pdf>

administrative measures to prevent that vessel from sailing until the cause of infringement is remedied.

According to Article 226(1)(c) of UNCLOS, Port States may refuse the release of a vessel whenever it would present an unreasonable threat of damage to the marine environment, or make the release conditional upon proceeding to the nearest appropriate repair yard. However, upon removal of the causes of violation, ships must be permitted to continue immediately.⁴⁴ These measures do not prejudice the right of the Port State to impose penalties in accordance with its national laws for violation of rules and standards for the prevention, reduction and control of pollution from vessels, even if this violation consists solely in the non-observance of preventive measures without any illegal discharge having taken place.⁴⁵

3.2.1.4 Coastal State jurisdiction

Under Article 211, paragraph 4 and 5, the Coastal State is given the right to adopt laws and regulations in relation to territorial sea and exclusive economic zone in order to prevent pollution from foreign vessels. Paragraph 6 is dedicated to special areas in the Coastal State where special laws and regulations need to be adopted in order to protect the marine environment of such special areas. The paragraph also provides detailed procedures for the adoption of special mandatory rules in their exclusive economic zone by requiring certain procedures to be followed including its communication to the international competent organization.

Coastal State's enforcement jurisdiction over vessel source pollution is rather limited to particular circumstances. According to Article 220(2), where there is clear grounds for believing that the vessel navigating in the maritime zones of the state, during its passage has violated the both national and international laws and regulations it has adopted for the prevention of pollution, may undertake physical

⁴⁴ Ibid.

⁴⁵ Ibid.

inspection, institution of proceedings and detention of ship. However, such shall not prejudice to the application of relevant provisions of Part II Section 3. Where there is clear grounds that a vessel has committed violation of applicable international rules in the Exclusive Economic Zone (EEZ), the State may require the vessel to give information regarding its identity and port of registry, its last and next port of call and other relevant information required to establish whether any violation of applicable international rules and standards for pollution prevention has occurred.⁴⁶ Further, if a vessel committed a violation in this regard, in the EEZ, causing substantial discharge causing or threatening of significant pollution and fails to give relevant information, the State may exercise physical inspection of the vessel for matters relating to the violation in the circumstances justifies it.⁴⁷ In addition, if such discharges causes major damage or threat of major damage to the coastline of Coastal State, it may institute proceedings provided the evidence so warrants, including detention in accordance with its laws, however the Coastal State can do so only where it has clear objective evidence.⁴⁸

UNCLOS has been a remarkable achievement and provides a basic legal framework for marine pollution prevention within which other legal instruments can be produced. It laid down jurisdictional framework. However the regime suffers certain limitations. This is perhaps that it tried to balance the rights of navigation and prevention measures.

Jurisdictional powers and duties of the States indicated under UNCLOS create certain problems when it comes to implementation and enforcement. Flag State duties are unfortunately not effectively carried out. The Flags of Convenience Registries adopt a very lax attitude with respect to their international obligations. Although measures have been placed to solve these problems, there are still loopholes in the international legal framework. Some authors say that this has been deliberately left out.

⁴⁶ Article 220(3) of UNCLOS.

⁴⁷ Ibid at Article 220(5).

⁴⁸ Ibid at Article 220(6).

Further, criticism are posed because UNCLOS tried to incorporate by reference of those existing as well as future instruments to be adopted and the Convention is riddled with terms of reference such as ‘applicable international rules and standards’, ‘generally accepted international rules and standard’. There is much uncertainty as to the precise meaning of these rules of reference.⁴⁹ Further, the lack of clarity as to the meaning of these terms may give rise to disputes as to where the obligations have been complied with.

It provides Flag States to enact laws and they shall ‘at least have the same effect’ as the international standards. This means that the international standards are merely a minimum threshold for the Flag States which may thus prescribe standards that are more stringent.⁵⁰ The use of terms like ‘best practicable means’ further relaxes the enforcement mechanism and give room for different levels of enforcement mechanics. Moreover, with the invention of ‘Flag of Convenience’, Flag States never have the incentive to prescribe and enforce pollution control rules diligently.⁵¹

The problem with Port State and Coastal State jurisdiction is the lack of uniformity in the enforcement jurisdiction. State practice is limited in this area. Only few States have enacted laws which provides detailed coastal jurisdiction and not all of them are in conformity with UNCLOS.⁵²

In spite of certain deficiencies, UNCLOS is said to be an umbrella Convention which laid down the path way for the future global regulatory Conventions and agreements.

⁴⁹ Jin-Tan, Alan Khee; *op. cit.*, p.195.

⁵⁰ Jin-Tan, Alan Khee; *op. cit.*, p. 179.

⁵¹ Jin-Tan, Alan Khee; *op. cit.*, p. 203.

⁵² R.R Churchill et al; *The Law of the Sea*; 3rd edition, Manchester University Press; Manchester, 1999; p 352.

3.3 Specific legal framework

3.3.1 Historical background

In the development of measures for international control of pollution from ships, attention was for a long time paid to the regulation of deliberate discharges rather than accidental spills. Similarly, oil has been recognized as the major source to cause marine pollution from ships. Consequently, the initial response was to establish regulatory international rules to combat oil pollution.

One of the early efforts to combat oil pollution can be traced in early 1920s. The concept at that time was to regulate vessel source pollution by controlling discharge within ocean zones.⁵³ Subsequently a conference was convened in Washington DC in June 1926. However, the draft convention produced by 1926 Conference never came to be formally adopted.

Following the World War II, there was a rapidly growing world economy triggering a massive demand for energy resources and it became clear that the tankers posed a more serious threat to the marine environment.⁵⁴

Following this wave of concern, in May 1954, a diplomatic conference was convened and it produced the International Convention on the Prevention of Pollution of the Sea by Oil (OILPOL 1954)⁵⁵ which was the first Convention which attempted to control marine pollution and served as a basis for the succeeding Conventions.⁵⁶ The Convention adopts two concepts: the prohibited zones or zones of the sea within which discharge of oil or oily mixtures was banned and the requirement of port states to provide facilities within

⁵³ Jin-Tan, Alan Khee; *op. cit.*, p.107.

⁵⁴ Jin-Tan, Alan Khee; *op. cit.*, p.110.

⁵⁵ Came into force on 26th July 1958.

⁵⁶ Brubaker, Douglas; *Marine Pollution and International Law, Principles and Practice*; Balhaven Press; London; 1993; p.121

which shippers could dispose their oil wastes.⁵⁷ This Convention was amended in 1962, 1969 and 1971.

However, in early 1970s, there were new developments in this area, and there was a marked environmental consciousness among public pressurizing to enhance regulation over polluting activities.⁵⁸ In June 1972, the landmark UN Conference on Human Environment was convened in Sweden and adopted a Stockholm Declaration on Human Environment which highlighted the weakness of OILPOL 1954.

In October 1973, IMCO convened the International Conference on Marine Pollution. The outcome of this Conference was a new international instrument known to be International Convention for the Prevention of Pollution from Ships (MARPOL) and it superseded OILPOL 1954 and its amendments.

3.3.2 International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 relating thereto. (MARPOL)

Although 1954 OILPOL went to some way in dealing with oil pollution, it did not satisfy the needs of the growing oil trade and development of industrial practices despite the amendments that were brought in. The *Torrey Canyon* disaster exposed the deficiencies in the existing framework.⁵⁹ The incident prompted a new discussion on ship safety and the environment and led to a decision to develop a comprehensive instrument regarding pollution from ships.

The IMO adopted the International Convention for the Prevention of Pollution from Ships and signed at a diplomatic conference in 1973. After the *Amoco Cadiz* accident off the coast of Brittany in 1977, MARPOL 73 has been modified by a

⁵⁷ C. Odidi phd; *Regional Control of Ocean Pollution; legal and institutional Problems and prospects*; sijthof & Nordiff International Publishers B.V; the Netherlands, 1978, p.31.

⁵⁸ Jin-Tan, Alan Khee; *op. cit.*, p.126.

⁵⁹ Hui Wang; *China and International Environmental Liability* in “China and International Environmental liability” in Faure, Micheal *et al* edition; Edward Elgar publishing Limited; UK, 2008, p.70.

Protocol of 1978. The combined instrument entered into force on 2nd October 1983. Since 1978, MARPOL 73/78 has been modified several times therefore now IMO prefers to call it just ‘MARPOL’.

3.3.2.1 MARPOL: Substantive rules for vessel source pollution

Within the preventive spectrum of ship source pollution, MARPOL is the most comprehensive global Convention that governs prevention of vessel source pollution. It covers the prevention of pollution of environment by ships from both operational and accidental causes. However, it is interesting to note that MARPOL does not define the term ‘pollution’ as such. Nevertheless, the objective is fulfilled by way of incorporating the elements of pollution in the definition of discharge.

The Articles of the Convention mainly deals with jurisdiction, powers of enforcement, and inspection by States in the prevention of pollution by ships. The more technical regulations which deal with aspects of operational pollution are provided in the Annexes and accidental pollution prevention is catered in terms of allocating standards for ship construction, equipment and emergency plans on board the ship. MARPOL provides a more effective enforcement mechanism when comparing to the previous Conventions in this regard.

MARPOL has 6 Annexes. The ratification of Annex III, IV, V and VI is optional, MARPOL 73 faced difficulties because of difficulties faced by States in the implementation of Annex I and II.⁶⁰ The 1978 Protocol was added to it so as to facilitate the convention to enter into force. The implementation of port reception facilities and technological demands were particularly challenging to developing states.

⁶⁰ Jin-Tan, Alan Khee; *op. cit.*, p.138.

Annex 1 deal with oil pollution. It expanded and improved previous OILPOL 1954 regime in several ways. It provides requirement to have appropriate equipments, constructions of separate ballast tanks and other systems as well to have ship board emergency plans.

Annex II with regulations controlling pollution by Noxious Liquid Substances in bulk (NLS), Annex III with harmful substances carried in package form which are as described as marine pollutants in the International Maritime Dangerous Goods Code (IMDG Code), Annex IV with regulations for the prevention of pollution by sewage from ships, Annex V with pollution by garbage produced from ships, deals with different types of garbage produced from ships and Annex VI with prevention air pollution from ships by controlling emissions of Nitrogen Oxides (NO_x), Sulfur Oxides (SO_x), Volatile Organic Compounds (VOCs) and Ozone Depleting Substances as well as on-board combustion of ship-generated waste and quality of fuel oil used by ships. All Annexes are maintained updated through tacit amendment procedure.⁶¹

3.3.2.2 MARPOL: Implementation and compliance

MARPOL is the international community's answer to the problem of vessel source pollution. It tried to strike balance between the need to protect and preserve the marine environment and the need not to impose standards which make shipping more expensive. Moreover it provided an environmental enforcement regime which balanced the jurisdictional rights of Flag States and Coastal States by removing the earlier exclusive jurisdiction on Flag States.

Many Authors commented that MARPOL in certain aspects are of a compromise between different conflicting interests. In this regard, a question to be asked is whether these compromises were effective or not? This surely depends on its assessment on the implementation by States. It is not wrong to say that most

⁶¹ Article 16(f) (iii) of MARPOL.

States established the standards required on their ships as Article 1 of MARPOL requires State Parties to give effect to the provisions and the Annexes thereto. However still the difficulties lies with lack of monitoring and enforcing MARPOL standards especially in areas where the state's jurisdiction is limited. Much progress has been made and much is to be done too.

MARPOL standards are mainly formulated depending on the size, type and age of the vessel which are provided in its Annexes. However, in certain situations, these Annexes allow the Flag States to exemption from the standards prescribed in the Annexes. In such cases, the Flag States are required to communicate it to IMO and accordingly IMO will circulate to the other parties for their information.⁶²

The role of the Flag State is of fundamental importance in the MARPOL regime. In this regard, it does not depart from the UNCLOS provisions.

There are two main obligations on the Flag State under MARPOL. Flag State is required to enact laws and regulations to give effect to its provision⁶³ and to penalize all violations of its standards.⁶⁴ However, MARPOL does not provide any guidance as to the scope of domestic laws in order to implement the Convention in particular its Annexes. This may differentiate States' implementation practices. Moreover, it also does not restrict a State from imposing higher standards than the MARPOL for its flagged vessel but it cannot be imposed on foreign vessels.

Flag States also have the obligation to detect illegal discharges from vessels; to conduct prescribed surveys to see whether it's in compliance with relevant laws and regulations; to issue and endorse required Certificates and other documentations; to ensure that harmful substances carried on ships are properly packed, labeled and stowed; and finally to report and investigate non-compliance by the ships registered in its registry. These Certificates attests to the ship's fitness to operate in international waters without harming the environment.

⁶² Reg. 3 of Annex 1.

⁶³ Article 1 of MARPOL.

⁶⁴ Ibid Article 4.

State Parties also have an obligation to communicate to the Organization⁶⁵ the enacted laws on the various matters within the scope of the Convention, specimen of certificates, and list of reception facilities, official reports on the application of the Convention, annual statistical reports of penalties imposed for the infringements of the convention.⁶⁶

Surveys prescribed in the Annexes shall be carried out by duly designated officers of the Flag State. However such surveys can be delegated to nominated surveyors by the Flag State. In any cases, full responsibility of such surveys is vested on the Flag State. The different certificates⁶⁷ issued under MARPOL are also a responsibility of Flag State and the period for which it is issued is left out for the flag state to specify. However the maximum period shall not exceed 5 years.

The provision of reception facilities is crucial for the effective implementation of MARPOL regime. Five out of six Annexes to MARPOL has regulations requiring the provision of reception facilities. However, although provision of reception facilities is fundamental to the prevention system, the wording of the regulations does not obligate the Governments to provide such facilities; rather it provides the Government to ensure the provision of reception facilities. This means in practice, that Governments may require the port authorities or terminals to provide the facilities. Ports and terminal must be aware of the needs of the ships to arrange the provision of necessary reception facilities before the implementation of each of MARPOL Annex.⁶⁸

The ability of ships to comply with the discharge requirements of MARPOL depends largely on upon the availability of port reception facilities; the lack of reception facilities in many ports worldwide poses a serious threat of pollution to the marine environment. Under Article 11 of MARPOL, State Parties are required

⁶⁵ International Maritime Organization.

⁶⁶ Article 11 of MARPOL.

⁶⁷ International Oil Pollution Prevention Certificate under Reg.7 of annex 1, International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk under Reg.10 of Annex 2, International Sewage Pollution Prevention Certificate under Reg.5 of Annex 4, International Air Pollution Prevention Certificate under Reg.6 of Annex 6.

⁶⁸ IMO; MARPOL-how to do it; 2002 edition. London; 2003. P.74.

to submit reports on the availability and however it is to be noted that few States actually being diligent to send up to date reports on their own volition.⁶⁹ Therefore, at its 56th session in July 2007, the Marine Environmental Protection Committee (MEPC) of the IMO approved a revised consolidated format for reporting alleged inadequacy of port reception facilities in order to assess the situation.⁷⁰ It required the State Parties to report regularly on various compliance matters such as adequacy of reception facilities. However, the failure of States to submit regular reports to IMO is widespread problem.

When it comes to enforcement, the legal question arises, what amounts to a MARPOL violation? The establishment of a standard to establish whether there is a violation depends on the implementing domestic legislation of each State. The standard of proof may vary from State to State. Therefore, gathering, presenting and admitting of evidence for MARPOL violations must be carefully developed by States.⁷¹ Further, IMO Resolution A.787 (19)⁷² on *Procedures for Port State Control*, as amended, contains a detailed interpretation of applicable IMO rules and standards and includes an explanation of the meaning of basic concepts involved in the exercise of port State jurisdiction.

Moreover, Flag States are required to provide sanctions under their laws and it must be adequate to discourage violations and shall also be equally severe irrespective of where the violation occurred.⁷³

MARPOL establishes Port State enforcement mechanisms. The Port States are required to exercise Port State Control jurisdiction by denying the entry of their ports to ships which do not comply with MARPOL requirements. This power is expanded as MARPOL introduces a further innovation for Port State inspections. Under Article 5(4), it can be applied to the ships of non member States. State practice indicates that Flag States which are non parties and maritime industry in

⁶⁹ Jin-Tan, Alan Khee; *op. cit.*, p. 269.

⁷⁰ MEPC.1/Circ.469/Rev.1, 13 July 2007.

⁷¹ IMO; *op. cit.* p.39.

⁷² adopted on 23 November 1995.

⁷³ Article 4(4) of MARPOL.

general, have generally acquiesced in the application to their ships of the ‘no more favourable treatment’ rule.⁷⁴ This ensures that MARPOL standards are adopted and applied equally among all, delivering a maximum environmental protection.

Although more emphasis is given to the enforcement by the Flag State and Port State jurisdiction, Coastal States also have limited powers with regard to violations which occur ‘within the jurisdiction’ and can be prohibited. Sanctions can be established under the laws of the Coastal State.⁷⁵

Since the entry into force, MARPOL has shown a substantial positive impact in decreasing the amount of oil that enters the sea from maritime transportation activities. The 1990 GESAMP report on the state of environment also observes that since 1979, there has been a significant reduction in beached tar around the world. As of 6th March 2013, 152 States are parties to the MARPOL with mandatory Annexes representing 99.20% of World tonnage is said to be one of most successful Convention in the field of marine pollution prevention.

However, to achieve the objective of MARPOL, i.e. to completely eliminate pollution of the sea by oil, chemical and other harmful substances and to effectively implement the Convention, a significant measure of corporation and commitment is required.

The primary responsibility of enforcement vested on flag States does not itself give reason to ensure that their flagged vessels comply with MARPOL rules and standards. A report of National Academy of Sciences noted among other things that, there is lack of worldwide enforcement of the MARPOL and there is a lack of worldwide efficient monitoring.⁷⁶ This is because many States especially developing States, implementation of its technical Annexes is expensive. Further Contracting Parties do not regularly or at all submit reports to IMO about their application of the Convention. It is criticized as suffering greatly from built-in

⁷⁴ Vidas Davor et al; Order for the Oceans at the at the Turn of the Century; Kluwer Law International; The Hague, The Netherlands, 1999; p 491.

⁷⁵ www.law.mq.edu.au/public/download/?id=15016

⁷⁶ <http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/ljmc7&div=48&id=&page>

self-policing mechanisms, in that despite the Port State's right of detention of foreign vessels found with invalid certificates, the vessel's Flag State has the ultimate responsibility for imposing fines and penalties on the foreign vessels and the Flag State's laws determine the scope of such fines and penalties.

3.3.3 Other Conventions

There are 3 other important instruments which should be referred to in order to complete the regime for vessel source marine pollution.

3.3.3.1 International Convention on the Control of Harmful Anti-fouling Systems on Ships (AFSC)

The harmful environmental effects of organotin based compounds such as tributyltin (TBT) used in anti-fouling paints on vessel hulls and infrastructure have been recognized for some time. These paints are used to inhibit growth of marine organisms to maintain the efficiency of vessels and infrastructure.⁷⁷

AFSC was adopted by IMO on 5th October 2001 and entered into force on 17th September 2008. It prohibits the use of harmful organotins in anti-fouling paints used on ships and establishes a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems. Under the Convention, State Parties are required to prohibit and or restrict the use of harmful anti-fouling systems on ships flying their flag, as well as ships although not entitled to fly their flag but which operate under their authority and all ships that enter a port, shipyard or offshore terminal of a State Party. Surveys will be undertaken before a mandatory international anti fouling system certificate can be issued and when anti fouling system is changed or removed.

⁷⁷ https://www.infrastructure.gov.au/maritime/environment/anti_fouling.aspx

Antifouling Systems to be prohibited or controlled are provided in an Annex which states that all ships shall not apply or re-apply organotins compounds which act as biocides in anti-fouling systems.

Convention provides for the establishment of a “technical group”, to include people with relevant expertise, to review proposals for other substances used in anti-fouling systems to be prohibited or restricted.

3.3.3.2 International Convention for the Control and Management of Ships’ Ballast Water and Sediments (BWMC)

Invasive aquatic species present a major threat to the marine ecosystems, and shipping has been identified as a major pathway for introducing species to new environments. The problem increased as trade and traffic volume expanded over the last few decades and in particular with the introduction of steel hulls, allowing vessels to use water instead of solid materials as ballast.⁷⁸ It is estimated that around 10 billion tons of ballast water are carried around the world by ships each year (IMO 1999). Ballast water is essential to the safe operation of ships, but it also causes environmental problems. Because when ballast water is discharged into new environments these species may be invasive and severely disrupt the native ecology and have serious impacts on the economy and human health. The global economic impacts of invasive marine species have not been quantified but are likely to be in the order of tens of billions of United States dollars a year.⁷⁹

Therefore, proper control and management of ships’ ballast water became a major environmental challenge for shipping industry. At IMO, international guidelines dealing with the problems of harmful aquatic organisms and pathogens were first adopted in 1993 and a revised set of guidelines were issued in 1997.⁸⁰ In 2004, a

⁷⁸ <http://www.imo.org/OurWork/Environment/BallastWaterManagement/Pages/BWMConvention.aspx>

⁷⁹ http://www.imo.org/blast/blastDataHelper.asp?data_id=8596&filename=Raaymakers-IMOBallastWaterUpdate.pdf

⁸⁰ Jin-Tan, Alan Khee; *op. cit.*, p 171.

diplomatic Conference was convened and adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWMC) at IMO's Headquarters in London from 9 to 13 February 2004.⁸¹

The BWMC regulates the rights and obligations of Port, Coastal, and Flag States and provides technical regulations and guidelines for the control and management of the ships' ballast water. It comprises of 22 Articles, an Annex consisting of 5 Sections relating to control and management of ship's ballast water and sediments, and it has two appendices setting out standard formats with respect to the International Ballast Water Management Certificate and the required form of the ballast water record book for reporting and verification regarding each ballast water operation including discharge at sea and to reception facilities. Furthermore, 17 guidelines which were set out by IMO and be integrated with the BWMC. The functions of this guideline are to provide essential additional technical instruction to support the implementation of the BWMC.⁸²

This Convention provides an international framework to control and manage ships' ballast water and thus prevent, minimize and eliminate the transfer of harmful organisms across oceans. However BWMC has not yet entered into force and as of 6th March 2013, 36 States have ratified representing 29.07%⁸³ of world tonnage.⁸⁴

3.3.3.3 The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009 (Hong Kong Convention)

Certainly the subject of ship recycling is highly complex due to the international dimensions of the shipping industry. A major reason why national regulatory

⁸¹ <http://www.imo.org/OurWork/Environment/BallastWaterManagement/Pages/BWMConvention.aspx>

⁸² Maria, Helena, et al; The International Law on Ballast Water, Martinus Nijhoff Publishers, 2008, p 142-143.

⁸³ 35% of world's tonnage is required to enter into force.

⁸⁴ IMO; Summary of status of Conventions.

regimes have failed is that relevant domestic laws are incapable of regulating transnational actors who operate out its jurisdictional ambit.⁸⁵

Ship recycling contributes to sustainable development, it also brings economic development for local and regional communities by creating employment and additional activities related with it. However, the well being of recycling industries depend on safe and sound working and environment friendly practices and standards. However there are only few mandatory standards on ship breaking at the international level.⁸⁶

The first attempt of the international community was the implementation of Basel Convention.⁸⁷ However it was not a successful attempt. IMO, having first developed and adopted in December 2003 voluntary Guidelines on Ship Recycling, agreed in December 2005, through an Assembly resolution, to develop a “new legally binding instrument on ship recycling”. The result was seen in 2009. The Hong Kong Convention was adopted at a diplomatic conference held in Hong Kong, China, from 11 to 15 May 2009.⁸⁸

The Convention is aimed at ensuring that ships, when being recycled after reaching the end of their operational lives do not pose any unnecessary risks to human health, safety and to the environment. It contains regulations which cover: the design, construction, operation and preparation of ships so as to facilitate safe and environmentally sound recycling without compromising the safety and operational efficiency of ships; the operation of ship recycling facilities in a safe and environmentally sound manner; and the establishment of an appropriate enforcement mechanism for ship recycling, incorporating certification and reporting requirements.

⁸⁵ Puthucherril, Tony George; From Ship breaking to Sustainable Ship recycling; Martinus Nijhoff Publishers; 2010, p 6.

⁸⁶ Ibid.

⁸⁷ Mikelis, Nikos; The Hongkong International Convention for the Safe and Environmentally Sound Recycling of Ships; pp presentation; Maritime Environment Division, IMO; Geneva 9 December 2010.

⁸⁸ <http://www.imo.org/OurWork/Environment/shiprecycling/pages/Default.aspx>

In addition ships to be sent to recycling will be required to carry an inventory of hazardous materials and a list of hazardous materials are provided in the appendix. Similarly ship recycling yards are also required to provide a 'ship recycling plan and State Parties are required to comply with Conventional rules.

However, with regard to Hong Kong Convention it is difficult to predict its entry into force⁸⁹, but it is unlikely that it will enter into force before 2015. Further, the IMO has several guidelines to assist the States in the early implementation of the Convention's technical standards.

With these international instruments, the international legal framework for vessel source pollution is said to be a comprehensive regime. It is aimed at preventing all sorts of vessel source pollution and mitigating any adverse effects on the marine environment. All these Conventions complement each other to improve and complete the system for the prevention. The effective implementation will provide a cleaner ocean environment with environment friendly shipping worldwide.

⁸⁹ 15 States representing 40% of world tonnage is required for it to enter into force.

CHAPTER 4

4. PREVENTION OF VESSEL SOURCE POLLUTION IN THE MALDIVES

4.1 Introduction

Maldives is a nation of small reef islands located in the Indian Ocean, stretched over an area of 90,000 square kilometers, 900 kilometers south west of Sri Lanka, stretching along 73° East longitude and from about 8° North to 1° South latitude. The archipelago consists of 26 natural atolls with about 1200 islands.⁹⁰

The maritime area of the Maldives is relatively extensive. Therefore, the dominant natural environment of the Maldives is, without a doubt, its marine environment. Outside the atolls, the deep ocean covers a large area, and the Exclusive Economic Zone (EEZ) and territorial waters of the Maldives covers an area of 859,000 km² and 115,300 km² respectively. Lagoons, reefs and, to a lesser extent sea grass and wetland areas, make up the marine environment inside the atolls.⁹¹ Being the only resource available, the Maldives has depended on coastal and marine resources from time immemorial.⁹² The isolated peoples living in rural areas away from the capital, *Male'*, are especially aware of their sensitive marine environment as they depend on marine resources, more than anything else, for their subsistence and survival.

4.2 Economic activities connected with marine environment

Since the early 1970s, tourism has rapidly developed in the Maldives and has become most vital industry in the country. However, it is also faced by unique environmental challenges. The marine environment of the Maldives, with its stunning beaches and beautiful reefs, is

⁹⁰ Dr Mohamed Ali; "Sustainable management of the Bay of Bangal large marine ecosystem (BOBLME)"-The Maldives: national Report. p.6.

⁹¹ "Maldives: State of the Environment 2002"; UNEP report; 2002, p.22.

⁹² Dr. Mohamed Ali; *loc cit.*, p.10.

one of its primary assets. Not only are coral reefs a source of employment, food, leisure and provider of different habitats for thousands of species. The reefs also protect the islands from storms and erosion.

Fisheries is the second largest industry in the Maldives today. The total fish catch in 2008 amounts to more than 130,000 metric tons.⁹³ The sector is a major provider of employment in the Maldivian economy, particularly in outlying atolls. With 14,955 fishermen, the sector employs 11% of the labour force and about 20% of the total population is dependent on fisheries as their major income earning activity.⁹⁴

Maldives has an extensive fleet of traditional small fishing boats which are made of wood and constructed specially for tuna fishing. According to available statistical reports of the Transport Authority of Maldives, a total of 6293 fishing vessels are registered with them. These vessels are, on average, more than 15.6m in length and have a beam of 5.0m, and can hold minimum of 6 metric tons of fish in ice and travels at around 9km/hour.⁹⁵

In addition, Maldives has an active merchant shipping fleet used for import and export purposes, including ten cargo vessels, one container ship, and one oil tanker. The government-owned Maldives National Ship Management Limited is the largest of several Maldivian shipping firms.⁹⁶ Therefore it is inevitable that these vessels, whether small or big, would discharge pollutants into the sea.

4.3 Position in international shipping route

Maldives is located in the maritime trade route from the Indo Chinese Far East to the Middle East and Africa and is a vital waterway in maritime time commerce in this globalized era. Due to its geographic position, it has been at a cross roads of world trade for

⁹³ Shinan, Shakeel; Country Presentation; Ministry of Fisheries and Agriculture, Maldives.

⁹⁴ <http://www.un.int/maldives/Wpr:d%20Bank%20Report%20-%20A9.pdf>.

⁹⁶ http://www.mongabay.com/history/maldives/maldives-transportation_and_communications.html

centuries. Therefore, there is a geographical proximity of the Maldives to heavily active international shipping routes.

Furthermore, Maldives depends almost exclusively on shipping to move its exports and almost all commodities are imported to the country from abroad. The principal port of Maldives is located in the capital city of Maldives, and it is the only port which handles international traffic. However, due to its dependence on shipping activities its sea lanes and port operations create a continual risk of pollution to the marine environment. It is high time to take this into consideration, because a recent report showed that oil residues are present around the waters of the Maldives. This is due to the increase in size and number of oil tankers carrying oil from the Middle East to the Far East.⁹⁷ However, consistent data is not available.

4.4 Prevention of vessel source pollution

4.4.1 Introduction

Taking into account the unique geography and its position in the Indian Ocean, the protection and preservation of the marine environment is a matter to which Maldivians of all walks of life attach great importance. It would be devastating for a country like Maldives, where the islands are widely dispersed across a large distance and 99% of the country is made up of the ocean⁹⁸, if a huge oil pollution incident such as *Torrey Canyon* occurs.

Different policies of the Government clearly emphasize the fact that there is a need for a comprehensive legal and institutional framework for the protection of marine environment, including pollution from seagoing vessels. The existing system relating to marine pollution is slow in its progress. Nevertheless efforts are being made to rectify this. At a regional level, in March 1995, an action plan was

⁹⁷ Dr. Mohamed Ali; “Sustainable management of the Bay of Bengal large marine ecosystem (BOBLME)”-The Maldives: national Report; p.11.

⁹⁸ <http://www.maldivesmission.com/maldives/geography>

adopted in order to overcome the problems posed by the expansion of human populations; oil transport across the Arabian Sea.

Further, Maldives has ratified many of the International Conventions relating to protection of environment in particular relating to marine environment. In this regard, Maldives became a Contracting Party to UNCLOS on 7th of September 2000, following its formal lodgement of the instrument of ratification with the Secretary General of the United Nations after its signature on 10th December 1982. With regard to marine pollution prevention instruments of IMO, Maldives is a party to several IMO conventions and among others, these include, MARPOL with Annex 1 and 2 and BWMC.⁹⁹ However, Maldives has not enacted any enabling legislation to give effect to any of these Conventions.

4.4.2 Existing legal framework for pollution prevention

The national legal framework of Maldives which provides for the prevention and preservation of marine environment is manifestly poor. Although Maldives has ratified several international conventions related to the prevention of marine pollution from ships, so far there is no comprehensive domestic legislation that deals with marine pollution.

According to Article 22 of the Maldivian Constitution, the State shall take necessary measures to prevent and preserve the environment.¹⁰⁰ It creates an obligation on the executive to provide such mechanisms and measures to preserve and protect the environment from all sources of pollution. Further, the constitution also places a duty on every citizen to preserve and protect the natural

⁹⁹ <http://foreign.gov.mv/new/tpl/show/content/conventions14/>

¹⁰⁰ Article 22 of Constitution states that “*the State has a fundamental duty to protect and preserve the natural environment, biodiversity, resources and beauty of the country for the benefit of present and future generations. The State shall undertake and promote desirable economic and social goals through ecologically balanced sustainable development and shall take measures necessary to foster conservation, prevent pollution, the extinction of any species and ecological degradation from any such goals.*”.

environment, biodiversity, resources and beauty of the country and to abstain from all forms of pollution and ecological degradation.¹⁰¹ However, since the promulgation of the Constitution in 2008, no new legislation has been passed for the protection and prevention of pollution.

The main piece of legislation that provides regulations for the protection and prevention of pollution is the Environment Protection and Preservation Act 1993 (“EPP Act”), which provides general duties for the protection of marine environment to the executive branch of the Government. But it does not provide a comprehensive mechanism for performing their obligations.

Under section 1 of EPP Act, the Government and citizens should give special attention to the protection of its environment including both sea and the atmosphere. The relevant Government authorities shall also provide guidelines for the protection and preservation and everyone is required to respect such guidelines.

Under section 7(a), any type of wastes, oils, poisonous gases or any substance that may have harmful effects on the environment shall not be disposed of within the territory of the Maldives. In cases where the disposal of such substances becomes absolutely necessary, they shall be disposed of only within those areas designated for such purposes by the Government. If such waste is to be incinerated, appropriate precautions should be taken to avoid any harm to the health of the population.¹⁰² Similarly, the Act also states that wastes that are harmful to human health and the environment shall not be disposed of anywhere within the territory of the country and permission should be obtained from the relevant authority at least 3 months in advance of any trans-boundary movement of such wastes through the territory of the Maldives.¹⁰³

¹⁰¹ Article 67(h) of Maldivian Constitution.

¹⁰² Article 7(b) of EPP Act.

¹⁰³ Ibid Article 8.

Certain monetary penalties are provided in section 9 of the Act: where a person causes pollution within the territory of the Maldives. These fines depend on the severity of the damage caused by such pollution.

It is also worth mentioning various other related laws that have a bearing on the prevention of pollution by vessels, in terms of protecting the maritime zones of the country as well as vessel registration and operation in the Maldives.

The Armed Forces Act (Act no. 1/2008) states, *inter alia*, the duties and responsibilities of the Coast Guard. Under this Act, the Coast Guard is responsible for protecting the maritime zones of the Maldives as declared in Maldives Maritime Zones Act (Act no. 6/96). Under the Armed Forces Act, the Coast Guard has the power to inspect any vessel which enters Maldivian waters illegally or attempts to enter and navigate in the Maldivian Waters.¹⁰⁴

The Maritime Navigation Act (Act no. 69/78) provides that vessels engaged in domestic transport as well vessel engaged in internal navigations owned by Maldivians must be registered at the relevant Governmental authority. And such vessel must be operated in a safe manner so as to not pose any threat or hazard to other activities in the marine environment. However the Act does not provide any mechanism with regard to the enforcement of its jurisdiction over vessels causing pollution.

4.4.3 Maldives: State's jurisdictions over vessel source pollution

The Transport Authority of Maldives, under the Ministry of Transport and Communication, has the responsibility, among other matters to; make regulations for the safety at sea, protection and prevention of pollution from vessels, safe carriage of dangerous goods, maritime search and rescue, organizing Port State

¹⁰⁴ Article 41(a)(2) of Armed Forces Act.

Control responsibilities, international co-operation in maritime affairs, investigation of marine casualties, provisions of navigational warnings and aids, surveying, establishing port facilities and regulating them.¹⁰⁵ Hence Transport authority of Maldives is responsible for ensuring the safe and environmentally sound operation and navigation of vessels flying the Maldivian flag.

There is no specific legislation implementing the flag State jurisdiction provided in MARPOL. Nevertheless, the EPP Act creates general obligations, which can easily accommodate all sorts of environmental pollutions or discharges from vessels including oil, garbage, sewage or other hazardous and noxious substances. However, the Act is silent on detailed measures that a flag State is under an obligation to take in reducing or minimising the disposal of pollutants covered under MARPOL. For example, it does not specify the distances at which such pollutants shall be discharged. Nor does the Act stipulate any detailed methods, procedures or requirements, in discharging oil, garbage, sewage or any other substances that may harm the environment.

Furthermore, the Transport Authority of Maldives mandated to verify its flagged vessel's compliance with international requirements. It provides Circulars and Guidelines¹⁰⁶ for its vessel, in the absence of specific legislation.

Transport Authority of Maldives, is required to conduct surveys aboard all Maldivian flagged vessels by its mandate. However there is no national legislation to prohibit vessels from entering Maldives who do not comply with the applicable rules which are in place to prevent unreasonable threats to the marine environment. Nor is there a law which places an obligation on the authorities to investigate reports on non-compliance by Maldivian registered vessels or to institute proceedings against defaulting vessel.

¹⁰⁵ Mandate of Transport Authority of Maldives.

¹⁰⁶ Circulars and guidelines are instructions provided by the Executive branch. .

With regard to the Port State obligations, the Transport Authority is vested with powers by its mandate, to inspect on foreign vessels calling on Maldives ports. For these purposes, Port State inspectors are appointed. They carry out their functions in coordination with personnel from Maldives Ports Limited. However, the mechanism to control the entry of ports when there is non-compliance with the international requirements is not clear in the laws. The laws are silent on powers of the Maldivian authorities in this regard.

Maldives is also a party to Indian Ocean Memorandum of Understanding (“IOMOU”)¹⁰⁷. However there is no law to implement IOMOU requirements in the Maldives yet. Hence, there are no standards within the Maldives to conduct Port State inspections required by the IOMOU.

The only legislation which provides jurisdiction in terms of Coastal State is the Maldives Maritime Zones Act (Act no.6/96). It provides jurisdiction to the executive to adopt regulations in all areas including the prevention of pollution.¹⁰⁸ However it does not specifically provides for the prevention of pollution by vessels in Maldivian waters. Furthermore, no laws provide for the specific Coastal State jurisdiction with regard to the prevention of pollution from vessels. Nevertheless, it is assumed that the Coast Guard has the Coastal State jurisdiction over foreign vessels violating its laws and regulations under Maritime Zones Act.

There is also a major lacuna in Maldivian laws in meeting its international obligations. National laws are silent on the rights and obligations in dealing with vessel in the Maldivian EEZ and territorial waters to monitor, inspect and investigate any violations with its pollution prevention laws.

For the above reasons, the national framework falls far short in implementing the State’s jurisdiction in preventing pollution from vessels.

¹⁰⁷ IOMOU adopted for the regional cooperation for implement requirements of maritime conventions.

¹⁰⁸ Article 17 of MZ Act of Maldives.

CHAPTER 5

5. CONCLUDING REMARKS

5.1 Problems and Recommendations

There are mounting concerns internationally in protecting and preserving the marine environment from all sources of marine pollutions, and in particular, pollution from vessels due to increased shipping activities in the oceans. The general perception is that the international community is active in enacting marine pollution prevention instruments in response to various pollution incidents.

From the research undertaken it has become conclusive that there is a comprehensive existing legal framework applicable for vessel source pollution. UNCLOS together with IMO Conventions lays down jurisdictional powers, technical standards and other measures to deal with both operational and accidental pollution.

However, having a comprehensive international legal framework in place is itself not sufficient. Proper implementation is required. It is the biggest issue faced with respect to many international conventions. It is argued that the lack of effective implementation causes hindrance in controlling pollution from vessels. There is, however, emerging evidence of Flag State commitment to the control of pollution from vessels, in response to the application of regional Port State Control measures being increased.

Further, the regulation of ship construction and safety standards are vested with classification societies. These societies are private institutions in the shipping industry who are also business enterprises. Most Flag States delegate such technical duties to these societies. However, there are criticisms against these societies for lowering their standards to keep up with the competition and to get more clients.

There are always problems with the reduced number of ratification of international conventions by States. The effectiveness of international legal framework depends on the number of States that implement the framework in its national laws. It requires cooperation amongst the Member States. Certainly, conventions such as MARPOL require technical equipment and established facilities, as well as the implementation of specific standards during ship construction. Developing States would require economic as well as technical assistance and expertise to put in place the required system and for its effective functioning.

However, MARPOL is a success story. It has contributed to a substantial reduction of oil pollution since it entered into force. When compared to other Conventions, the level of ratification and enforcement is high. It has been ratified by virtually every maritime nation.

Certainly, there is still room to improve the international regime as new developments occur. The International community needs to give more attention to the shortcomings of the framework.

In this regard, mechanisms should be established for creating awareness amongst States regarding these international instruments and sharing information on their implementation. The sharing of technology is an especially effective means for developing States to implement these instruments. Training the respective personnel in port facilities is also an important aspect that requires attention.

Moreover, States should have a close relationship with the relevant international agencies such as the IMO, and empower relevant agencies to gather information in order to establish a central coordinated system for enforcement monitoring.

Port States are to be more empowered, in the sense that rather than referring violations to the Flag States. It must be given the appropriate authority to take actions against violations. It is the trend for most conventions to exclude military vessels from its scope

of application. However such vessels should be subject to assessment by ports for pollution violations as well. In addition, in the private sphere, the classification societies who work with the Flag States must be more responsible in their functions.

Finally, it is true to say that there is a properly established international legal framework. With these international conventions, a dedicated implementation and enforcement mechanism is required by the States Parties. Accidents and illegal activities do occur. It is not only large pollution events that causes harm but continuous small amount of chronic pollutions are just as damaging as one huge accident. Universal effective implementation is needed in order to achieve the objectives of the international legal framework.

The Maldivian legal framework for vessel source pollution prevention falls short, and lacks comprehensiveness. As described in chapter 4, it does not deal specifically with pollution by vessels.

Maldives is a party to MARPOL as well as BWMC but it has not yet incorporated these conventions into domestic law in a comprehensive manner. The general obligations are provided in different pieces of legislations, but they do not address all the international obligations. The laws should also prescribe specific jurisdictional powers and responsibilities for Flag State; Port State and to the Coastal State under relevant Conventions.

A reason for these short comings may be lack of priority for maritime issues in the country. Furthermore, there is inadequate capacity and resources for updating the existing legislations and for establishing expensive technical standards such as reception facilities required by Conventions.

In addition to the lack of proper laws for the prevention of pollution by vessels, currently there are multiple authorities dealing with one or more aspects of pollution prevention in the country, which makes the system more complex. Therefore there is a need to establish a centralized authority whose responsibilities are clearly defined. In this vein, there is also a need to strengthen the institutional framework for preventive monitoring and

enforcement. Moreover, collaboration with other States is important to overcome the international problem of marine pollution.

Therefore, it is highly recommended to incorporate the relevant conventions for pollution by vessels into domestic law, and in this regard, enact comprehensive laws and regulations and establish specialized authorities for their implementation. Further accession to AFSC and Hong Kong Convention is advisable. For Maldives, it is high time to act to protect and preserve the marine environment, for the betterment of future generations of an island State where the ocean plays an important role in the daily lives of its people, and for economy of the country.

It is hoped that, when these conventions duly implemented will reduce and eliminate pollution of marine environment by ships and safeguard against the world oceans.

SELECTED BIBLIOGRAPHY¹⁰⁹

Books

Brubaker, Douglas; Marine Pollution and International Law, Principles and Practice; Balhaven Press; London; 1993

C. Odidi ; Regional Control of Ocean Pollution; legal and institutional Problems and prospects; sijthof & Nordiff International Publishers B.V; the Netherlands, 1978

Davor Vidas and Willy Østreng; Order for the Oceans at the at the Turn of the Century; Kluwer Law International; The Hague, The Netherlands, 1999

Faure, Micheal Song Ying; China and International Environmental liability; Edward Elgar publishing Limited; UK, 2008

Helena, Maria, Fonseca de Souza Rolim; The International Law on Ballast Water, 1st edition, Martinus Nijhoff Publishers, Leiden ; Boston, 2008

IMO; MARPOL- how to do it; 2002 edition. London; 2003

Jin-Tan, Alan Khee; Vessel-Source Marine Pollution; Cambridge University Press, Cambridge, 2006

Louka, Elli; International Environmental Law, Fairness, effectiveness and world order; Cambridge University Press; New York; 2006

Molenaar, Erik Jaap; Coastal State Jurisdiction Over Vessel-Source Pollution; Kluwer Law International; the Hague, the Netherlands; 1998, p.20

Nan Meng-Qing; Land based Marine pollution; 1st edition, Graham & Trotman Limited, London, UK, 1987

Puthucherril, Tony George; From Ship breaking to Sustainable Ship recycling, Martinus Nijhoff Publishers; Leiden ; Boston, 2010.

R.R Churchill, A.V. Lowe; The law of the sea; 2nd Edition, Manchester University Press, UK, 1988

¹⁰⁹ All websites last accessed on 28th March 2013.

R.R Churchill, A.V. Lowe; The law of the sea; 3rd Edition, Manchester University Press, UK, 1999

Soni, Ramanlal; Control of marine pollution in International law; Juta & Co, Ltd, South Africa, 1985

Sands, Philippe; Principles of International Environmental Law; 2nd Edition, Cambridge University Press; Cambridge, 2003

Papers delivered at a conference

Mikelis, Nikos; Introduction to the Hong Kong Convention and its requirements; Presentation delivered at the Ship Recycling Technology & Knowledge Transfer Workshop, organized by the Secretariat of the Basel Convention, Izmir, Turkey, July 14 -16, 2010

Reports

GESAMP; Reports and Studies; The State of Marine Environment (No.39, 1990).

UNEP; Regional Seas; Strategies for Sustainable Development; report published in August 2002.

“Sustainable management of the Bay of Bangal large marine ecosystem (BOBLME)”-The Maldives: national Report by Dr. Mohamed Ali; national consultant.

Maldives: State of the Environment 2002; report published by UNEP; 2002

Shinan, Shakeel; Country Presentation; Ministry of Fisheries and Agriculture, Maldives

MEPC.1/Circ.469/Rev.1, 13 July 2007

Websites

http://www.zaoerv.de/66_2006/66_2006_3_a_535_574.pdf

<http://www.mikeigbokwe.com/new1/UNCLOS%20&%20MARINE%20POLLUTION%20REGULATION.pdf>

http://wwf.panda.org/about_our_earth/blue_planet/problems/

<http://www.mikeigbokwe.com/new1/UNCLOS%20&%20MARINE%20POLLUTION%20REGULATION.pdf>

<http://oxforddictionaries.com/definition/english/pollution?q=pollution>

<http://www.merriam-webster.com/dictionary/pollution>

https://docs.google.com/viewer?a=v&q=cache:L1yOW2oC8XYJ:www.zaoerv.de/66_2006/66_2006_3_a_535_574.pdf+what+is+landbased+marine+pollution?&hl=mt&gl=mt&pid=bl&srcid=ADGEESgcdrZGGoSemcNxYyCvSgnsclLNQ6q_jUF7_7_U_Oz74cTT01ggjDqV5X7HogaZuE9r8-c-mm3DnuR9UAFL_xaEKEni9WJdGnXhiziJ5e-HFqdErigungXebG11BLkRP-F_3ueR&sig=AHIEtbS3pHyw_m_LbSjzlpKr7F7CtCdOCg

<http://www.unitar.org/ilp/ilp/land-based-marine-pollution>

<http://www.unep.ch/regionalseas/home/shipping.htm>

<http://oils.gpa.unep.org/facts/operational.htm>

http://www.imo.org/blast/mainframe.asp?topic_id=231

<http://globalast.imo.org/index.asp?page=problem.htm>

<http://www.imo.org/OurWork/Legal/documents/implications%20of%20unclos%20for%20imo.pdf>

<http://www.imo.org/OurWork/Legal/documents/implications%20of%20unclos%20for%20imo.pdf>

www.law.mq.edu.au/public/download/?id=15016

<http://heinonline.org/HOL/LandingPage?collection=journals&handle=hein.journals/ljmc7&div=48&id=&page>

https://www.infrastructure.gov.au/maritime/environment/anti_fouling.aspx

<http://www.imo.org/OurWork/Environment/BallastWaterManagement/Pages/BWMConvention.aspx>

http://www.imo.org/blast/blastDataHelper.asp?data_id=8596&filename=RaaymakersIMOBallastWaterUpdate.pdf

<http://www.imo.org/OurWork/Environment/BallastWaterManagement/Pages/BWMConvention.aspx>

<http://www.imo.org/OurWork/Environment/shiprecycling/pages/Default.aspx>

<http://www.un.int/maldives/Wpr;d%20Bank%20Report%20-%20A9.pdf>.

http://www.mongabay.com/history/maldives/maldives-transportation_and_communications.html

<http://www.maldivesmission.com/maldives/geography>

<http://foreign.gov.mv/new/tpl/show/content/conventions14/>