
REVISTA DE DIREITO INTERNACIONAL

BRAZILIAN JOURNAL OF INTERNATIONAL LAW

Editores responsáveis por essa edição:

Editores:

Nitish Monebhurrin

Harvey Mpoto Bombaka

Marcelo Dias Varella

Editores convidados:

Carina Oliveira

Teresa Fajardo

Daniela Diz

ISSN 2237-1036

Revista de Direito Internacional Brazilian Journal of International Law	Brasília	v. 20	n. 3	p. 1-265	dez	2023
--	----------	-------	------	----------	-----	------

Prevention and reparation of marine pollution due to oil spills caused by ships under international and national law: case study of Vietnam*

* Recebido em 26/06/2023

Aprovado em 28/03/2024

Funding: This article is financially supported by the Hanoi Law University (HLU), Vietnam.

** Dr. NGUYEN Toan Thang is a Lecturer at the Comparative Law Institute, Hanoi Law University. Dr. Nguyen Toan Thang received his Ph.D. in international law from Université Libre de Bruxelles (Belgium) with the thesis titled Coastal Artificial Extension and its Consequences in International Law. Dr. Nguyen Toan Thang holds teaching assignments (Associate Professor) at the International School (Hanoi National University) and Hanoi Open University. Dr. Nguyen Toan Thang has research interests in comparative law, ocean law and policy, the law of the sea in Southeast Asia, and the East Sea (South China Sea) issues. Dr. Nguyen Toan Thang took part in several projects dealing with the East Sea issues and was a speaker at various national and international Conferences. Email: ngthang2002@gmail.com

*** Dr NGUYEN, Thi Hong Yen is a senior lecturer and researcher in the International Law field in Vietnam. She is currently Head of the Public International Law Division of Hanoi Law University (HLU). She has carried out research projects and published many books and articles in prestigious law journals in Vietnam and other countries. From 2012-2015 she was known as an independent expert who joined to build up the National Action Plan on implementing the recommendations accepted by Vietnam during the 2nd cycle of UPR. She has obtained numerous governmental scholarships in public international law and assumed visiting appointments and fellow positions in some universities (i.e., The Raoul Wallenberg Institute of Human Rights and Humanitarian Law (Lund University, Sweden), The Norwegians Centre for Human Rights of Oslo University (Norway); The Human Rights Center of Abo Akademi University (Finland) and The Hague Academy of International Law (The Netherlands). Currently, she is interested in studying some legal areas such as Human Rights Law, International Environmental Law, Climate change, International Sea Law. Etc. Email: hongyennghuyen.hlu@gmail.com

**** Dr. MAC Thi Hoai Thuong is a Faculty of International Law lecturer at Hanoi Law University, Vietnam. She has 14 years of work experience in law as a Lecturer at Hanoi Law University, especially in public international law, treaty law, human rights, fundamental rights and obligations of citizens. She is a full member of the Asian Association of Law Professors. Email: macthihoaihuong.hlu@gmail.com

Prevenção e reparação da poluição marinha devida ao derramamento de petróleo causados por navios no âmbito do direito internacional e nacional: estudo de caso do Vietnã

Thang Toan Nguyen **

Yen Thi Hong Nguyen ***

Thuong Thi Hoai Mac****

Abstract

Marine pollution due to oil spills has been causing extremely serious consequences to the natural environment, society and mankind. As a coastal country with a coastline of more than 3,260 km, an exclusive economic zone and a continental shelf of more than one million square kilometer, the ocean economy plays a very important role in the existence, development and prosperity of Vietnam. A number of recent studies have shown that, despite being assessed as rich in natural resources and potential for development, Vietnam's seas are facing serious pollution problems, among which oil pollution is identified as the main pollution source. Although there have been many efforts in improving the legal system as well as implementing measures to prevent and deal with marine pollution due to oil spill, Vietnam currently has significant difficulties in keeping clean and sustainably developing its sea. The reason for this is limited financial resources, not yet fully developed technology, the legal system being in the process of completion, part of the population being not fully aware of the serious impacts of marine environmental pollution caused by oil spill. With the aim of deeply researching legal and practical issues on prevention and response to marine pollution caused by oil spills in Vietnam nowadays, in this article, the authors will focus on (i) assess the status and effects of marine pollution due to oil spills on the socio-economic situation in Vietnam nowadays; (ii) assess the compatibility of Vietnamese law with international commitments on prevention and treatment of marine pollution caused by oil spill; (iii) point out Vietnam's challenges in carrying out activities to prevent and remedy marine pollution caused by oil spills; finally (iv) propose solutions for Vietnamese government to improve the law and strengthen the capacity to deal with marine pollution caused by oil spills in the near future.

Keywords: oil spills; marine pollution; environmental law; sea law; international law.

Palavras-chave: derramamentos de petróleo; poluição marinha; direito ambiental; direito do mar; direito internacional.

Resumo

A poluição marinha devido ao derramamentos de petróleo tem causado consequências extremamente graves ao ambiente natural, à sociedade e à humanidade. Sendo um país costeiro com uma costa de mais de 3.260 km, uma zona económica exclusiva e uma plataforma continental de mais de um milhão de quilómetros quadrados, a economia oceânica desempenha um papel muito importante na existência, desenvolvimento e prosperidade do Vietnã. Vários estudos recentes demonstraram que, apesar de serem considerados ricos em recursos naturais e com potencial de desenvolvimento, os mares do Vietnã enfrentam graves problemas de poluição, entre os quais a poluição por derramamento de petróleo é identificada como a principal fonte de poluição. Embora tenham sido feitos muitos esforços para melhorar o sistema jurídico, bem como para implementar medidas para prevenir e lidar com a poluição marinha devida ao derramamento de petróleo, o Vietnã tem actualmente dificuldades significativas em manter o seu mar limpo e desenvolver de forma sustentável. A razão para isto são os recursos financeiros limitados, a tecnologia ainda não está totalmente desenvolvida, o sistema jurídico está em processo de conclusão, parte da população não está plenamente consciente dos graves impactos da poluição ambiental marinha causada pelo derramamento de petróleo. Com o objetivo de pesquisar profundamente questões legais e práticas sobre prevenção e resposta à poluição marinha causada por derramamento de petróleo no Vietnã atualmente, neste artigo, os autores se concentrarão em (i) avaliar o status e os efeitos da poluição marinha devido ao derramamentos de petróleo na situação socioeconómica no Vietnã hoje em dia; (ii) avaliar a compatibilidade da legislação vietnamita com os compromissos internacionais em matéria de prevenção e tratamento da poluição marinha causada por derramamentos de petróleo; (iii) salientar os desafios do Vietnã na realização de actividades para prevenir e remediar a poluição marinha causada por derramamentos de petróleo; finalmente (iv) propor soluções para o governo vietnamita melhorar a legislação e reforçar a capacidade de lidar com a poluição marinha causada por derramamentos de petróleo num futuro próximo.

1 Introduction

Marine pollution in general is a phenomenon in which sea water is affected by different causes leading to changes in its original properties, causing negative effects on the biochemical indices of seawater, at the same time, doing harm to human health and marine life. Marine pollution due to oil spills has been causing extremely serious consequences to the natural environment and humans. Indiscriminate discharge of oil into the marine environment, carelessness in technical safety procedures when operating ships at sea, immanent progress of nature, etc. are becoming the main causes for the occurrence of oil pollution zones in different seas of the world, causing great harm to both the environment and national economies.

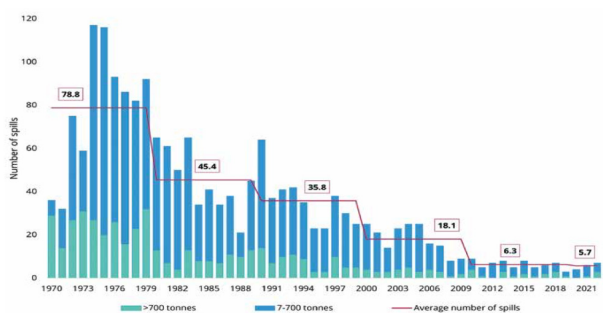
According to a report by The International Tanker Owners Pollution Federation Limited (ITOPF), between 1970 and 2022, about 5.88 million tons of oil were lost due to tanker incidents across the world. However, there has been a significant reduction in the volume of oil spills over the decades¹. Currently, the volume of oil lost in accidents is a tiny fraction of the volume transported safely to its destination each year². However, according to the report of this organization, in the last half century, statistics on the frequency of tanker spills of more than 7 tons have shown a clear downward trend. As illustrated in Figure 1 below, the average number of spills per year in the 1970s was about 79 and decreased by more than 90 percent to 6 in the 2010s. During this decade, the annual average is about 6, equal to the average recorded over the previous decade³.

¹ ITOPF. *Oil tanker spill statistics 2022*. London: ITOPF Ltd, 2023. p. 5-9.

² ITOPF. *Oil tanker spill statistics 2022*. London: ITOPF Ltd, 2023. p. 5-9.

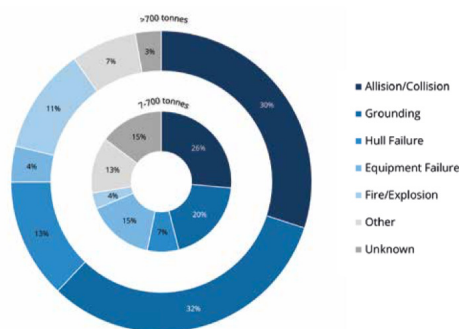
³ ITOPF. *Oil tanker spill statistics 2022*. London: ITOPF Ltd, 2023. p. 5-9.

Figure 1 - Number of medium (7-700 tons) and large (>700 tons) tanker spills from 1970-2022.⁴



In this analysis, the authors have also pointed out some of the main causes of oil spills greater than 7 tons including: collision, grounding, hull damage, equipment failure, fire/explosion, other and unknown (see figure 2). Events such as heavy weather damage and human error have been classified as “Other” and spills where relevant information is not available have been designated as Unknown and reported but excluded from the analysis⁵.

Figure 2 - Causes of tanker spills, 1970-2022.



The most frequent causes of oil spills (>7 tons) from tankers are Allisions/Collisions and Groundings.⁶

In terms of environment, oil spills will cause marine pollution, seriously affecting marine ecosystems, especially mangrove ecosystems, seagrasses, sandy tidal flats, lagoons and reefs. Coral. Oil pollution reduces the resilience, flexibility, and recovery capacity of ecosystems⁷. It is alarming that the oil spread on the sea and washed

ashore for a long time without being collected will reduce the number of organisms, causing damage to the fishing and aquaculture industry. Oil can also suffocate some small fish, invertebrates or birds, reducing the ability of birds and mammals to maintain body temperature⁸. Besides affecting the water environment, oil spills also pose a risk of heavy soil pollution. Just a layer of oil spilled on the ground, even though it is very thin, will also cause the ground to “suffocate” because of the lack of air as the gas exchange process is interrupted.

In terms of economy and public health, oil spills have great impacts on the aquaculture and fishing industries, the marine tourism industry, and agricultural production, and especially consumes a large amount of money for collection and oil spill treatment. Not only that, but oil spills also have a great impact on human health. Due to the physio-chemical properties of oil containing many toxic volatile organic compounds, oil spills will affect human health through contact and inhalation of oil vapors. Furthermore, oil spills also affect humans indirectly through the use of contaminated organisms. Oil can also affect liver and kidney function in the short term. They even cause some diseases such as cancer, lung disease, hormone disruption⁹.

As a coastal country with a coastline of more than 3,260 km and a sea area of more than one million square kilometer, the ocean economy plays a very important role in the existence, development and prosperity of Vietnam. However, like other coastal countries, Vietnam is also facing the problem of marine pollution, including pollution caused by oil spills. Some studies indicate that the main causes of marine pollution caused by oil in Vietnam are from the mainland, maritime activities and oil and gas exploitation. In addition, Vietnam’s sea is also affected by oil pollution of unknown origin in the central and southern sea areas¹⁰. Besides, Vietnam’s

⁴ ITOPE. *Oil tanker spill statistics 2022*. London: ITOPE Ltd, 2023. p. 8.

⁵ ITOPE. *Oil tanker spill statistics 2022*. London: ITOPE Ltd, 2023. p. 11-13.

⁶ ITOPE. *Oil tanker spill statistics 2022*. London: ITOPE Ltd, 2023. p. 12.

⁷ VIETNAM. Ministry of National Resources and Environment. *Báo cáo hiện trạng môi trường biển và hải đảo quốc gia giai đoạn 2016-2020*. [National report on the current situation of environment of the sea and island in the period of 2016-2020]. Ha Noi, 2021. p. 93-97.

⁸ NOAA’S OFFICE OF RESPONSE AND RESTORATION. *How oil harms animals and plants in marine environments*. 2021. Available in: <https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/how-oil-harms-animals-and-plants-marine-environments.html>.

⁹ LAN, Dongdong *et al*. Marine oil spill risk mapping for accidental pollution and its application in a coastal city. *Marine Pollution Bulletin*, v. 96, n. 1-2, p. 220-225, 2015; BÉ RANGÈRE, Péquin *et al*. Natural attenuation of oil in marine environments: a review. *Marine Pollution Bulletin*, v. 176, p. 1-22, 2022.

¹⁰ NGUYEN, Ba Dien. Tổng quan pháp luật Việt Nam về phòng, chống ô nhiễm dầu ở các vùng biển [Overview of Vietnamese law on prevention and control of oil pollution at sea]. *Journal of Science*, n. 24, p. 244, 2008.

sea has about 340 oil and gas exploration and exploitation wells, in addition to discharging oil and water in large volumes, on average, this activity also generates about 5,600 tons of petroleum waste each year, of which 20 - 30% is hazardous solid waste that has not yet been assigned landfill sites and treatment locations¹¹. According to statistics of monitoring data in areas such as Ha Long - Hai Phong, the average concentration of oil in the water is 0.26mg/l, in the area of Vung Tau - Da Nang, 0.29mg/l and in Ba Ria-Vung Tau, this figure ranges from 0.14 to 0.52mg/l, all of which exceed the limits of Vietnamese Standards. In general, the coastal sea water quality only achieves B and C levels according to QCVN 10:2008/BTNMT (National Technical Regulation on Coastal Water by Minister of Natural Resources and Environment)¹².

Faced with that situation, the Government of Vietnam has implemented many solutions, including legislative, executive and judicial ones in order to prevent and limit the increase in marine pollution caused by oil spills. In 2011, Vietnam Administration of Seas and Islands of Vietnam completed many large and high-quality projects such as Project Building a complete system of sensitive mapping for oil spills in the southern and southwestern coastal areas to serve the needs of responding, overcoming and dealing with consequences of oil spill incidents in the Gulf of Thailand; Project Investigation of geological features, geodynamics, mineral geology, environmental geology and forecast geological hazards in Vietnam's seas, the task of measuring and mapping the topography of the seabed at the scale of 1: 50,000 in Binh Thuan - Ben Tre area; However, it is hard to deny that Vietnam's ability to respond to oil spills at sea is still quite limited. Not yet fully developed technology, the legal system being in the process of completion, part of the population being not fully aware of the serious impacts of marine environmental pollution caused by oil spill are posing challenges for Vietnam in the process of keeping the sea clean.

Based on the current situation of Vietnam, in this article, the authors will focus on (i) assess the status and

¹¹ NGUYEN, Huu Nhat. *Ô nhiễm môi trường biển, ven bờ do các hoạt động hàng hải*. [Marine and coastal pollution due to maritime activities]. Environment Center – Transport Technological Science. Ha Noi, 2008.

¹² NGUYEN, Huu Nhat. *Ô nhiễm môi trường biển, ven bờ do các hoạt động hàng hải*. [Marine and coastal pollution due to maritime activities]. Environment Center – Transport Technological Science. Ha Noi, 2008.

effects of marine pollution due to oil spills on the socio-economic situation in Vietnam nowadays; (ii) assess the compatibility of Vietnamese law with international commitments on prevention and treatment of marine pollution caused by oil spill; (iii) point out Vietnam's challenges in carrying out activities to prevent and remedy marine pollution caused by oil spills; finally (iv) propose solutions for Vietnamese government to improve the law and strengthen the capacity to deal with marine pollution caused by oil spills in the near future.

In order to achieve the research objectives, in terms of methodology, besides collecting and analyzing data, in this article, the authors have used a combination of different research methods, including quantitative and qualitative methods to achieve research efficiency to acquire the most feasible and useful results. Among which, quantitative research involves reviewing the legal framework and analyzing data and reports, while qualitative research focuses on assessing capacity to respond to and resolve oil spills in sea areas. Based on that, the authors develop reasonable arguments and suggestions for the government of Vietnam to prevent and deal with marine pollution caused by oil spills. To prove and build a practical and legal basis for the arguments, the authors have used scientific data in official reports of relevant agencies and organizations in the world and in Vietnam, thereby making assessments and comments on both legal and practical aspects related to the prevention of marine pollution due to oil spills in both international and national spheres, building the basis to propose appropriate solutions to solve the difficulties and challenges that have been measured in the research.

2 International legal framework on preventing and reparation of marine pollution due to oil spills caused by ships

2.1 International treaties on prevention of pollution of the sea by oil

Marine pollution due to oil spills can be understood as the direct or indirect spill of oil into the marine environment, including estuaries, while it causes or is likely to cause harmful effects such as harming biolo-

gical resources, marine fauna and flora, endangering human health, interfering with marine activities, including fishing and other legal uses of the sea, altering the quality of sea water in terms of its use and reducing the aesthetic values of the sea¹³.

The process of formulating and developing legislation on prevention and control of marine pollution caused by oil spills began at an international convention in Great Britain in 1954. The first International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL) was approved on 12/05/1954, came into effect on 26/07/1958 with the purpose of controlling the activities of dumping oil from ships. In 1959, the International Maritime Organization (IMO) was established, carried out a global investigation into the extent of oil pollution, the possibility of waste receiving facilities onshore and studied measures to prevent the growing hazards posed by oil from ships. IMO convened a conference in 1962 to expand the scope of the 1954 Convention to ships of lower tonnage and to widen the restricted areas. Practical situation demands that additional and revised regulations were made in 1962, 1969, 1971 and in 1973, OILPOL were replaced by the MARPOL 73, adopted at the International Convention for the Prevention of Pollution from Ships in 1973. In 1978, IMO convened an International Convention from 6-17 February 1978 to amend and supplement a number of points of the 1973 Convention with the 1978 Protocol (which came into force from October 2, 1983) with five new annexes, consolidated into one document, MARPOL 73/78. Next, in 1997, MARPOL 73/78 was amended by the 1997 Protocol with a sixth annex. Subsequently, the International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC 90) was also developed.

Along with the international treaties on prevention and control of marine pollution due to oil spills mentioned above, international treaties on settlement of compensation for damage caused by pollution from ships were made such as: International Convention on Civil Liability for Oil Pollution Damage 1969 (CLC 1969), International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties 1969 (Intervention 1969), International Convention on the Establishment of an International Fund for Compen-

sation for Oil Pollution Damage 1971 (FUND), International Convention on Civil Liability for Bunker Oil Pollution Damage 2001 (BUNKER)¹⁴.

In general, the content of international treaties on prevention and control of marine pollution caused by oil spill can be summarized through the following groups of provisions:

a. Group of treaties on marine environmental protection in general

- 1972 *Stockholm Declaration on Environment and Development*, issued at the United Nations Conference on the Human Environment, stemmed from the awareness that protecting and improving the environment is an issue that affects the welfare of all people and economic development of the whole world. This declaration stipulates that member states have an obligation to ensure that activities within their control do not cause environmental damage. At the same time, countries have an obligation to cooperate to develop legislation on compensation for environmental damage, to cooperate to control, prevent, reduce and eliminate the causes of environmental pollution¹⁵ At the 1992 United Nations Conference on Environment and Sustainable Development in Rio de Janeiro, Brazil, member states continued to insist that states should enact national legislation on liability to compensate victims of environmental pollution. States should also cooperate urgently and decisively to further develop national legislation on liability and compensation for environmental harm resulting from activities within their jurisdiction or control, caused to areas outside the jurisdiction of the State.¹⁶

- The United Nations Convention on the Law of the Sea 1982 (UNCLOS 1982)¹⁷ is a legally binding global multilateral convention on issues of exploitation, ma-

¹³ TANAKA, Yoshifumi. *The international law of the sea*. 3rd ed. Cambridge: Cambridge University Press, 2019. p. 333-335.

¹⁴ UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT. *Liability and compensation for ship-source oil pollution: an overview of the international legal framework for oil pollution damage from tankers*. New York; Geneva, 2012; ROTHWELL, Donald R.; STEPHENS, Tim. *The international law of the sea*. 2. ed. Great Britain: Hart Publishing, 2016; ZHANG, Weipan *et al.* Governance of global vessel-source marine oil spills: characteristics and refreshed strategies. *Ocean and Coastal Management*, p. 1-12, 2021.

¹⁵ UNITED NATIONS CONFERENCE ON THE HUMAN ENVIRONMENT. *Stockholm Declaration*, Principle 21, 22, 24. 1972; STOCKHOLM recommendations and their efficacy. *Stanford Journal of International Studies*, p. 79, 1973.

¹⁶ UNITED NATIONS GENERAL ASSEMBLY. *Rio Declaration on Environment and Development*, Principle 13. 1992.

¹⁷ UNITED NATIONS GENERAL ASSEMBLY. *Convention on the Law of the Sea*. 1982.

nagement and protection of the marine environment. According to UNCLOS 1982, problems of ocean space are closely interrelated and need to be considered as a whole¹⁸, therefore, the protection and preservation of the marine environment is an essential component of the international law of the sea¹⁹. UNCLOS 1982 affirms that “States have the obligation to protect and preserve the marine environment”. The regulations on environmental protection established by UNCLOS 1982 are based on a combination of general principles of the law of the sea and principles and approaches of international environmental law. The protection and preservation of the marine environment specified in Part XII is the result of this combination. However, due to the comprehensive nature of UNCLOS 1982 and the interdisciplinary nature of maritime issues, relevant provisions can be found in different parts of the Convention such as Parts II, II, IV, V etc. on the legal status of the seas and Part VII on the conservation and management of biological resources in the exclusive economic zone and the high seas or Part XIII on marine scientific research... and of course, this comprehensive approach leads to the limitation that UNCLOS 1982 only stops at the level of general provisions without specific provisions on legal standards in marine environmental protection²⁰.

b. Group of regulations on preventing marine pollution caused by oil spills:

- *International Convention on prevention of marine pollution caused by oil (OILPOL 54)*²¹ was adopted at the first international convention on oil pollution of the sea in 1954 with the aim of controlling dumping of oil deposits during the normal operations of the vessel. OILPOL 54 sets limits on oil sludge that ships can discharge into the sea, regulates where dumping is allowed, and encourages member states to install facilities receiving sludge. The Convention also provides for special areas where dumping of oil residues is prohibited. Vessels with violations will be handled in accordance with the law of the flag state. OILPOL 1954 continued to be revised in the

direction of expanding special areas prohibited from dumping oil in 1962, adding a mandatory process to reduce the amount of oil residue discharged into the sea in 1969. By 1971, it was proposed to expand the scope of application to small tankers because small tankers, although the damage caused is usually small, but with the number of ships, the total amount is not small. However, this was met with fierce opposition from the oil and gas industry and was unable to take effect²². The provisions of OILPOL 54 later continued to be inherited and recognized in MARPOL 73/78.

- The International Convention for the Prevention of Pollution from Ships 1973 was adopted by the International Convention on Marine Pollution by IMO in 1973. This convention was later amended by the abbreviated 1978 Protocol. is MARPOL 73/78²³. MARPOL 73/78 was developed to replace OILPOL 54 and to add a number of measures to prevent marine pollution from oil. The ultimate goal of the Convention is to end practices that intentionally pollute the marine environment with oil and other noxious substances, and to minimize the accidental discharge of such substances into the sea. MARPOL 73/78 establishes an international mechanism for the prevention of pollution from ships due to discharges during normal operation and unexpected pollution incidents. After that, MARPOL 73/78 was further amended by Protocol 1997 and Annex VI. In essence, MARPOL is a specification of regulations on marine environmental protection mentioned in Part XII of UNCLOS 1982. The MARPOL Convention does not only deal with pollution caused by oil from ships (mentioned in Appendix I) but also hazardous liquids, such as chemicals, that are transported in large quantities (Annex II); hazardous substances transported in packaged form (Appendix III); discharge of wastewater into the sea (Appendix IV); and treatment of garbage discharged by ships into the sea (Appendix V)²⁴.

²² VIETNAM REGISTER. *MARPOL 73/78L: consolidated edition*. 2006.

²³ INTERNATIONAL MARITIME ORGANIZATION. *International Convention for the Prevention of Pollution from Ships (MARPOL)*. 1973.

²⁴ JULIAN, Michael. *MARPOL 73/78: the International Convention for the Prevention of Pollution from Ships*. Maritime Studies, 2000, p. 16-23; TAN, Alan Khee-Jin. *Vessel-source marine pollution: the law and politics of international regulation*. Cambridge: Cambridge University Press, 2006. p. 139-155; MATTSON, Gini. *MARPOL 73/78 and Annex I: an assessment of its effectiveness*. *Journal of International Wildlife Law and Policy*, v. 9, p. 185-188, 2006; KARIM, Md.

¹⁸ UNITED NATIONS GENERAL ASSEMBLY. *Convention on the Law of the Sea*. Preamble of the Convention. 1982.

¹⁹ UNITED NATIONS GENERAL ASSEMBLY. *Convention on the Law of the Sea*, Article 192. 1982.

²⁰ BIRNIE, Patricia *et al.* *International law and the environment*. Oxford: University Press, 2009. p. 379-384.

²¹ INTERNATIONAL MARITIME ORGANIZATION. *The International Convention for the Prevention of Pollution of the Sea by Oil (OILPOL)*. 1954.

- International Convention for the Safety of Life at Sea 1978 (SOLAS 74/78)²⁵. The objective of the convention is to set minimum standards for the structure and equipment of ships to protect the safety of life for all people on board, including passengers. The Convention holds the flag state responsible for ensuring that ships that fly its flag comply with regulations on marine safety, prevention and limitation of marine pollution through a series of certificates in accordance with the provisions of the Convention. The control provisions also allow a member state to inspect a ship of another member state if it has sufficient evidence that the ship does not meet the requirements of the Convention.

- International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (OPRC 90)²⁶. was adopted by the International Maritime Organization (IMO) in November 1990 and entered into force in May 1995. OPRC is the largest international agreement dealing with cooperation of response to oil spill incidents. OPRC 1990 provides for preparedness, response and cooperation to overcome the consequences of oil pollution incidents at sea not only from ships but also at oil exploitation areas, ports, and oil pipelines in different sea areas. The Convention recognizes the principle that “polluters should pay” as a general principle of international environmental law.

c. Group of regulations on compensation for damage and providing remedies to pollution caused by oil spills:

- *The International Convention on Civil Liability for Damages Due to Oil Pollution (CLC)* was issued after the Torrey Canyon oil spill incident in 1969. The 1969 CLC guarantees compensation for environmental pollution damages through requiring State parties to fulfill their compulsory insurance obligations. Also, the 1969 CLC provided established additional fund to be contributed by parties who has ship carrying goods at the sea²⁷. Although the CLC 1969 stipulates the liability for dama-

ges and guarantees mechanism for the performance of the shipowner’s liability for damage, it limited that liability with certain fine. This leads to the consequence that small damage cases are usually fully compensated, but for serious oil spills, causing great damage, adequate compensation cannot be fully done. Therefore, in 1992, State parties amended and expanded the scope of application to the exclusive economic zone, expanded the scope of definition of “oil”, expanded the types of ships subject to the Convention, not only large oil tankers but also to all vessels, CLC 1992 increased the maximum compensation for a ship over 140,000 gross tonnage to 89.77 million SDR²⁸. To date, the number of State parties of the CLC 1992 has reached to 140 countries²⁹.

- International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1992 (FUND 1992). FUND 1992 is a Convention supplementing the CLC 1992 in order to establish a system for compensations that are not implemented fully and adequately under the CLC 1992³⁰. The International Oil Pollution compensation fund 1992 (IOPC 1992) was established under the 1992 FUND Convention when it entered in to force on May 30, 1996. The 1992 fund is a global intergovernmental organisation established to administer the compensation system under FUND 1992³¹.

- International Convention on Liability and Compensation for Loss Related to Transport of Hazardous and Toxic Substances by Sea 1996 (HNS). The HNS Convention recognises a regulation of liability and compensation of damage from two different funding sources. One is the compensation made by the shipowner and the other is paid by the HNS fund (the budget of the HNS fund is from contributions of State Parties involved in transportation of goods)³². The scope

Saiful. Implementation of the MARPOL Convention in developing countries. *Nordic Journal of International Law*, v. 79, p. 319-320, 2010.

²⁵ INTERNATIONAL MARITIME ORGANIZATION. *International Convention for the Safety of Life at Sea (SOLAS)*. 1978.

²⁶ INTERNATIONAL MARITIME ORGANIZATION. *International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC)*. 1990.

²⁷ PHAM, Van Tan. Chế độ trách nhiệm dân sự đối với ô nhiễm dầu tàu: vai trò của các quốc gia trong việc thiết lập các quy tắc thống nhất toàn cầu. [Civil liability to pollution due to oil: responsibilities of State parties in establishing worldwide unified regulations]. *Maritime Scientific Journal of Viet Nam*, v. 8, p. 118, 2022.

²⁸ INTERNATIONAL MARITIME ORGANIZATION. *International Convention on Civil Liability for Oil Pollution Damage (CLC)*. 1992.

²⁹ GENNARO, Michael A. de. Oil pollution liability and control under international maritime law. *Vanderbilt Journal of Transnational Law*, v. 37, p. 274, 2004.

³⁰ INTERNATIONAL MARITIME ORGANIZATION. *International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (FUND)*. 1992.

³¹ MARCHAND, Pauline. The international law regarding ship-source pollution liability and compensation: evolution and current challenges. *International Oil Spill Conference Proceedings*, p. 193-210, 2017.

³² INTERNATIONAL MARITIME ORGANIZATION. The HNS Convention: why it is need?

of application of compensation liability under HNS is relative wide, not only to compensation for damage caused by oil pollution but also other damages caused by different reasons such as fire and explosion due to dangerous and toxic substances. Compensation is not only for pollution damage occurring in the territory or territorial sea, but also extends to the exclusive economic zone.

- International Convention on Civil Liability for Bunker Oil Pollution Damage 2001 (Bunker 2001). This Convention was designed to ensure prompt and full compensation for damage caused by oil spills.³³ The scope of the Convention includes any mineral oil hydrocarbon, including lubricants, used or intended for using in the operation or propulsion of ships and its residues causing pollution damage in the territory, territorial sea and exclusive economic zone of a member state. The Convention supplements to the CLC and FC systems for controlling marine pollution caused by other oils not covered by the CLC and FC.

2.2 Obligations of countries in preventing and providing remedies to marine pollution caused by oil spills in line with international laws

First, State parties have an obligation to prevent oil spills at sea. UNCLOS 1982 stipulates that protecting and preserving the marine environment is a common obligation of all State parties³⁴. This obligation under the Convention is divided into two groups: (i) national

obligation to prevent oil spills causing marine pollution caused by ships carrying flag of the State, and (ii) national obligation to control and prevent oil spill incidents occurring in the waters under their jurisdiction. Specifically:

To prevent pollution oil spills from ships, the Convention requires States to develop and ensure the implementation of legal provisions as well as other measures so that the marine pollution caused by ships carrying their State flag or being inspected by their own States can be prevented and minimized. States must ensure that ships with their State flags fully comply with international laws and standards and conduct investigations into any violations of marine pollution committed by those ships (Article 1. 217 of UNCLOS). These obligations are further specified in Article 7 of OILPOL 1954, Annex I MARRPOL 73/78, accordingly, the discharge of oil into the sea is prohibited in some areas and is restricted in other areas. Ships and Vessels must meet certain requirements in terms of structure and equipment and must have an oil log on board. Vessels shall be inspected and certified if they meet requirements of Annex 1. Ports shall have facilities to receive oil mixtures or sludge. For foreign ships operating in the waters under the jurisdiction of the state party, UNCLOS indicates that coastal countries have the right to set condition for foreign ships to enter its seaports in order to prevent and minimise marine environmental pollution caused by foreign ships³⁵, including ships exercising the right of innocent passage in the territorial sea as well as in the exclusive economic zones.³⁶

In order to prevent marine pollution from fishing activities in waters under national jurisdiction, from Article 192 to Article 237 Part XII of UNCLOS stipulates obligations of State members to take the necessary measures to prevent and control marine environmental pollution from any source (Article 194).

In addition to the above obligations, the OILPOL Convention 1954 and SOLAS Convention 74/78 also require State members to ensure national legislation to not regulate at a lesser level compared to the international regulations and standards. UNCLOS also asks State

³³ INTERNATIONAL MARITIME ORGANIZATION. *International Convention on Civil Liability for Bunker Oil Pollution Damage* (BUNKER). 2001.

³⁴ UNITED NATIONS GENERAL ASSEMBLY. *Convention on the Law of the Sea*. Article 192, 194. 1982. Article 192 stipulates obligations of State parties in implementation of protective and preserving measures for marine environment, meanwhile do not harm and degrade it; *The South China Sea Arbitration (Merits)* (The Republic of Philippines v. The People's Republic of China), Award of 12 July 2016, para. 941, Available in: <https://pca-cpa.org/en/cases/77/>. Some opinions state that obligations to protect environment has international customary nature; UNITED NATIONS CONFERENCE. *World Summit on Sustainable Development*. United Nations Convention on the Law of the Sea, a commentary (*Virginia Commentary*), v. 4, p. 36 et seq. 1982; BIRNIE, Patricia *et al.* *International law and the environment*. Oxford: University Press, 2009. p. 387; RAO, P. Chandrasekhara; GAUTIER, Philippe. *The International Tribunal for the Law of the Sea: law, practice and procedure*. 2018; CHELTENHAM, Edward Elgar, 2018, p. 327; SANDS, Philippe *et al.* *Principles of international environmental law*. Cambridge: Cambridge University Press, 2018. p. 463-464.

³⁵ UNITED NATIONS GENERAL ASSEMBLY. *Convention on the Law of the Sea*, Article 19, 25, 56. 1982.

³⁶ MAI, Hai Đăng. *Pháp luật quốc tế và pháp luật nước ngoài về chống ô nhiễm dầu trên biển từ tàu*. [International and foreign laws on responding to oil spills from ships]. 2003. Thesis (Ph.D) - Law Faculty, Hanoi National University, Hanoi, 2003. p. 72.

parties to collaborate, especially through international organisations, with the aim to establish regulations, international and regional standards and recommended practices relevant to marine pollution. The obligations of States to protect and preserve the marine environment and not to go against the legitimate interests of other States “pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment” (Article 193).

Second, national obligations in responding to and provide remedies to marine pollution due to oil spills. For this obligation, international treaties stipulate that State parties must:

- Develop a Plan to Respond to Marine Pollution caused by Oil Spills: MARPOL 73/78, OPRC 1990 both require State members to establish an effective and timely response system in case of pollution incident.³⁷

It must specify the responsible agencies for preparedness and response to oil pollution; agency responsible for transmitting information about oil pollution; agency that has the power to request assistance on behalf of the state or to decide on assistance when needed; develop a national emergency response plan, coordinate with other relevant agencies in the provision and use of equipment and organize oil pollution response drills.

- Promote cooperation among States: UNCLOS 1982 stipulates that State parties are obliged to cooperate with other countries and relevant international organisations to minimise or eliminate harmful consequences caused by marine pollution (Article 199). In which developed countries have responsibilities to assist developing countries in the fields of science, education, economy and in other fields in order to prevent, minimise and control pollution of the marine environment (Article 202).³⁸

³⁷ INTERNATIONAL MARITIME ORGANIZATION. (1973). *International Convention for the Prevention of Pollution from Ships (MARPOL 73/78)*, regulation 37, Annex I; International Maritime Organization (1990), *International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC)*, Article 3.

³⁸ KOJIMA, Chic. *The duty to cooperate in the protection and preservation of the marine environment*. 2019; MOORE, J. N.; LONG, R. (ed.). *Cooperation and engagement in the South China Sea and Asia Pacific Region*. Brill, 2019. p. 126-128; KOJIMA, Chic. Integration of general principles of international environmental law into the law of the sea: assessment and challenges. *Marine Policy*, v. 149, p. 4, 2023. Cooperative obligation of State parties is affirmed in many judgements of international arbitrations such as: *Gabcikovo-Nagymaros Project (Hungary v Slovakia)*, Judgment, I. C. J., Reports 1997, p. 68, para. 112; *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, I. C. J., Reports 2010, p. 67, para. 145; *MOX Plant (Ireland v. United*

In terms of obligation to compensate for damage from oil pills, UNCLOS 1982 states that State parties need to cooperate to ensure the application and development of international law on relevant responsibilities in assessment and compensation for damage and the settlement of related disputes and pay attention to draft appropriate standards and procedures for payment of compensation Article 225 Clause 3). Thus, according to the Convention, the determination of obligation to compensate for damage between countries and organization and individuals causing pollution is the obligation of States. Specifically, CLC 1992, HNS 1996, Bunker 2001 stipulates the obligation of countries to issue legislation that regulate the liability of ship owners for damage caused by oil pollution and ship owners must purchase compulsory insurance or financial security to secure its liability for damage caused by oil pollution from ships to ensure that oil spill damages are fully, promptly and adequately compensated.

Under the strong impact of different aspects of the environment, up to now, international environmental laws on prevention and control of marine pollution due to oil spills have had profound changes in both quantity and quality which creates important legal basis for the cooperation in oil spill prevention and control between countries around the world. All these changes are the result of the process of struggle, compromising and negotiation between parties and reflect urgent requirements of countries for environmental protection requirements in general and the marine environment in particular.

3 Policies and laws in viet nam on preventing and responding to marine pollution due to oil spills from ships

In recent years, along with promoting the policy of international integration and developing the marine

Kingdom), Provisional Measures, Order, 3 December 2001, ITLOS Reports 2001, p. 110, para. 82; *Land Reclamation in and around the Straits of Johor (Malaysia v. Singapore)*, Provisional Measures, Order, 8 October 2003, ITLOS Reports 2003, p. 25, para. 92; *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission (SRFC)*, Advisory Opinion, 2 April 2015, ITLOS Reports 2015, p. 43, para. 140; *The South China Sea Arbitration (Merits) (The Republic of Philippines v. The People’s Republic of China)*, Award of 12 July 2016, para. 946.

economy, Viet Nam has set a sustainable development goal, paying special attention to environmental protection. The prevention and response to marine pollution and oil spills have been included in the national policies, thereby this issue has been stipulated in general normative documents and specialised legal documents. Viet Nam has made strides in developing and improving laws and internalising international treaties related to oil spill response at sea.

Up to now, Viet Nam has been proactive in joining international treaties related to this matter, specifically:

- On November 16, 1994, Viet Nam joined the United Nations Convention on the Law of the Sea (UNCLOS 1982) – the constitution of all mankind on seas and oceans. The ratification of this Convention has created an important legal basis for the protection and preservation of the marine environment, and promotion of international cooperation in preventing, limiting and controlling marine pollution.

- On August 29, 1991, Viet Nam joined the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) and two mandatory appendices which are Annexes I and II. On December 19, 2014, Viet Nam continued to adopt Annexes III, IV, V and VI. The adoption of this Convention has formulated an important legal basis for Viet Nam to require Vietnamese ships operating on international routes and foreign ships operating in Vietnamese waters to comply in regulations stipulated in the Annexes. This contributes to the preservation of the marine environment and effective dispute settlement.

- On 17 June 2003, Viet Nam joined the International Convention on Civil Liability for Oil Pollution Damage – CLC 1992. This is an important legal basis for Viet Nam to request parties that cause oil spill pollution to compensate for the environmental damage in a satisfactory manner.

In addition, Viet Nam also signed and adopted a number of other international treaties related to this issue such as BUNKERS 2001, AFS Convention 2001.

3.1 General regulations on the responsibility for environmental protection

Article 63 of the 2013 Constitution of Viet Nam stipulates:

The State shall adopt environmental protection policies, manage and use natural resources in an efficient and sustainable manner; conserve nature and biodiversity; and take the initiative in preventing and controlling natural disasters and responding to climate change... [...] Organisations and individuals that cause environmental pollution, natural resource exhaustion or biodiversity depletion shall be strictly punished and shall rectify and compensate for damage.

These regulations have become constitutional principles; accordingly, all agencies, organisations and citizens have the responsibility and obligation to protect the environment, no one is allowed to commit acts of environmental destruction.

Based on this Article of the Constitution, a range of legal documents have been issued for the purpose of managing the exploitation, use and protecting natural resources and the environment. In 2015, the National Assembly passed the Law on Natural Resources and Environment of Sea and Islands, in which Section 2, Chapter VI is dedicated specifically to the issues of marine environmental protection, prevention and handling marine pollution caused by oil spills (from Article 52 to 56). This Law clearly defines the principles of preventing, responding to and remedy for oil spill at sea; decentralise response process into three levels: grass-root – level, regional – level and national – level; and at the same time, stipulates the foundational regulations on rights and obligations of state agencies, organisations and individuals in prevention and handling of oil spills at sea. The 2015 Code (replacing the 2005 Maritime Code) also has particularly important recognition in marine protection, prohibiting acts of marine pollution in maritime activities³⁹.

Additionally, the Law on Fisheries 2017 requires organizations and individuals are responsible for protection of living environment of aquatic species when exploiting the resources.⁴⁰ The Law on Environmental Protection 2023 clearly indicates that the sources of waste, waste and other toxic substances polluting the marine environment must be collected and stored in specialised equipment and must be controlled and handled in accordance with environmental standards and prohibit all forms of dumping waste in Vietnamese wa-

³⁹ Viet Nam Maritime Code (2015), Clause 6 Article 12.

⁴⁰ Viet Nam Law on Fisheries (2003) expired on the day the Law on Fisheries 2017 takes effect.

ters⁴¹. The Law on Petroleum 2022 also defines marine environmental protection as a guiding principle that any entities conducting petroleum activities must comply with⁴². These are important legal basis for environmental protection, prevention and handling of pollution caused by oil spills.⁴³

3.2 Regulations on technical safety control

3.2.1 Regulations on control of technical safety of sea transport means

The Maritime Code stipulates that operating vessel must have a certificate of ship registration, certificate of maritime safety, maritime security and prevention of marine pollution in accordance with Vietnamese laws and international treaties to which Viet Nam is a member. These vessels are also subject to periodic inspection by the registry.⁴⁴ In order to be granted a certificate of technical safety and environmental protection, Vietnamese ships must satisfy Vietnam's criteria and standards on classification and ship building and ship's marine pollution prevention system. In addition, seagoing ships operating on international routes must also satisfy the provisions recognised in a number of international treaties such as: International Convention for the Safety of Human Life at Sea 1974; International of Pollution from Ships of 1973 and Protocol of 1978 (MARPOL 73/78).⁴⁵

⁴¹ Law on Environmental Protection No. 55/2014/QH13 amended and supplemented in accordance with the Law No. 35/2018/QH14, Law No. 39/2019/QH14 and Law No. 61/2020/QH14 expired on the day the Law on Environmental Protection 2023 takes effect.

⁴² Law on Petroleum dated 06 July 1993 amended and supplemented by the Law No. 19/2000/QH10, Law No. 10/2008/QH12 and Law No. 35/2018/QH14 expired when the Law on Petroleum 2022 takes effect.

⁴³ PHAN, Van Hung; KIM, Kwang-Soo. The present state of marine oil spills and the enhancement plans of national oil spill response capability in Vietnam: through the comparison of statistics and OSR System between Vietnam and Republic of Korea. *Journal of the Korean Society of Marine Environment & Safety*, v. 23, p. 690-698, 2017. Available in: <https://doi.org/10.7837/kosomes.2017.23.6.690>.

⁴⁴ Viet Nam Maritime Code, 2015, Article 29, 34.

⁴⁵ VIETNAM. Ministry of Transport. *Circular No. 40/2016/TT-BGTVT dated 07/12/2016* on Vietnamese ships registry (amended by Circular No. 16/2022/TT-BGTVT dated 30/6/2022 to amend and supplement some provisions of circulars in the field of registry). 2016.

In order to implement the Convention and enhance the effectiveness of preventing marine pollution, Viet Nam had internalised the provisions of the MARPOL Convention 73/78 into national legal documents, namely the Viet Nam Standards TCVN TCVN 6278:2003 on Regulations on safety equipment for ships (amended in 2005) and National technical regulation QCVN 26:2014/BGTVT on marine pollution preventative system of ships, in which specifies the inspection of design drawings, structures and equipment installed on ships and vessels operating in the sea to meet the standards for preventing marine pollution during construction of new ship and exploitation. These standards include standards of structures and equipment to prevent pollution caused by oil; standards of oil storage systems on board ships; oil discharge system; oil pollution response plan. Specifically:

a. Regarding the equipping of oil refining system for ships, Article 20 of the Regulation on marine safety equipment and marine pollution prevention installed on Vietnamese ships operating on domestic routes (Issued together with the Decision No. 59/2005/QD-BGTVT dated 21/11/2005 of the Minister of Transport) stipulates:

- Cargo ships, passenger ship under 1000GT, oil tanker under 400 GT are not required to be equipped with an oil filter system.

- Cargo ships, passenger ships from 1000GT to under 10.000GT, oil tankers from 400GT to under 10.000GT must be equipped with an oil filter system to ensure that any oil-water mixture after passing through the filter system must have an amount of oil not over 15 parts per million.

- Vessel of 10.000GT or more must be equipped with an oil filter system as prescribed in Clause 2 of this Article and that oil refining device must have light and sound signals and automatically close when the oil remains in the wastewater exceeds 15 parts per million.

In addition, National Technical Regulation QCVN 26:2010/BGTVT on Regulations on marine pollution prevention system of ships (replaced by National Technical Regulation QCVN 26:2014/BGTVT on marine pollution preventative system) also stipulates very specific issues about the thread holds on safety of ships for the environment, specifically as follows:

Firstly, on the inspection of design drawings, structures and and equipment to prevent marine pollution:

the inspection of equipment to control the discharge of oil-contaminated bilge water from the engine room, fuel oil tanks, dirty oil tanks... must satisfy the following requirements: Installation and operation of 15ppm separator/oil filter system, handling system and oil content measuring tools; installation and operation of an oil discharge recording and control system including automatic and manual controls of a drain shut-off device; oil retention system in the ship and the pump, pipeline, discharge equipment: ensure that the system of sump tanks or cargo oil tanks and the related pipeline system are in good working condition; check the oil discharge control and recording system, etc.

Second, regarding the standards for structures and equipment to prevent oil pollution. The content of this section concretises provision 12A MARPOL 73/78 Annex I for ships, drilling rigs, fixed and mobile offshore structures. In which, the standard provides regulations for oil tanks, protection of fuel oil tanks, protection of fuel oil tanks and equipment to prevent oil pollution from engine rooms. Each oil tanker of 150 gross tonnage and above and non-oil tank ship of 400 gross tonnage and above must be equipped with one or more tanks of adequate capacity to store residues resulting from fuel oil and lubricating oil cleaning, and oil leaking in the engine room; oil tanks must not be located in the bulbous bow compartment or before the collision bulkhead in ship; oil logbook to record related work. The regulations are completely consistent with and concretises provision 20, Annex I of the MARPOL Convention.

Third, the construction and equipment to prevent pollution caused by bulk carriers are also specified to apply to oil tankers of 600 gross tonnage and above as defined in Regulation 1.28.6 MARPOL, Annex I on Preventing Oil Pollution in the event of a collision or a run aground.

Fourth, regarding the oil storage system in the ship: oil ships with a gross tonnage of 150 or above must be equipped with an appropriate cargo tank cleaning system; allocate at least one sedimentation tank of sufficient capacity to hold sludge, oil residues and dirty ballast water; oil tankers with a gross tonnage of less than 150 must have a system to store oil mixtures on board to discharge them into the receiving vehicles; and oil tankers with a deadweight of over 70,000 tons must be arranged with at least 2 settling tank.

In addition, QCVN 26: 2010/BGTVT also stipulates the regulations on the oil discharge system as follows: on each oil tanker, discharge pipe with standardised flanges must be installed on the open decks on both sides of the ship to connect with a receiving facility for the discharge of dirty or oil-laden ballast; pipelines for the discharge of ballast or oil-laden water in cargo must be connected to the open decks or to the side of the ship above the waterline in the deepest line of ballast water, etc.

3.2.2 Regulations controlling the minimum level of safety of other activities at sea

The Law on Petroleum of Viet Nam 2022 has quite strict regulations for any entities conducting petroleum activities. Accordingly, individuals and organisations conducting petroleum activities must meet the requirements for means and equipment to ensure marine safety with advanced techniques and technology and comply with the provisions of Viet Nam laws on protection of natural resources and environment. Additionally, these organisations and individuals must also develop environmental protection plan and measures to prevent environmental pollution. The law also clearly stipulates the responsibilities of any entities conducting petroleum activities; at the same time, organisations and individuals conducting petroleum exploration and exploitation activities must perform tasks related to environmental protection and ensure safety while conducting petroleum activities (Article 6, 8, 10, 11, 30, 44, 46, 47, 52, 59).

For specific requirements on environmental protection in waste management of petroleum exploration, exploitation, transportation and related services at sea, Clause 2 Article 54 Decree 08/2022/NĐ-CP dated January 10, 2022 of the Government states that⁴⁶ hazardous and non-hazardous wastes resulting from petroleum exploration and exploitation activities are brought to the mainland by ships with certificates of hazardous goods transportation issued by competent state agencies.

⁴⁶ GOVERNMENT OF VIET NAM. *Decree No. 08/2022/NĐ-CP dated 10/1/2022* amended and supplemented by Decree No. 02/2023/NĐ-CP dated 01/02/2023 on detailed provisions on implementation of some provisions of the Law on Water Resources. 2022.

Regarding the waste treatment in general, and oil-containing waste in particular, Law on Natural Resources and Environment of the Sea and Islands 2015 requires the collection, classification, storage, transportation and treatment of hazardous waste products from marine activities. Owners of the vehicles transporting and storing gasoline, oil, chemicals, radioactive substances, toxicants and other substances that are likely to cause marine environmental incidents must have plans for prevention and response to environmental incidents; ensure no leakage, loss or spillage of these products into the sea.⁴⁷

3.3 Regulations to ensure the safety of means of transport when operating at sea

Article 105 of the Maritime Code 2015 regulates specifically on the assurance of the safety of means of transport when operating at sea. Accordingly, marine means of transport when operating in seaports and sea areas of Viet Nam is required to follow the instructions of maritime signals and comply with the rules of collision prevention. At the same time, in the navigational channel, at necessary positions along the coast, on islands, in waters with obstacles, other structures on the sea and in the seaport waters where ships are allowed to operate, marine means of transport must establish maritime signals in accordance with the regulations issued by the Minister of Transport.

In order to minimise ship collision at sea, on October 4, 2005, the Minister of Transport issued Decision No. 49/2005/QĐ-BGTVT on the application of International Regulations for Preventing Collisions at Sea, 1972 - Colregs 72, amended and supplemented in 1981, 1987, 1989, 1993 and 2001 (the rules for preventing ship collision). Circular No. 49/2005/QĐ-BGTVT has been replaced by Circular No. 19/2013/TT-BGTVT dated August 06, 2013, on applying the International Regulations for Preventing Collisions at Sea.

Additionally, to ensure the safety of vehicles during storms, the Ministry of Transport issued Circular No. 10/2019/TT-BGTVT dated March 11, 2019, stipulating prevention and response to natural disaster at sea. To guide vehicles operating at sea, the Ministry of Trade, the Ministry of Natural Resources and Environment

and the Ministry of Transport have issued Joint Circular No. 12/2005/TTLT – BTM – BTNMT – BGTVT dated July 08, 2005, guiding on marine environmental safety condition for oil supply activities for ships.

3.4 Regulations on response to oil spills at sea

Currently, oil spill response activities carried out directly or indirectly by individuals and organisations in the territory, exclusive economic zone and continental shelf of Viet Nam governed by the Regulations on oil spill response issued by the Prime Minister together with Decision No. 12/2021/QĐ-TTg ngày 24/3/2021. This Regulation specifically stipulates the organisation of response to oil spills, damage assessment, settlement of consequences, compensation for damage and responsibilities of relevant parties in handling the incident, etc.

Organisations and individuals that cause an oil spill or discover an oil spill have the responsibility to promptly report it to one of the following agencies: the national contact point for oil spills at sea; the nearest port authority; Regional Oil Spill Response Center; Regional Maritime Search and Rescue Coordination Center (in case of request for rescue at sea); Viet Nam coast radio stations to relay information to the agency in charge of the response to oil spills or the rescue and relief; Provincial Department of National Resources and Environment; nearest local authorities; standing agency for search and rescue of relevant ministries, ministerial – level agencies and localities. In addition, information can be sent to the Navy, Border Guard, Coastal Guard, and Waterway Traffic Police for processing or forwarding information to the agencies in charge of the response.⁴⁸

Along with stipulating the obligations to provide information on oil spills, the Regulation also recognises the decentralisation of response to oil spills based on the severity of the incident. Accordingly, the response to oil spills is carried out at three levels: grassroots level, regional level and national level. At the grassroots level, in the event of an oil spill caused by an accident of a ship, the owner of the ship shall organise and command his/her own force, vehicle or equipment or the force, vehicle or equipment under a contract on oil spill

⁴⁷ Law on Resource and environment of the Sea and islands (2015), Clause 1, 3, Article 45.

⁴⁸ PRIME MINISTER OF VIET NAM. *Decision No 12/2021/QĐ-TTg dated 24/3/2021* of Prime Minister on The Regulation on response to oil spills, Article 13. 2021.

response to timely handle the incident. The owner of the ship where the oil spill occurred is responsible for commanding at scene. In case the oil spill is beyond its capacity and the on-site resources are not enough to cope on its own, the owner must promptly report it to the authority or the Provincial or Communal People's Committee for assistance. In case a serious oil spill occurs, or an oil spill occurs in a priority protection area, the heads of agencies in charge of oil spill response will be the scene commander to report Provincial People's Committee where the incident occurs and the National Committee for Incident and Disaster Response and Search and Rescue for direction and prompt response.⁴⁹

At the regional level, when an oil spill occurs beyond the ship's ability to respond or an oil spill occurs of unknown causes in the localities, the provincial People's Committee of the province where the oil spill happens has the responsibility to directly chair and appoint a scene commander to coordinate the response according to local plans and is also allowed to mobilise urgently necessary resources from local state agencies, Regional Oil Spill Response Center for response. The focal point to assist the Provincial People's Committee in organising the response is the Provincial Commanding Committee for Prevention and Response to Natural Disaster and Search and Rescue. Based on the developments of the incident, the provincial People's Committee shall appoint the commander of the scene and urgently mobilise necessary resources from the relevant agencies in the locality for the response.⁵⁰

At the national level, when an oil spill occurs beyond the capacity of the region to respond, or occurs on a large inter-regional scale, or the oil spills is particularly severe, the National Committee of Response to National Disaster and Search and Rescue directly command the response activities in accordance with the National Oil Spill Response Plan. Response to oil spills on a large scale is divided by responding area at sea and in loca-

lities where oil spills occur. Provincial People's Committees shall directly chair and lead the organisation of response. The National Committee for Response to Natural Disaster and Search and Rescue shall appoint one or more commanders at scene to respond in each area based on the specific situation and development of the oil spill. The National Committee for Response to Natural Disaster and Search and Rescue directly leads all activities to respond to particularly serious oil spills.⁵¹

In addition, in case an oil spill occurs beyond the response capacity of national forces, the National Committee for Natural Disaster Response and Search and Rescue shall coordinate with ministries and ministerial – level agencies to report to the Prime Minister to request support from foreign oil spill response forces. The National Committee shall chair and reach agreement with relevant agencies on the request for assistance. The coordination to respond to oil spills in Viet Nam is conducted in accordance with the agreement on the request for assistance made by Parties. The licensing and coordination to respond to oil spills shall comply with the regulations on the licensing and coordinating a response with foreign support forces in Viet Nam.⁵²

The regulations of the responsibilities of parties in responding and providing remedy to oil spills are also stipulated in many other legal documents such as: Law on the Sea of Viet Nam 2012, Law on Natural Resources and Environment of Sea and Islands 2015, Maritime Code 2015, Law on Environmental Protection 2020, Law on Petroleum 2022, Decree No. 40/2016/NĐ-CP dated May 15, 2016, issued by the Government on guiding the implementation of some provisions of the Law on Natural Resources and Environment of Sea and Islands 2015, Decree No. 30/2017/NĐ-CP dated

⁴⁹ PRIME MINISTER OF VIET NAM. *Decision No 12/2021/QĐ-TTg dated 24/3/2021* of Prime Minister on The Regulation on response to oil spills, Clause 1, Article 5. 2021.

⁵⁰ PRIME MINISTER OF VIET NAM. *Decision No 12/2021/QĐ-TTg dated 24/3/2021* of Prime Minister on The Regulation on response to oil spills, Clause 2, Article 5 and Article 18. 2021. PHAN, Van Hung; KIM, Kwang-Soo. The estimation of regional oil recovery capacity based on marine oil spill response scenario in Vietnam. *Journal of International Maritime Safety, Environmental Affairs, and Shipping*, v. 2, n. 2, p. 97-111, 2019. Available in: <https://doi.org/10.1080/25725084.2018.1562512>.

⁵¹ PRIME MINISTER OF VIET NAM. *Decision No 12/2021/QĐ-TTg dated 24/3/2021* of Prime Minister on The Regulation on response to oil spills Clause 3, Article 5 and Article 20. 2021.

⁵² PRIME MINISTER OF VIET NAM. *Decision No 12/2021/QĐ-TTg dated 24/3/2021* of Prime Minister on The Regulation on response to oil spills, Clause 3, Article 5 and Article 21. 2021.; PHAN, Van Hung *et al.* Distribution of oil spill response capability through considering probable incident, environmental sensitivity and geographical weather in Vietnamese Waters. *Journal of International Maritime Safety, Environmental Affairs, and Shipping*, p. 31-41, 2018. Available in: <https://doi.org/10.1080/25725084.2018.1511240>; HOANG, Anh Tuan *et al.* A report of oil spill recovery technologies. *International Journal of Applied Engineering Research*, p. 4915-4928, 2018; KHOI, D. N. *et al.* Development of an integrated tool responding to accidental oil spills in riverine and shoreline areas of Ho Chi Minh City, Vietnam. *Environmental Impact Assessment Review*, p. 1-15, 2023.

March 21, 2017 issued by the Government on the organisation and conducting response to natural disaster and search and rescue, Decree No. 02/2019/NĐ-CP dated January 02, 2019 issued by the Government on Civil Defense.

3.5 Regulations on handling of violations against acts of polluting the marine environment

These provisions are reflected in documents such as the Civil Code 2015 (Article 601, 602) or the Penal Code 2015 (amended and supplemented 2017), in which the Penal Code of Viet Nam has dedicated a separate chapter XIX to stipulate environmental crimes, including environmental pollution crimes such as: crimes of causing environmental pollution (Article 235), crimes of violating regulations on hazardous waste management (Article 236), crime of violations on prevention, response and providing remedy of environmental incidents (Article 237).

In addition, the Government has also issued Decrees to impose administrative penalties for acts causing marine pollution such as Decree No. 142/2017/NĐ-CP dated December 1, 2017, by the Government regulating administrative sanctions in the maritime field (amended and supplemented by Decree No. 123/2021/NĐ-CP dated December 28, 2021, by the Government amending and supplementing a number of provisions of the Decrees on handling administrative violations in the field of in maritime field; road traffic, railway, civil aviation), Decree No. 162/2013/NĐ-CP dated November 12, 2013 by the Government regulating administrative sanctions for violations in the seas, islands, and continental shelf of the Socialist Republic of Viet Nam (amended and supplemented by Decree 23/2017/NĐ-CP dated March 13, 2017 by the Government and Decree No. 37/2022/NĐ-CP by the Government amending and supplementing a number of articles of the Decrees on administrative sanctioning in the fields of national defense and ciphers; management and protection of national borders; on the sease, islands and continental shelves of the Socialist Republic of Viet Nam). To apply the penalties in Decree No. 162/2013/NĐ-CP and Decrees amending and supplementing Decrees No. 162/2013/NĐ-CP, the Minister of National Defense issued Circular No. 105/2022/TT-BQP dated December 29, 2022, to provide guidelines on identi-

fying violations for marine pollution caused by ships.⁵³ Decree No. 45/2022/NĐ-CP dated July 07, 2022, by the Government on sanctioning of administrative violations in the field of environmental protection has indicated measures of sanctioning acts of polluting environment such as wastewater discharge, transportation of hazardous waste, especially violations in marine environmental protection and oil spill prevention in maritime and petroleum activities.⁵⁴ In addition, most of the documents on handling of violations of environmental pollution in Viet Nam stipulate on a case-by-case basis, additional sanctioning measures and remedial measures can be applied such as: deprivation of using environmental license with a definite or indefinite term; confiscate means of violation; force to implement the remedy to the pollution; temporarily suspend operations until environmental protective measures are competed.⁵⁵

With a relatively complete system of legal documents, it can be seen that Viet Nam has made a lot of efforts in internalising the provisions of international treaties on prevention and control of pollution caused by oil spills into national legal documents. Accordingly, many documents have reflected quite fully international practices, standards, technical standards and international maritime rules, handling of violations at sea, registration, and management of the operation of ships at sea, etc.

However, compared with the policy and legal system of other countries in the world, Viet Nam's legal system on prevention and control of marine pollution due to oil spills of Viet Nam still has certain limitations such as:

Firstly, Viet Nam does not have a specific law on the prevention and control of marine environmental pollution caused by oil spills, specifically in the field of compensation for damage. This causes the limitations in the coordination mechanism between agencies, which is an obstacle in monitoring the compensation obligations by the subject that causes marine pollution;

⁵³ VIETNAM. Ministry of National Defense. Ministry of National Defense (2022), *Circular No. 105/2022/TT-BQP dated 29/12/2022*, Article 13, 17, 18.

⁵⁴ GOVERNMENT OF VIET NAM. *Decree No. 45/2022/NĐ-CP dated 07/7/2022*, Article 18, 24, 27, 29, 30, 36, 39. 2022.

⁵⁵ GOVERNMENT OF VIET NAM. *Decree No. 162/2013/NĐ-CP dated 12/11/2013*, Article 4; Decree No. 142/2017/NĐ-CP dated 1/12/2017 Article 18, 24, 27, 29, 30, 36, 39; Decree No. 45/2022/NĐ-CP dated 07/7/2022 Article 4. 2013.

Second, most of the legal documents on this matter are sub-law documents. In addition, the legal documents issued by local authorities have not been given due attention, mainly for the purpose of meeting requirements of the central Government in responding to pollution, therefore, they are still poor in both quality and quantity, not enough to meet the needs of pollution prevention.

Third, the publicity and transparency of the contents of the Conventions are still weak.

Fourth, the level of sanctions for acts causing environmental pollution is generally low, not strict enough. Specifically, according to the provisions of Decree No. 142/2017/NĐ-CP on penalties for violations in the maritime, the acts of violation against the regulations on environmental protection caused by ships will be subject to a fine of from 80,000,000VND to 90,000,000VND (for acts of dumping mud, soil and waste from dredging at the wrong place) or a fine of from 90,000,000VND to 100,000,000VND (for acts of dumping mud, soil and waste from dredging at the wrong places within the navigational channel, the water area in front of bridge, the port, the anchorage area, the transshipment area, the pilot boarding area, the quarantine area) and also applying remedy for environment pollution. Moreover, the decision of violations and degree of pollution stipulated by the Decree based on national and local environmental technical standards and regulations, but the development of standards at local level has not yet been given proper attention and investment to be able to promptly update with the actual situation of the locality. This leads to the inconsistencies in actual degree and possibility of the pollution and cannot guarantee the prevention of marine pollution⁵⁶.

In addition, the prevention and control of marine pollution due to oil spill has some limitations in practice such as:

First, the mechanism for the implementation of the Conventions has not been unified, and the division of responsibility and authority is not clear and reasonable among relevant agencies. This leads to duplication, overlapping and waste of resources. There has not been a close and effective coordination between the central and local levels; between inspection and control forces

from the stage of new ship construction, equipment to the stage of operation of ships at ports and waters of Viet Nam; between the State and organisations and individuals engaged in maritime activities; among stage management agencies in charge of maritime and environment in the performance of obligations set forth by the Convention, leading to an overlapping in conducting mandates and tasks.

Second, Viet Nam still lacks fully trained human resources to meet the requirements of national laws for seafarers, resulting in many ships employing officers, crew members, safety management officer, technical manager of the ship do not have enough capacity and professional qualifications to perform jobs and tasks on board the ship as prescribed. This leads to inadequate implementation of regulations on safety of navigation and prevention of marine pollution from ships in accordance with the Convention.⁵⁷

Third, the inspection and monitoring of the implementation of conventions in this field still have limitations such as lack of strict inspection and supervision, handling violations is not tough enough; monitoring of ships in compliance with regulations on oil leak prevention under MARPOL 73/78 is not good; the inspection and control has not been paid due attention and invested properly leading to the fact that the Coast Guard forces and Inspectors are still not fully equipped with the necessary technical equipment and facilities to perform their duties on inspecting, monitoring and ensuring law compliance at sea. Therefore, the coordination with other relevant sectors of Viet Nam in ensuring the implementation of the legal provisions on prevention of marine pollution caused by ships under the convention has not yet met the current situation.⁵⁸

Fourth, the technical equipment is outdated, the professional level is rather low, therefore, it does not meet the standards in the process of building and repairing ships that do not guarantee to prevent pollution; the environmental industry has not yet developed, in-country environmental industry has not yet met the

⁵⁶ GOVERNMENT OF VIET NAM. *Decree No. 142/2017/NĐ-CP dated 1/12/2017*, Article 35. 2017.

⁵⁷ For example, the T-Fortuner of Truong Phat International Shipping and Trading Joint Stock Company was detained at the port of Zhanjiang, China on September 01, 2009 because the ship's security officers did not have the certificates issued under the STCW Convention.

⁵⁸ TRAN, Hung. Ứng phó sự cố tràn dầu tại Việt Nam. [Response to oil spills in Viet Nam]. *Journal of National Resources and Environment*, v. 3, p. 28-30, 2015.

demand; the cost of remedy for pollution is still too high to be able to invest in equipping consistently for ships, ports and floating structures in accordance with the provisions of the Convention.⁵⁹

4 Challenges and impacts of marine pollution due to oil spills caused by ships on implementing the sdgs goals in Vietnam

The term “sustainable development” first appeared in the 1970s and attracted the attention of countries when it was mentioned in the publication “World Conservation Strategy” published by the International Union for Conservation of Nature and Natural Resources – IUCN 1980.⁶⁰ This concept continued to be widely disseminated in 1987 through the Brundtland Report (also known as Our Common Future Report) of the World Commission on Environment and Development – WCED (Brundtland Commission). The report clearly states that: Sustainable development is the development that can meet the needs of the present without compromising the ability of future generations to meet their own needs.⁶¹ In other words, sustainable development must ensure effective economic development, a just society and a protected and preserved environment.

In 1992, in Rio de Janeiro, delegates to the United Nations Conference on Environment and Development continued to address sustainable development and sent a clear message to all levels of Governments on the urgency in promoting economic harmony, social development along with environmental protection. In 2002, at the World Summit on Sustainable Develop-

ment held in Johannesburg (South Africa), the concept of sustainable development was developed and completed. Accordingly, sustainable development is a process with a close, reasonable and harmonious combination of three aspects of development, including: economic development (especially economic growth), social development (especially implementation of social progress and justice; poverty reduction and increasing employment) and environmental protection (especially environmental treatment and remediation, restoration and improvement of the quality of the environment; prevention of fire and deforestation; rational exploitation and economical use of natural resources).⁶²

In order to be able to achieve concrete results on sustainable development, in 2015, State parties adopted 2030 Agenda at the United Nations Summit held in New York (United States of America) focusing on the combination and balance of three economic, social and environmental issues. The outcomes framework of the 2030 Agenda includes 17 general goals and 169 specific goals on sustainable development (SDGs). This is the United Nations’ appeal to all the nations of the world to address the great challenges facing humanity, towards a better and more sustainable future for all by 2030. SDGs deal with the most common issues, thereby providing guidance for individuals, entrepreneurs, governments and countries to know which matters need to care about and how to reduce poverty, protect the earth from the impact of human life and ensure the improvement of the quality of life of each person.⁶³

In Viet Nam, the view of sustainable development has been affirmed in the policies of the Party such as Directive 36-CT/TW dated June 25, 1998 of the Politburo on strengthening environmental protection in the current period of industrialisation and modernisation. Resolution No. 41-NQ/TW dated November 15, 2004 of the Politburo on environmental protection in the period of promoting industrialisation and modernisation

⁵⁹ DO, Hai. Xử lý tràn dầu trên biển: Yếu năng lực, thiết bị. [Handling oil spill at sea: weak in capacity and equipment]. *Journal of National Resources and Environment*, v. 3, p. 46-47, 2013; NGUYEN, Manh Hung; NGHIA, Chung. Oil spills in maritime field: an urgent problem in Vietnam. *Worldwide Journal of Multidisciplinary Research and Development*, p. 1-5, 2020.

⁶⁰ INTERNATIONAL UNION FOR CONSERVATION OF NATURE AND NATURAL RESOURCES (IUCN). *World Conservation Strategy*; NGUYEN, Yen Thi Hong. 1980; NGUYEN, Yen Thi Hong; NGUYEN, Dung Phuong. The efforts to respond to climate change and implementation of the Sustainable Development Goals (SDGS) from the hardest-affected countries: Vietnam case analysis. *Revista de Direito Internacional*, Brasília, v. 19, n. 1, p. 164-191, 2022.

⁶¹ UNITED NATIONS. *Report of the World Commission on Environment and Development: our common future*. Oxford: Oxford University Press, 1987.

⁶² NGUYEN, Yen Thi Hong; NGUYEN, Dung Phuong. The efforts to respond to climate change and implementation of the Sustainable Development Goals (SDGS) from the hardest-affected countries: Vietnam case analysis. *Revista de Direito Internacional*, Brasília, v. 19, n. 1, p. 164-191, 2022.

⁶³ LEITÃO, Adriana Isabelle Barbosa Lima Sá; MONT’ALVERNE, Tarin Cristino Frota. The covid-19 pandemic as an impeller for the aggravation of marine plastic pollution and economic crisis: the reverse effect of health protection measures on human lives. *Brazilian Journal of International Law*, v. 18, n. 2, p. 140-142, 2021.

of the country⁶⁴. Specially, the global SDGs have been specified in the National Action Plan to implement the 2030 Agenda for Sustainable Development, issued together with the Prime Minister's Decision No. 622/QĐ-TTg dated May 10, 2017, with 115 specific goals to be in line with the developmental conditions and priorities of the country based on the achievements in implementation of the Millennium Development Goals. Then, on May 20, 2019, the Prime Minister issued Directive No. 13/CT-TTg; on September 25, 2020, the Government issued Resolution No. 136/NQ-CP on sustainable development to promote the implementation of the SDGs in different levels by 2030. After more than 5 years implementing the SDGs, Viet Nam has achieved certain results, including the environmental SDGs. However, environmental pollution caused by oil spills at sea continues to pose difficulties and challenges for Viet Nam, especially in the implementation of Goal 14 on conservation and sustainable exploitation of oceans, seas and marine resources sustainably.

In the past time, although Viet Nam has been controlling marine pollution, management and protection of marine and coastal ecosystems, in order to undertake SDGs on environment (SDGs 14.1 and 14.2), oil spills still occur in Vietnamese waters. These incidents have had negative environmental impacts and challenged Viet Nam in preventing, reducing significantly and controlling marine pollution (SDG 14.1). According to data recorded through the media and in reports, from 1992 to February 2023, there were 225 oil spills at sea⁶⁵. Oil spills in coastal areas occurred the most (47%) due to the higher risk in this area. Where the traffic density of large vessels, the higher risk of ships crashing into each other, or ships crashing into the wharf, getting stuck to

land is much higher than in the sea.⁶⁶ There are various causes of oil spills, including: high traffic density, lack of traffic control and appropriate safety measures on certain oil tankers, traffic accidents such as collisions, shipwrecks, perforations, leading to the spilling of oil from the ship's drilling rigs and tanks; due to natural disaster, the oil follow the water flow and spread to the sea on a large scale; due to human awareness to let the incident happen.⁶⁷

Oil spills pollute the marine environment, seriously affecting ecosystems, especially mangroves, seagrasses, tidal flats, lagoons and coral reefs (SDGs 14.2). Oil pollution reduces the resilience, flexibility and recovery of ecosystems. The amount of oil in the water increases, the oil films reduce the ability to exchange oxygen between the air and the water, decrease the oxygen in the water, and mix up the balance of oxygen regulation in the ecosystem. In addition, the oil spills contain toxins that damage the ecosystem, which can cause the destruction of ecosystem, because the oil contains many different components which can change the organism's cell structure, event causing death of the whole population.

Oil seeping into sand and mud at the coast can affect negatively for a very long time. There have been many cases of species dying due to the impact of oil spills. It

⁶⁴ NGUYEN, Yen Thi Hong; NGUYEN, Dung Phuong. The efforts to respond to climate change and implementation of the Sustainable Development Goals (SDGS) from the hardest-affected countries: Vietnam case analysis. *Revista de Direito Internacional*, Brasília, v. 19, n. 1, p. 164-191, 2022.

⁶⁵ 225 oil spill incidents including: 38 cases occurred offshore, taking up to 17%, 105 cases occurred inshore, taking up to 47% and 82 cases occurred on hand, accounting for 36%, refer to <https://tainguyenvamoitruong.vn/nhieu-kho-khan-trong-viec-khac-phuc-su-co-tran-dau-gay-o-nhiem-moi-truong-cid18137.html>; NGUYEN, Phuoc Quy Phong. The oil spill incident in Vietnam. *European Journal of Engineering Research and Science*, p. 1- 4, 2018; VIETNAM. Ministry of National Resources and Environment. *Báo cáo hiện trạng môi trường biển và hải đảo quốc gia giai đoạn 2016-2020*. [National report on the current situation of environment of the sea and island in the period of 2016-2020]. Ha Noi, 2021. p. 93-97.

⁶⁶ Some examples of oil spill incidents: -At 12:30 on August 6, 2017, at Nghe An seaport in between Thanh Hoa and Nghe An province, about 0.32 nautical miles southeast of Nghi Son's synthetic buoy No.0, the cargo ship Duc Cuong 06, owned by Duc Cuong Transport Company (Hai Phong) had an accident. At the time of the accident, the ship Duc Cuong 06 was carrying 4,597.44 tons of Clinker and 18 tons of DO oil. The inspection of 7-8 divers showed that the ship was sinking at a depth of minus 13.0 meters below sea level; between cargo No.1 and No.2, the ship was torn horizontally across the side of the ship. The Thanh Hoa Port Authority has written to Thanh Hoa Coastal Information Station to broadcast rescue information and also provide a plan to promptly respond when 18 tons of the DO oil spread out.

⁶⁷ At 5:00 a.m on January 14, 2021, an oil tanker with registered number DNa0607 owned by Hoa Khanh Trading and Service Co., Ltd (No. 14, Nguyen Tri Phuong street, Hai Chau ward, Da Nang) has just been launched and receiving oil, suddenly, the oil tanker had accident leading to the sinking of the ship. There was about 4 cubic meters of DO oil on board; the amount of oil that spread out to the surface was about 20 square meters. The competent authorities promptly control the area of oil spreading out and collected oil with specialised equipment such as oil-absorbing buoys and oil-absorbing sheets.

⁶⁷ NGUYEN, Dinh Duong *et al.* *Ô nhiễm dầu trên vùng biển Việt Nam và kế cận* [Oil Pollution in Viet Nam and adjacent waters]. *Journal on Science on Earth*, 2023. Available in: <https://sosmoitruong.com/o-nhiem-dau-tren-vung-bien-viet-nam-va-ke-can/>.

can also be alarming that the oil spread on the sea and washed ashore for a long time without being cleaned up will decrease the number of organisms, causing damage to the fishing and aquaculture industry. Oil pollutes the water environment causing mass fish deaths due to lack of dissolved oxygen. Oil attaches to the soil, rock embankments, and island banks influencing the landscapes and cause unpleasant odors, leading to heavy losses in the tourism industry. Oil spills also affect the operation of fishing ports, shipbuilding and repair facilities. Floating oil damages machinery and equipment for resource exploitation and shipping.⁶⁸

A survey at Lach Bang fishing port, Tinh Gia district, Thanh Hoa province, where thousands of fishing boats from many different regions are often anchored shows that the water pollution here is widespread throughout the region. 10 years ago, this estuary area was home to a very rich mangrove ecosystem, now almost the entire area of mangroves is dying due to oil pollution, leading to the extinction of brackish water plants and animals. There are also continuous oil pollution incidents that make hundreds of hectares of aquaculture lost, causing many households to abandon their traditional jobs.⁶⁹

The above effects show that oil spills can be considered as one of the types of incidents causing the greatest economic loss, among the types of environmental incidents caused by humans, negatively affecting the marine economic of Viet Nam. The degree of impact of oil spill incidents at sea depends on the size of each case and different response scenarios. In which, fisheries and tourism are the economical fields damaged the most; the most severely affected people are the people in coastal areas, especially the poor, women and children. In addition, marine pollution will be contributing factors in slowing down the implementation of sustainable development, eliminating achievements in environmental protection and be an obstacle for Viet Nam to reach SDGs within the timeframe. Biodiversity degradation and ecological imbalance; degradation of coastal ecosystem; increasing environmental pollution and food safety problems; resource depletion and

increasing environmental conflicts; causing threats to ecological security and environmental security across borders; increase in natural complication and environmental incidents.

Currently, identifying the oil spill location and responding to this incident in Viet Nam have many limitations, both in terms of legal basis and specialised and technical equipment to treat oil spill pollution. The process of implementing SDGs 14 shows that Viet Nam still lacks legal basis, legal documents clearly and fully stipulate for conducting mandates relating sea and island management; limited capacity to implement policy and laws, so the quality and efficiency are not high; equipment and facilities for the professional tasks and the collective management of seas and islands are outdated. Controlling marine environmental pollution, responding to oil spills for socio-economic development still poses challenges for Viet Nam in the coming time.⁷⁰

5 Conclusion and recommendations

Currently, marine pollution caused by oil spills is causing serious impacts on the quality of the marine environment and threatening the existence and development of marine ecosystems as well as human life. Not only Viet Nam but also the whole world. This requires countries to be active in preventing and minimising pollution in the marine environment from all different sources, especially marine pollution caused by oil spill from ships. With a favorable geographical location, strategic orientation of marine economic development and promotion of petroleum exploitation activities in the future, the risk of marine pollution of caused by oil spills from ships in Vietnamese waters is very high. Therefore, the prevention of environmental pollution in general and prevention of pollution caused by the operation of ships in particular is an inevitable issue, in line with the general trend of ensuring “sustainable development”.

Recognising the importance of prevention of marine pollution with upholding the principle of “prevention is better than responding”, Viet Nam has applied various measures to prevent marine pollution in which

⁶⁸ NGUYEN, Dinh Tuyen; TRAN, Cong Tri. Assessment of oil spill damage to marine ecosystems: some foreign experiences and conditions to be applied in Vietnam. *International Journal of Multidisciplinary Research and Publications*, v. 2, n. 4, p. 43-48, 2019.

⁶⁹ HAO, Van. *Những hậu quả ô nhiễm môi trường biển do tràn dầu* [Consequences of Environmental Pollution due to Oil Spills]. 2023. Available in: <https://www.vietnamplus.vn/nhung-hau-qua-o-nhiem-moi-truong-bien-do-tran-dau/173158.vnp>.

⁷⁰ UNITED NATIONS IN VIET NAM. *Viet Nam's Voluntary National Review on the Implementation of the Sustainable Developments Goals*. 2018.

the law plays a central role, creating a basis for the implementation of measures to prevent these incidents in consistent and effective manner.

5.1 Continue to fully implement international commitments on prevention and control of marine pollution caused by oil spills

As a member of the 1969 Vienna Convention on the Law of Treaties, Viet Nam needs to continue to strictly implement the principles of the Convention, especially the Pacta sunt servanda regulated under Article 26 of this Convention. Meanwhile, Viet Nam also needs to strengthen the inspection and monitoring system to ensure that the issued regulations on safety and prevention of marine pollution are strictly enforced and can eliminate the sloppy implementation. Although Viet Nam has made progress and achieve positive results in joining and implementing international treaties on marine protection, there are still certain limitations such as the dissemination of the Convention and implementation of the Convention is still slow. In addition, Viet Nam has not yet adopted international treaties on responding to oil spills and hazardous substances spilled into the sea.

Figure 3 - Status of Conventions⁷¹

STATUS OF CONVENTIONS												
As at 1 June 2023												
	MARPOL 78/78 (Annex I)	MARPOL 78/78 (Annex II)	MARPOL 78/78 (Annex III)	MARPOL 78/78 (Annex IV)	MARPOL 78/78 (Annex V)	MARPOL Protocol of Annex V	London Convention 72	London Convention Protocol 98	INTERVENTION Convention 69	INTERVENTION Protocol 73	CLC Convention 69	CLC Protocol 94
Brunei Darussalam	x	x	x	x	x							
Cambodia	x	x	x	x	x							
Indonesia	x	x	x	x	x							
Lao People's Dem. Rep.												
Malaysia	x	x	x	x	x							
Myanmar	x	x	x	x	x							
Philippines	x	x	x	x	x							
Singapore	x	x	x	x	x							
Thailand	x	x	x	x	x							
Timor-Leste	x											
Viet Nam	x	x	x	x	x							
x= ratification												
d=denunciation												

Conventions related to oil spills and hazardous substances at sea. Singapore is the leading country in the region in joining the above-mentioned conventions which is 14/25 Conventions; Malaysia ranked the second with 13/25 Conventions. All countries in the Southeast Asia are parties to various Conventions related to oil spills and hazardous substances at sea, except for Laos, a landlocked country. This also has positive effects on

⁷¹ INTERNATIONAL MARITIME ORGANIZATION. *Status of Conventions, refer to: Status of Conventions (imo.org)*.

cooperation in responding to oil spills occurring in Viet Nam's waters in the East Sea. Notably, international conventions of IMO on oil spills and hazardous substances to which Viet Nam is not a member have very high participation rate of countries and shipping fleets in the world, over 50% of the tonnage of the world fleet. Therefore, in order to create the necessary legal framework, Viet Nam needs to continue to promote research and join other important international treaties on prevention and control of marine pollution and oil spills, such as: OPRC 90, OPRC-HNS 2000, INTERVENTION 69, FUND 92, 2003, HNS 96, especially OPRC 90 and OPRC-HNS 2000⁷².

5.2 Strengthening international cooperation activities on prevention of oil pollution at sea

Strengthening international cooperation on marine environmental protection, focusing on education and training; legislation; signing and implementing international treaties; organisation of state management on marine environmental protection, exchange of information and technologies. At the same time, Viet Nam needs to learn from the experiences of other countries in implementing the Convention, then Viet Nam can avoid the challenges they have encountered, and adopt and apply measure and solutions suitable with condition and situation of Viet Nam to promote the implementation of the Convention effectively. In addition, Viet Nam also needs to utilise the economic, technical and technological support from state parties and international organisations, especially IMO to strengthen the legal system and arrange the implementation of the Convention effectively.

⁷² NGUYEN, Manh Cuong *et al.* Tình hình tham gia các công ước quốc tế về ô nhiễm dầu và các chất nguy hiểm độc hại trên biển của Việt Nam. [The situation of Viet Nam in joining in international conventions on oil pollution and hazardous substance at the sea]. *Journal of Scientific Maritime*, v. 4, p. 60-61, 2017; DINH, Thi My Linh; PHAM, Van Tan. Civil liability for ship-source oil pollution damage: should Vietnam join FUND 1992? *Australian Journal of Maritime & Ocean Affairs*, v. 12, p. 259-268, 2020. Available in: <https://doi.org/10.1080/18366503.2020.1818964>.

5.3 Review, develop and improve the legal system on prevention and control of marine environmental pollution caused by oil spill

As analysed above, the process of internalising international treaties as well as developing Viet Nam's law on prevention and control of marine environmental pollution due to oil spills has made many remarkable achievements. However, regulations on preventing marine pollution, especially due to oil pollution, is mainly scattered in sub-law documents and remain general, not specific and also inconsistent. They are not suitable with current conditions and circumstances of Viet Nam, leading to difficulties in implementation or partial implementation. The Law on the Sea of Viet Nam issued in 2012, does not even have any direct provisions on this issue. It is recommended that the Law on the Sea of Viet Nam needs to add one Chapter on marine environmental protection, along with improving a strong and consistent legal system to become effective tools in the prevention of marine pollution caused by oil spills.

Viet Nam needs to add regulations on marine environmental protection in general and prevention and responding to marine environmental pollution due to oil spills into the Fisheries Cooperation Agreements, future Agreement on joint exploitation of petroleum with relevant countries, with the aim to create a solid legal basis for the implementation of the Agreements as well as the enforcement of the law on environmental protection.

Regarding sanctioning, Viet Nam should consider developing regulations on application of sanction with appropriate levels. The sanctions should be stipulated at higher level of fine against administrative violations and still in consistent with other countries in common fine level against this type of violation with the intention to increase deterrence and prevent intentional violations of national and international laws on prevention of marine environmental pollution.⁷³

⁷³ NGUYEN, Lan. *Bảo vệ môi trường biển Việt Nam trong hoạt động khai thác dầu khí và các quy định pháp luật cần hoàn thiện*. [Protection of marine environment of Viet Nam in petroleum activities and legal provisions that need to be improved]. *Journal of National Resources and Environment*, v. 9, p. 28-33, 2021.

5.4 Strengthening organisation and enhancing the quality of state management agencies in prevention and response to marine pollution due to oil spills

Firstly, regarding the inter-sectoral coordination: strengthening the management system of agencies in charge of implementation and application of the Convention's provisions in order to improve law enforcement capacity as well as management capacity through researching and applying an integrated marine environment management model by the establishment of interdisciplinary organisations on marine environmental protection due to oil spills; establishment of inspection and control inter-sectoral centers. At the same time, it is necessary to strengthen and improve the management structure between departments to avoid overlapping of authorities, create connections, coordinate and unify guidance between ministries and agencies from local to central level in management and prevention of marine environmental pollution.

Secondly, regarding training a cadre of experts, technical officers managing and monitoring activities that are likely to cause marine environmental pollution. Regularly send officials to participate in specialised training courses and workshops on prevention of marine pollution organised by national and international organisations. Drafting documents and organise trainings and oil spills response drills for stakeholders involved in the prevention and control of marine environmental pollution due to oil spills in line with international conventions and relevant national laws on environmental pollution.⁷⁴

5.5 Awareness raising of protection and responding marine pollution due to oil spills for all people, especially individuals, enterprises engaged in shipping business

Firstly, promote dissemination the knowledge and risks from marine pollution for all people. Improving the quality and diversifying forms of legal dissemination to achieve high efficiency in prevention and control of marine pollution caused by oil spills.

⁷⁴ TOAN, Nguyen Duc. *Phòng ngừa và ứng phó ô nhiễm dầu trên biển*. [Prevention and response to oil pollution at the sea]. *Journal of National Resources and Environment*, v. 9, p. 16-18, 2012.

Secondly, translate and explain the Convention and disseminate widely on the mass media, newspapers and specialised magazines so that all people can easily access and update information through media to fully comply with the provisions of the law, towards eliminating source of marine pollution.

In addition, it is necessary to regularly open training courses on prevention and control of marine pollution caused by oil spills for business owners and ship owners, so that everyone is aware of the investment to prevention of marine pollution including oil spills. Periodically organise action programmes on the marine environment protection, ect. to facilitate conditions for all people to engage in managing and protecting marine environment and also enhance social awareness of the rights and responsibilities in protecting marine environmental from oil spill incidents.

5.6 Enhancing technological knowledge to serve the prevention of marine pollution caused by oil spills

Viet Nam needs to strengthen the inspection and installation of oil pollution monitoring stations in ports and anchorages. Regularly take samples to analyse and assess the current status of the marine environment, thereby zoning areas at risk of oil pollution due to ship operation to take reasonable measures to manage and prevent marine pollution. Viet Nam also needs to oblige production and service facilities with oil-contaminated waste and ships to register hazardous emission sources for periodic and unscheduled inspection to control this source of waste, etc. It is recommended to adding regulations on the waste receiving planning system, construction of seaports, regulations on investment and construction of waste receiving equipment, etc. Additionally, it is necessary to supplement equipment to timely respond to oil spills such as adding more life vests, oil suction pumping equipment, etc. to increase active role of parties.

5.7 Establishment of a reserve fund to proactively respond to oil spills

Prevention and response to marine environmental protection caused by oil spills always require a great deal of financial and human resources. In order to promptly respond to oil spills, Viet Nam needs to establish a re-

serve fund and have a reasonable policy to use the fund with the aim to respond, handle and pay for damage caused by marine pollution in timely manner.

In summary, the efforts of the Government of Viet Nam in improving legal framework in order to prevent and provide remedy to marine pollution caused by oil spills is undeniable. Viet Nam also actively participate in international treaties to join the international community to reduce pollution sources and gradually eliminate pollution caused by oil from ships in Vietnamese waters. However, apart from the achievements, the prevention of marine pollution caused by oil spills in Viet Nam still has certain shortcomings and limitations as analysed in the article. Therefore, in order to prevent and respond to oil spills effectively, Viet Nam needs to continue considering to adopt relevant international treaties, improving the national legal framework to internalise the provisions of the Convention, at the same time, develop emergency response plans for oil pollution incidents due to oil spills; organise regular oil spill response drills at localities; enhance the national capacity in preparation of response to oil spills through bilateral or multilateral cooperation.

References

- BÉ RANGÈRE, Péquin *et al.* Natural attenuation of oil in marine environments: a review. *Marine Pollution Bulletin*, v. 176, p. 1-22, 2022.
- BIRNIE, Patricia *et al.* *International law and the environment*. Oxford: University Press, 2009.
- DINH, Thi My Linh; PHAM, Van Tan. Civil liability for ship -source oil pollution damage: should Vietnam join FUND 1992? *Australian Journal of Maritime & Ocean Affairs*, v. 12, p. 259-268, 2020. Available in: <https://doi.org/10.1080/18366503.2020.1818964>.
- DO, Hai. Xử lý tràn dầu trên biển: Yếu năng lực, thiết bị. [Handling oil spill at sea: weak in capacity and equipment]. *Journal of National Resources and Environment*, v. 3, p. 46-47, 2013.
- GAUTIER, Philippe. *The International Tribunal for the Law of the Sea: law, practice and procedure*. Cheltenham: Edward Elgar, 2018.

- GENNARO, Michael A. de. Oil pollution liability and control under international maritime law. *Vanderbilt Journal of Transnational Law*, v. 37, p. 274, 2004.
- HOAN, Anh Tuan *et al.* A report of oil spill recovery technologies. *International Journal of Applied Engineering Research*, p. 4915-4928, 2018.
- INTERNATIONAL COURT OF JUSTICE. Gabčíkovo-Nagymaros Project (Hungary v Slovakia), Judgment, I. C. J., Reports 1997, p. 68, para. 112; Pulp Mills on the River Uruguay (Argentina v. Uruguay), Judgment, I. C. J., Reports 2010, p. 67, para. 145.
- ITOPF. *Oil tanker spill statistics 2022*. London: ITOF Ltd, 2023.
- JULIAN, Michael. *MARPOL 73/78: the International Convention for the Prevention of Pollution from Ships, maritime studies*. 2000.
- KARIM, Md. Saiful. Implementation of the MARPOL Convention in Developing Countries. *Nordic Journal of International Law*, v. 79, p. 319-320, 2010.
- KHOI, D. N. *et al.* Development of an integrated tool responding to accidental oil spills in riverine and shoreline areas of Ho Chi Minh City, Vietnam. *Environmental Impact Assessment Review*, p. 1-15, 2023.
- KOJIMA, Chie. Integration of general principles of international environmental law into the law of the sea: assessment and challenges. *Marine Policy*, v. 149, p. 4, 2023.
- KOJIMA, Chie. *The duty to cooperate in the protection and preservation of the marine environment*. 2019.
- LAN, Dongdong *et al.* Marine oil spill risk mapping for accidental pollution and its application in a coastal city. *Marine Pollution Bulletin*, v. 96, n. 1-2, p. 220-225, 2015.
- LAND Reclamation in and around the Straits of Johor (Malaysia v. Singapore), Provisional Measures, Order, 8 October 2003, ITLOS Reports 2003, p. 25, para. 92.
- LEITÃO, Adriana Isabelle Barbosa Lima Sá; MONT'ALVERNE, Tarin Cristino Frota. The covid-19 pandemic as an impeller for the aggravation of marine plastic pollution and economic crisis: the reverse effect of health protection measures on human lives. *Brazilian Journal of International Law*, v. 18, n. 2, p. 140-142, 2021.
- MAI, Hai Đăng. *Pháp luật quốc tế và pháp luật nước ngoài về chống ô nhiễm dầu trên biển từ tàu*. [International and foreign laws on responding to oil spills from ships]. 2003. Thesis (Ph.D) - Law Faculty, Hanoi National University, Hanoi, 2003.
- MARCHAND, Pauline. The international law regarding ship-source pollution liability and compensation: evolution and current challenges. *International Oil Spill Conference Proceedings*, p. 193-210, 2017.
- MATTSON, Gini. MARPOL 73/78 and Annex I: an assessment of its effectiveness. *Journal of International Wildlife Law and Policy*, v. 9, p. 185-188, 2006.
- MOORE, J. N.; LONG, R. (ed.). *Cooperation and engagement in the South China Sea and Asia Pacific region*. Brill, 2019.
- MOX, Plant. (Ireland v. United Kingdom), Provisional Measures, Order, 3 December 2001, ITLOS Reports 2001, p. 110, para. 82.
- NGUYEN, Ba Dien. Tổng quan pháp luật Việt Nam về phòng, chống ô nhiễm dầu ở các vùng biển. [Overview of Vietnamese law on prevention and control of oil pollution at sea]. *Journal of Science*, n. 24, p. 244, 2008.
- NGUYEN, Dinh Duong *et al.* Ô nhiễm dầu trên vùng biển Việt Nam và kế cận. [Oil Pollution in Viet Nam and adjacent waters]. *Journal on Science on Earth*, 2023. Available in: <https://sosmoitruong.com/o-nhiem-dau-tren-vung-bien-viet-nam-va-ke-can/>.
- NGUYEN, Dinh Tuyen; TRAN, Cong Tri. Assessment of oil spill damage to marine ecosystems: some foreign experiences and conditions to be applied in Vietnam. *International Journal of Multidisciplinary Research and Publications*, v. 2, n. 4, p. 43-48, 2019.
- NGUYEN, Duc Toan. Phòng ngừa và ứng phó ô nhiễm dầu trên biển. [Prevention and response to oil pollution at the sea]. *Journal of National Resources and Environment*, v. 9, p. 16-18, 2012.
- NGUYEN, Huu Nhat. *Ô nhiễm môi trường biển, ven bờ do các hoạt động hàng hải*. [Marine and coastal pollution due to maritime activities]. Ha Noi: Environment Center – Transport Technological Science, 2008.
- NGUYEN, Lan. Bảo vệ môi trường biển Việt Nam trong hoạt động khai thác dầu khí và các quy định pháp

- luật cần hoàn thiện. [Protection of marine environment of Viet Nam in petroleum activities and legal provisions that need to be improved]. *Journal of National Resources and Environment*, v. 9, p. 28-33, 2021.
- NGUYEN, Manh Cuong *et al.* Tình hình tham gia các công ước quốc tế về ô nhiễm dầu và các chất nguy hiểm độc hại trên biển của Việt Nam. [The situation of Viet Nam in joining in international conventions on oil pollution and hazardous substance at the sea]. *Journal of Scientific Maritime*, v. 4, p. 60-61, 2017.
- NGUYEN, Manh Hung; NGHIA, Chung. Oil spills in maritime field: an urgent problem in Vietnam. *Worldwide Journal of Multidisciplinary Research and Development*, p. 1-5, 2020.
- NGUYEN, Phuoc Quy Phong. The oil spill incident in Vietnam. *European Journal of Engineering Research and Science*, p. 1- 4, 2018.
- NGUYEN, Yen Thi Hong; NGUYEN, Dung Phuong. The efforts to respond to climate change and implementation of the Sustainable Development Goals (SDGS) from the hardest-affected countries: Vietnam case analysis. *Revista de Direito Internacional*, Brasília, v. 19, n. 1, p. 164-191, 2022.
- NOAA'S OFFICE OF RESPONSE AND RESTORATION. *How oil harms animals and plants in marine environments*. 2021. Available in: <https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/how-oil-harms-animals-and-plants-marine-environments.html>.
- PHAM, Van Tan. Chế độ trách nhiệm dân sự đối với ô nhiễm dầu tàu: vai trò của các quốc gia trong việc thiết lập các quy tắc thống nhất toàn cầu. [Civil liability to pollution due to oil: responsibilities of State parties in establishing worldwide unified regulations]. *Maritime Scientific Journal of Viet Nam*, v. 8, p. 118, 2022.
- PHAN, Van Hung *et al.* Distribution of oil spill response capability through considering probable incident, environmental sensitivity and geographical weather in Vietnamese Waters. *Journal of International Maritime Safety, Environmental Affairs, and Shipping*, p. 31-41, 2018. Available in: <https://doi.org/10.1080/25725084.2018.1511240>.
- PHAN, Van Hung; KIM, Kwang-Soo. The estimation of regional oil recovery capacity based on marine oil spill response scenario in Vietnam. *Journal of International Maritime Safety, Environmental Affairs, and Shipping*, v. 2, n. 2, p. 97-111, 2019. Available in: <https://doi.org/10.1080/25725084.2018.1562512>.
- PHAN, Van Hung; KIM, Kwang-Soo. The present state of marine oil spills and the enhancement plans of national oil spill response capability in Vietnam: through the comparison of statistics and OSR System between Vietnam and Republic of Korea. *Journal of the Korean Society of Marine Environment & Safety*, v. 23, p. 690-698, 2017. Available in: <https://doi.org/10.7837/kosomes.2017.23.6.690>.
- REQUEST for Advisory Opinion submitted by the Sub-Regional Fisheries Commission (SRFC), Advisory Opinion, 2 April 2015, ITLOS Reports 2015, p. 43, para. 140.
- ROTHWELL, Donald R.; STEPHENS, Tim. *The international law of the sea*. 2. ed. Great Britain: Hart Publishing, 2016.
- SANDS, Philippe *et al.* *Principles of international environmental law*. Cambridge: Cambridge University Press, 2018.
- TAN, Alan Khee-Jin. *Vessel-source marine pollution: the law and politics of international regulation*. Cambridge: Cambridge University Press, 2006.
- TANAKA, Yoshifumi. *The international law of the sea*. 3rd ed. Cambridge: Cambridge University Press, 2019.
- THACHER, Peter S. Assessment and control of marine pollution: the Stockholm recommendations and their efficacy. *Stanford Journal of International Studies*, p. 79, 1973.
- THE SOUTH China Sea Arbitration (Merits) (The Republic of Philippines v. The People's Republic of China). Award of 12 July 2016, para. 941. Available in: <https://pca-cpa.org/en/cases/7/>.
- TRAN, Hung. Ứng phó sự cố tràn dầu tại Việt Nam. [Response to oil spills in Viet Nam]. *Journal of National Resources and Environment*, v. 3, p. 28-30, 2015.
- UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT. *Liability and compensation for ship-source oil pollution: an overview of the international legal framework for oil pollution damage from tankers*.

New York; Geneva, 2012.

UNITED NATIONS CONFERENCES. *World Summit on Sustainable Development*: United Nations Convention on the Law of the Sea, a commentary (Virginia Commentary), v. 4, p. 36 et seq. 1982.

UNITED NATIONS IN VIET NAM. *Viet Nam's voluntary national review on the implementation of the sustainable development goals*. 2018.

UNITED NATIONS. *Report of the World Commission on Environment and Development: our common future*. Oxford: Oxford University Press, 1987.

VAN, Hao. *Những hậu quả ô nhiễm môi trường biển do tràn dầu*. [Consequences of Environmental Pollution due to Oil Spills]. 2023. Available in: <https://www.vietnamplus.vn/nhung-hau-qua-o-nhiem-moi-truong-bien-do-tran-dau/173158.vnp>.

VIETNAM. Ministry of National Defense. *Circular No. 105/2022/TT-BQP dated 29/12/2022*.

VIETNAM. Ministry of National Resources and Environment. *Báo cáo hiện trạng môi trường biển và hải đảo quốc gia giai đoạn 2016-2020*. [National report on the current situation of environment of the sea and island in the period of 2016-2020]. Ha Noi, 2021.

ZHANG, Weipan *et al.* Governance of global vessel-source marine oil spills: characteristics and refreshed strategies. *Ocean and Coastal Management*, p. 1-12, 2021.

Acknowledge

We want to convey our deepest appreciation to our family and close friends for sending us ongoing support and words of encouragement throughout our research. Additionally, we would like to express our sincere thanks to those who provided writing assistance, technical editing, language editing, and proofreading in order for us to have a flawless version of our study. Without your outstanding assistance, this study and the research that went into it would not have been possible. Thank you very much!