Science of Law, 2025, No. 2, pp. 51-57
DOI: 10.55284/x58d8d29

Vietnam's Legal Policy on Protecting Marine Environment

Nguyễn Minh Thảo[1], Pham Thanh Nga[2]*

[1]Faculty of Bank and Finance, Thuongmai University, Hanoi, Vietnam.
[2]National Economics University, Hanoi, Vietnam; pham.nga.hlu@gmail.com

Keywords:
Environment,
Legal policy,
Marine economic,
Sustainable development,
Vietnam.

Abstract. In recent years, marine activities in the coastal of Vietnam is increasing very quickly for living and developing the national economics. Besides the positive impact on the economics, these activities make some negative on the marine environment. Therefore, it is necessary to protect the environment and implement the Sustainable Development Goals of the United Nation. Following that trend, Vietnam's authorities has enacted many laws and regulations to implement the international conventions as well as encourage the environmental protection in marine activities. In this paper, the authors will analyze the facts and problems of the environmental protection in marine activities when implementing and complying international and domestic laws and regulations in Vietnam. Then, the authors will recommend some solutions to improve these problems in Vietnam in the next period.

1. INTRODUCTION

Pollution of the marine environment means the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.

Vietnam has a coastline stretching over 3000 kilometres, a maritime and inland waterway transport system that has long assumed the role of the nation's lifeblood transportation routes. Every year, the seaport system through 90% of export and import goods, contributing to the impetus for economic development of the country. However, along with development are pollution problems that are always lurking. The sources of marine pollution in marine fisheries, tourism, oil and gas and other marine commercial activities are diverse and complex such as oil pollution, chemical pollution in bulk on ships, pollution caused by dangerous goods transported by ships; pollution caused by garbage, pollution by sewage, air pollution, so on. In addition, pollution sources are also caused by anti-fouling paint used for hulls, pollution by toxic materials used to build ships, and movement of aquatic organisms through ballast water.

The source of marine pollution from the above-mentioned activities is very large with the very rapid development of marine transportation in recent years. These pollution sources have really become a huge risk to the marine environment, seriously affecting the marine ecosystem, destroying marine resources, endangering human health and contribute significantly to global climate change.

According to monitoring data for many years, the suspended solids concentration is always relatively high in the coastal areas of the Red River Delta and the Mekong River Delta. The concentration of ammonium (NH4+) in most areas has exceeded the allowable threshold, especially in the northern coastal area. The content of mineral oil and grease in seawater exceeds the permissible limit in most of the seaport areas and tends to increase.

Oil and gas activities, shipping, with a scale of about 340 oil and gas exploration and production drilling wells and 272 operating seaports with a total capacity of over 550 million tons/year, have made great contributions to the country over the years. In addition to wastewater mixed with oil in large volume, on average, this activity generates about 5,600 tons of petroleum waste each year, over 15,000 tons of floating oil and grease, of which 23-30% is untreated hazardous solid waste.

The increase in the number of boats and the dredging activities of the navigation channel are the causes of pollution in the seaport waters. The development of the seaport system and the increase in the volume of goods in the world requires the Vietnamese seaport system to develop very quickly to meet the increasing demand for goods movement by sea of Vietnam and other countries and territories. The increase in the volume of goods passing through seaports in general and dangerous goods in particular will increase the risk of environmental pollution from the process of loading and unloading and storing dangerous goods at Vietnam's seaports. Therefore, Vietnam's authorities have enacted many laws and regulations as well as join in the international conventions on the protecting polluted-environment due to marine activities.

2. METHOD AND LITERATURE REVIEW

2.1. Method

To do this research, the authors use many kinds of methodologies such as analysis international and Vietnamese legal documents (laws and regulations) related to marine activities, survey, and the hypotheses developed in the study shows how to use law and regulation to govern the environmental protection in marine activities, etc.

For international legal documents, the authors mentioned the 1973 International Convention for the Prevention of Pollution from Ships (MARPOL), United Nations Convention on the 1982 Law of the Sea (UNCLOS), The 2030 Agenda for Sustainable Development that includes 17 Sustainable Development Goals (SDGs).

Vietnamese legal documents, the authors use some law and regulations related to the research subject such as:

i. National Assembly (2015). "Law on Natural Resources and Environment of Sea and Islands".
ii. National Assembly (2020). "Law on environmental protection".

*Corresponding author.

iii. Vietnam's Government (2018). Decree No. 159/2018/ND-CP dated November 28, 2018 of the Government on Management of dredging activities in seaport waters and inland waterways.
iv. Vietnam's Government (2017). Decree No. 37/2017/ND-CP dated April 4, 2017 of the Government regulating conditions for seaport business and exploitation.
v. Vietnam's Government (2021). "Decree No. 55/2021/ND-CP amending and supplementing a number of articles of the Government's".
vi. Vietnam's Government (2016). "Decree No. 155/2016/ND-CP regulating on sanction administrative violations in the field of environmental protection".
vii. Vietnam's Ministry of Transportation (2020). Decision No. 2027/QD-BGTVT on approving the "Project on green seaports in Vietnam".

Moreover, the authors also use the questions for survey to get the opinion of related people to assess the role and affection of law on protecting marine environment.

Lastly, the authors also use some hypotheses developed in the study shows how to use law and regulation to govern the environmental protection in marine activities such as:

i. Borys Babin; Borys Babin; Olexiy Plotnikov; Andrii Chvaliuk (2021). "Attempted Annexation of Crimea and Maritime Environment Legal Protection". Lex Portus 7(1). DOI: 10.26886/2524-101X.7.1.2021.2.
ii. Jiaying Lin; Phillip Diekmann; Christian-Eike Framing; Christian-Eike Framing; Dirk Abel Dirk Abel (2022). "Maritime Environment Perception Based on Deep Learning". IEEE Transactions on Intelligent Transportation Systems (99):1-11. DOI: 10.1109/TITS.2022.3140933.
iii. Emil Burić, Emil Burić, Mirjana Kovačić, Mirjana Kovačić, Marija Šimić Hlača (2021). "Some issues of conversion and protection of maritime domain".
iv. Maria P. PapadopoulouAristea Vlachou (2022). Conceptualization of NEXUS elements in the marine environment (Marine NEXUS). Euro-Mediterranean Journal for Environmental Integration. Follow journal. DOI: 10.1007/s41207-022-00322-6

2.2. Marine Environment

Fish, cephalopod, shrimp, and other economic marine species are widely distributed in the ocean, but they are not evenly distributed in the ocean. This mean these marine economic species are not concentrated in all areas, nor can they form commercial fishing.

The conflict activities observed in the marine environment, such as renewable energy production, aquaculture and tourism highlight the need for more coherent management at the cross - sectorial level so that human activities in the ocean can be carried out in an effect, safe and sustainable way. (Maria P. Papadopoulou1, Aristea Vlachou1, 2022).

2.3. Environmental Pollution and Marine Pollution

Pollution is the introduction of harmful materials into the environment. These harmful materials are called pollutants. Pollutants can be natural or be created by human activity. Pollutants damage the quality of air, water, and land. Ocean currents and migrating fish carry marine pollutants far and wide. But human activities such as burning fossil fuels and destroying forests have increased the amount of greenhouse gases in the atmosphere. This has increased the greenhouse effect, and average temperatures across the globe are rising. The decade that began in the year 2000 was the warmest on record. This increase in worldwide average temperatures, caused in part by human activity, is called global warming or climate change. Global warming is causing ice sheets and glaciers to melt. The melting ice is causing sea levels to rise at a rate of two millimetres (0.09 inches) per year. The rising seas will eventually flood low-lying coastal regions. Global warming also contributes to the phenomenon of ocean acidification. Ocean acidification is the process of ocean waters absorbing more carbon dioxide from the atmosphere. Fewer organisms can survive in warmer, less salty waters. The ocean food web is threatened as plants and animals such as coral fail to adapt to more acidic oceans. Scientists have predicted that global warming will cause an increase in severe storms. It will also cause more droughts in some regions and more flooding in others Water Pollution.

Some polluted water looks muddy, smells bad, and has garbage floating in it. Some polluted water looks clean, but is filled with harmful chemicals you can't see or smell. Polluted water is unsafe for drinking and swimming. Some people who drink polluted water are exposed to hazardous chemicals that may make them sick years later. Others consume bacteria and other tiny aquatic organisms that cause disease. The United Nations estimates that 4,000 children die every day from drinking dirty water. Sometimes, polluted water harms people indirectly. They get sick because the fish that live in polluted water are unsafe to eat. They have too many pollutants in their flesh. There are some natural sources of water pollution. Oil and natural gas, for example, can leak into oceans from natural underground sources. These sites are called petroleum seeps. The world's largest petroleum seep is the Coal Oil Point Seep, off the coast of the U.S. state of California. The Coal Oil Point Seep releases so much oil that tar balls wash up on nearby beaches. Tar balls are small, sticky pieces of pollution that eventually decompose in the ocean.

Human activity also contributes to water pollution. Chemicals and oils from factories are sometimes dumped or seep into waterways. These chemicals are called runoff. Chemicals in runoff can create a toxic environment for aquatic life. Runoff can also help create a fertile environment for cyanobacteria, also called blue-green algae. Cyanobacteria reproduce rapidly, creating a harmful algal bloom (HAB). Harmful algal blooms prevent organisms such as plants and fish from living in the ocean. They are associated with "dead zones" in the world's lakes and rivers, places where little life exists below surface water.

Mining and drilling can also contribute to water pollution. Acid mine drainage (AMD) is a major contributor to pollution of rivers and streams near coal mines. Acid helps miners remove coal from the surrounding rocks. The acid is washed into streams and rivers, where it reacts with rocks and sand. It releases chemical sulphur from the rocks and sand, creating a river rich in sulphuric acid. Sulphuric acid is toxic to plants, fish, and other aquatic organisms. Sulphuric acid is also toxic to people, making rivers polluted by AMD dangerous sources of water for drinking and hygiene.

Oil spills are another source of water pollution. In April 2010, the Deep-water Horizon oil rig exploded in the Gulf of Mexico, causing oil to gush from the ocean floor. In the following months, hundreds of millions of gallons of oil spewed into the gulf waters. The spill produced large plumes of oil under the sea and an oil slick on the surface as large as 24,000 square kilometres (9,100 square miles). The oil slick coated wetlands in the U.S. states of Louisiana and Mississippi, killing marsh plants and aquatic organisms such as crabs and fish. Birds, such as pelicans, became coated in oil and were unable to fly or access food. More than two million animals died as a result of the Deep-water Horizon oil spill.

Buried chemical waste can also pollute water supplies. For many years, people disposed of chemical wastes carelessly, not realizing its dangers. In the 1970s, people living in the Love Canal area in Niagara Falls, New York, suffered from extremely high rates of cancer and birth defects. It was discovered that a chemical waste dump had poisoned the area's water. In 1978, 800 families living in Love Canal had to abandon their homes.

If not disposed of properly, radioactive waste from nuclear power plants can escape into the environment. Radioactive waste can harm living things and pollute the water.

Sewage that has not been properly treated is a common source of water pollution. Many cities around the world have poor sewage systems and sewage treatment plants. Delhi, the capital of India, is home to more than 21 million people. More than half the sewage and other waste produced in the city are dumped into the Yamuna River. This pollution makes the river dangerous to use as a source of water for drinking or hygiene. It also reduces the river's fishery, resulting in less food for the local community.

Rain washes other pollutants into streams and lakes. It picks up animal waste from cattle ranches. Cars drip oil onto the street, and rain carries it into storm drains, which lead to waterways such as seas. Rain sometimes washes chemical pesticides off of plants and into streams. Pesticides can also seep into groundwater, the water beneath the surface of the Earth.

Heat can pollute water. Power plants, for example, produce a huge amount of heat. Power plants are often located on rivers so they can use the water as a coolant. Cool water circulates through the plant, absorbing heat. The heated water is then returned to the river. Aquatic creatures are sensitive to changes in temperature. Some fish, for example, can only live in cold water. Warmer ocean temperatures prevent fish eggs from hatching. Warmer marine water also contributes to harmful algal blooms.

Another type of water pollution is simple garbage. Floating trash makes the ocean difficult to fish in. Aquatic animals such as fish and turtles mistake trash, such as plastic bags, for food. Plastic bags and twine can kill many ocean creatures. Chemical pollutants in trash can also pollute the water, making it toxic for fish and people who use the river as a source of drinking water. The fish that are caught in a polluted river often have high levels of chemical toxins in their flesh. People absorb these toxins as they eat the fish.

Garbage also fouls the ocean. Many plastic bottles and other pieces of trash are thrown overboard from boats. The wind blows trash out to sea. Ocean currents carry plastics and other floating trash to certain places on the globe, where it cannot escape. The largest of these areas, called the Great Pacific Garbage Patch, is in a remote part of the Pacific Ocean. According to some estimates, this garbage patch is the size of Texas.

3. FINDINGS AND DISCUSSION

3.1. The 1973 International Convention for the Prevention of Pollution from Ships (MARPOL)

Ship is known one of the subjects of marine pollution. Because of its international extensions and extensive environmental damage that consequences are regulated by International Conventions and basically by the International Convention MARPOL 1973. MARPOL is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The MARPOL Convention was adopted on 2 November 1973 at IMO. The Protocol of 1978 was adopted in response to a spate of tanker accidents in 1976-1977. As the 1973 MARPOL Convention had not yet entered into force, the 1978 MARPOL Protocol absorbed the parent Convention. The combined instrument entered into force on 2 October 1983. In 1997, a Protocol was adopted to amend the Convention and a new Annex VI was added which entered into force on 19 May 2005. MARPOL has been updated by amendments through the years. The Convention includes regulations aimed at preventing and minimizing pollution from ships - both accidental pollution and that from routine operations - and currently includes six technical Annexes. Annex I regulations for the Prevention of Pollution by Oil (entered into force 2 October 1983).

Covers prevention of pollution by oil from operational measures as well as from accidental discharges; the 1992 amendments to Annex I made it mandatory for new oil tankers to have double hulls and brought in a phase-in schedule for existing tankers to fit double hulls, which was subsequently revised in 2001 and 2003.

(ii) Annex II Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk (entered into force 2 October 1983)

Details the discharge criteria and measures for the control of pollution by noxious liquid substances carried in bulk; some 250 substances were evaluated and included in the list appended to the Convention; the discharge of their residues is allowed only to reception facilities until certain concentrations and conditions (which vary with the category of substances) are complied with. In any case, no discharge of residues containing noxious substances is permitted within 12 miles of the nearest land.

(iii) Annex III Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form (entered into force 1 July 1992)

Contains general requirements for the issuing of detailed standards on packing, marking, labelling, documentation, stowage, quantity limitations, exceptions and notifications. For the purpose of this Annex, "harmful substances" are those substances which are identified as marine pollutants in the International Maritime Dangerous Goods Code (IMDG Code) or which meet the criteria in the Appendix of Annex III.

(iv) Annex IV Prevention of Pollution by Sewage from Ships (entered into force 27 September 2003)

Contains requirements to control pollution of the sea by sewage; the discharge of sewage into the sea is prohibited, except when the ship has in operation an approved sewage treatment plant or when the ship is discharging comminute and disinfected sewage using an approved system at a distance of more than three nautical miles from the nearest land; sewage which is not comminute or disinfected has to be discharged at a distance of more than 12 nautical miles from the nearest land.

(v) Annex V Prevention of Pollution by Garbage from Ships (entered into force 31 December 1988)

Deals with different types of garbage and specifies the distances from land and the manner in which they may be disposed of; the most important feature of the Annex is the complete ban imposed on the disposal into the sea of all forms of plastics.

(vi) Annex VI Prevention of Air Pollution from Ships (entered into force 19 May 2005)

Sets limits on sulphur oxide and nitrogen oxide emissions from ship exhausts and prohibits deliberate emissions of ozone depleting substances; designated emission control areas set more stringent standards for SOx, NOx and particulate matter. A chapter adopted in 2011 covers mandatory technical and operational energy efficiency measures aimed at reducing greenhouse gas emissions from ships.

The 1973 International Convention for the Prevention of Pollution from Ships as modified by the Protocol of 1978 (MARPOL 73/78) have pioneered the use of EU observation (EO) data. The MARPOL convention is one of the only MEAs explicitly referring to remote sensing in its articles as potential support in marine oil pollution monitoring. The potential role of international global programs based on space systems such as the International Charter on Space and Major disasters, are also presented focusing

on maritime surveillance. Finally, current EO legal framework and future issues are also examined.

3.2. The 2030 Agenda for Sustainable Development that Includes 17 Sustainable Development Goals (SDGs)

In September 2015, the General Assembly adopted the 2030 Agenda for Sustainable Development that includes 17 Sustainable Development Goals (SDGs). Building on the principle of "leaving no one behind", the new Agenda emphasizes a holistic approach to achieving sustainable development for all. The SDGs has two goals related to the protecting polluted-environment due to marine activities. Firstly, the goal 6th mentions the issues of ensure availability and sustainable management of water and sanitation for all. By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally. By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity. By 2030, implement integrated water resources management at all levels, including through trans-boundary cooperation as appropriate. By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes. By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies. Support and strengthen the participation of local communities in improving water and sanitation management. The secondly, the goal 14 provides that by 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans. Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels. By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics. By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information. By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation

By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism

Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular the small island developing States and least developed countries. Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158.

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

In the UNCLOS 1982 has regulations for protection and preservation of the marine environment (From Art.192 to Art.237). States have the obligation to protect and preserve the marine environment. States shall take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonize their policies in this connection. States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention.

Pollution from activities in the Area. International rules, regulations and procedures shall be established in accordance with Part XI to prevent, reduce and control pollution of the marine environment from activities in the Area. Such rules, regulations and procedures shall be re-examined from time to time as necessary. Subject to the relevant provisions of this section, States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from activities in the Area undertaken by vessels, installations, structures and other devices flying their flag or of their registry or operating under their authority, as the case may be. The requirements of such laws and regulations shall be no less effective than the international rules, regulations and procedures referred to in paragraph 1.

For pollution from vessels States, acting through the competent international organization or general diplomatic conference, shall establish international rules and standards to prevent, reduce and control pollution of the marine environment from vessels and promote the adoption, in the same manner, wherever appropriate, of routing systems designed to minimize the threat of accidents which might cause pollution of the marine environment, including the coastline, and pollution damage to the related interests of coastal States (Article 211, UNCLOS). Such rules and standards shall, in the same manner, be re-examined from time to time as necessary.

States shall adopt laws and regulations for the prevention, reduction and control of pollution of the marine environment from vessels flying their flag or of their registry. Such laws and regulations shall at least have the same effect as that of generally accepted international rules and standards established through the competent international organization or general diplomatic conference.

States which establish particular requirements for the prevention, reduction and control of pollution of the marine environment as a condition for the entry of foreign vessels into their ports or internal waters or for a call at their off-shore terminals shall give due publicity to such requirements and shall communicate them to the competent international organization. Whenever such requirements are established in identical form by two or more coastal States in an endeavour to harmonize policy, the communication shall indicate which States are participating in such cooperative arrangements. Every State shall require the master of a vessel flying its flag or of its registry, when navigating within the territorial sea of a State participating in such cooperative arrangements, to furnish, upon the request of that State, information as to whether it is proceeding to a State of the

same region participating in such cooperative arrangements and, if so, to indicate whether it complies with the port entry requirements of that State. This article is without prejudice to the continued exercise by a vessel of its right of innocent passage or to the application of article 25, paragraph 2.

Coastal States may, in the exercise of their sovereignty within their territorial sea, adopt laws and regulations for the prevention, reduction and control of marine pollution from foreign vessels, including vessels exercising the right of innocent passage. Such laws and regulations shall, in accordance with Part II, section 3, not hamper innocent passage of foreign vessels.

Coastal States, for the purpose of enforcement as provided for in section 6, may in respect of their exclusive economic zones adopt laws and regulations for the prevention, reduction and control of pollution from vessels conforming to and giving effect to generally accept international rules and standards established through the competent international organization or general diplomatic conference.

Where the international rules and standards referred to in paragraph 1 are inadequate to meet special circumstances and coastal States have reasonable grounds for believing that a particular, clearly defined area of their respective exclusive economic zones is an area where the adoption of special mandatory measures for the prevention of pollution from vessels is required for recognized technical reasons in relation to its oceanographically and ecological conditions, as well as its utilization or the protection of its resources and the particular character of its traffic, the coastal States, after appropriate consultations through the competent international organization with any other States concerned, may, for that area, direct a communication to that organization, submitting scientific and technical evidence in support and information on necessary reception facilities. Within 12 months after receiving such a communication, the organization shall determine whether the conditions in that area correspond to the requirements set out above. If the organization so determines, the coastal States may, for that area, adopt laws and regulations for the prevention, reduction and control of pollution from vessels implementing such international rules and standards or navigational practices as are made applicable, through the organization, for special areas. These laws and regulations shall not become applicable to foreign vessels until 15 months after the submission of the communication to the organization. The coastal States shall publish the limits of any such particular, clearly defined area. If the coastal States intend to adopt additional laws and regulations for the same area for the prevention, reduction and control of pollution from vessels, they shall, when submitting the aforesaid communication, at the same time notify the organization thereof. Such additional laws and regulations may relate to discharges or navigational practices but shall not require foreign vessels to observe design, construction, manning or equipment standards other than generally accepted international rules and standards. They shall become applicable to foreign vessels 15 months after the submission of the communication to the organization, provided that the organization agrees within 12 months after the submission of the communication.

The international rules and standards referred to in this article should include inter alia those relating to prompt notification to coastal States, whose coastline or related interests may be affected by incidents, including maritime casualties, which involve discharges or probability of discharges.

3.4. The constantly Developing Legal Landscape in Vietnam

Constitution is the highest legal document in Vietnam. It regulates the main principle of legal policies of Vietnam. The 2013 Constitution is the newest Vietnam's Constitution. It has an article related to the issue of environmental ocean protection. That article is article 63. Following the regulations of article 63, the State has policies on environmental protection; manage and use effectively and sustainably natural resources; nature conservation, biodiversity; proactively prevent and combat natural disasters and respond to climate change. The State encourages all activities of environmental protection, development and use of new and renewable energy. Organizations and individuals that pollute the environment, deplete natural resources and degrade biodiversity must be strictly handled and have the responsibility to remedy and compensate for damage. These regulations are the background of the legal system environmental ocean protection in Vietnam.

The 2015 Maritime Code is the newest Vietnamese law on marine activities. This law has some article regulate environmental ocean protection. For example, when new ships are built, seaports when built must have environmental protection equipment as prescribed; have a response plan for oil spills and hazardous chemicals. Seaports must have plans and measures to receive and treat waste from ships according to regulations; Ship owners, port owners and relevant organizations and individuals must comply with the provisions of the law on environmental protection. (Article 128, the 2015 Maritime Code)

Following the 2020 Law on Environmental Protection Seaport, environmental protection activities are regulated from the planning, investment preparation, and construction and exploitation stages. Article 25 of Law on Environmental Protection stipulates on subjects that must carry out strategic environmental assessment; Article 30 stipulates on subjects subject to environmental impact assessment; Article 39 stipulates who must have an environmental permitting.

The Law also stipulates (Article x) that in the course of operation, production, business and service establishments must meet environmental protection requirements such as: Collection and treatment of wastewater; collect, classify, store, treat and dispose of solid waste; reduce, collect and treat dust and gas emissions; ensure resources and equipment to prevent and respond to environmental incidents; carry out environmental monitoring; report on environmental protection activities.

In the 2015 Law on Natural Resources and Environment of Sea and Islands the content of controlling the environmental pollution of sea and islands stipulates the following contents: Principles and contents of environmental pollution control of sea and islands; responsibility for investigation and assessment of the sea and island environment; control marine environmental pollution from activities at sea, from land and control trans-boundary marine environmental pollution; tools and measures to control marine and island environmental pollution, assessment of results of sea and island environmental pollution control activities; report on the current state of the sea and island environment.

In addition to the above laws, the Government has also issued important decrees such as Decree No. 58/2017/ND-CP dated May 10, 2017 detailing a number of articles of the 2015 Maritime Code on maritime operations management; Decree No. 40/2016/ND-CP dated May 15, 2016 of the Government guiding the implementation of a number of articles of the Law on natural resources and environment of sea and islands; Decree No. 18/2015/ND-CP dated February 14, 2015 regulating environmental protection planning, strategic environmental assessment, environmental impact assessment and environmental protection plan; Decree No. 38/2015/ND-CP dated April 24, 2015 of the Government on waste and scrap management; Decree No. 159/2018/ND-CP dated November 28, 2018 of the Government on Management of dredging activities in seaport waters and inland waterways; Decree No. 37/2017/ND-CP dated April 4, 2017 of the Government regulating conditions for seaport business and exploitation; Decree No. 55/2021/ND-CP dated May 24, 2021 of the Government amending and supplementing a number of articles of the Government's Decree No. 155/2016/ND-CP dated November 18, 2016 regulating on sanction administrative violations in the field

of environmental protection; Circular No. 41/2017/TT-BGTVT dated November 14, 2017 of the Minister of Transport on management and receipt of waste from ships in seaport waters.

3.5. Discussion

Regarding state management in the maritime sector, from top to bottom: Ministry of Transport - Vietnam Maritime Administration - Maritime Administration. Under this system, there is no specialized unit in charge of environmental protection at the port authority level.

Specialized environmental management at the central level is decentralized: MONRE - General Department of Seas and Islands of Vietnam - Department of Natural Resources Control and Marine Environment Protection.

Regarding environmental management by decentralized territory: Provincial People's Committee - Department of Natural Resources and Environment - Sub-Department of Seas and Islands.

At the level of environmental management at seaport enterprises, in most seaports, this work has not been separated, even without a full-time officer.

An assessment of the management of the seaport environment shows that the localities have well performed the monitoring and control of the environmental sea and island (including the waters of seaports) annually assessment of pollution control activities of sea and island environment. The work of inspection and examination of the observance of legal regulations on the seaport environment has been focused on in recent years. The inspection results show that the number of ports and docks with ISO 14000 certificate is 37 out of 152 surveyed units

For monitoring pollution sources from ships, currently, the Ministry of Transport has issued Circular No. 55/2019/TT-BGTVT dated December 31, 2019 on certificates, including certificates of environmental protection in general. The ministry of Transport and the Vietnam Maritime Administration, the port authorities of the provinces/cities directly under the Central Government have supervised the certificates of maritime safety including environmental permits for ship owners to the port, seaport operators, such as: International Certificate of Oil Pollution Prevention; International certificate for prevention of pollution by wastewater; International Certificate of Air Pollution Prevention; International certificate for preventing air pollution of engines; Certificate of ship sanitation treatment or Certificate of exemption from ship sanitation treatment; Certificate of technical safety and environmental protection.

On the basis of legal provisions on environmental protection of seaports; for prevention and control of seaport pollution, currently most seaports have specific plans such as: Environmental inspection of ships and boats; collecting solid waste at ports; Building a system of collecting and treating wastewater (Wastewater), overflowing water; Prevention of oil spills, fires and explosions that cause environmental pollution. In general, seaports have performed well in solid waste collection, collection, treatment of wastewater and overflowing water. However, the current problem is that most of Vietnam's seaports have not installed the equipment to receive and treat wastewater and oil as prescribed in Annex I of the MARPOL Convention.

Through the combined results, research on the prevention and control of seaport pollution has achieved the following advantages:

The establishment of specialized agencies such as the Sub-Department of Seas and Islands; Maritime Sub-Department; Port authorities; Inland waterway port authorities in the provinces are important focal points in the prevention and control of seaport pollution in localities and maximize the mobilization of people and expertise in the coordination of implementation of the following contents: tasks of seaport pollution prevention, especially in the prevention and response to environmental incidents at seaports.

The socio-political, professional and community organizations are increasingly promoting their role in monitoring the environmental protection activities of seaports operating in the localities and giving timely feedback to the agencies.

However, with the increasing requirements of environmental protection, some outstanding issues need to be resolved in the control of seaport pollution in the coming time as follows:

Equipment and infrastructure for environmental protection at seaports are still limited, most of the ports are small in scale, so they cannot afford to invest in equipment and infrastructure for environmental protection such as environmental protection systems. Conditions on ensuring the implementation of coordination work of functional agencies are not adequate.

Lack of human resources: At most seaports, there is a shortage of human resources with safety and environmental expertise, especially expertise in the management of dangerous goods and hazardous chemicals as required by the IMDG Code.

Lack of finance: The investment in infrastructure for environmental protection, incident prevention and response in maritime activities requires large funds. Meanwhile, at Vietnam's seaports, funding for environmental protection activities is still quite limited, not meeting the requirements of environmental protection work in general and responding to environmental incidents for dangerous goods. The results of implementing solutions on prevention and control of seaport pollution are not high.

Pollution control, prevention and response to waste incidents have not been developed into a plan by seaports to proactively respond. The content of coordination in the control of dangerous goods at seaports is still not effective partly due to the lack of close coordination between the port authority, the local environmental management agency and the safety management agency.

Currently, there are many focal points in the state management of the seaport environment, leading to cross-functional conflicts, making it difficult to define a clear role and position in the coordination of implementation of prevention and control activities of environmental protection seaport.

4. CONCLUSION

Basically, the system of documents regulating Vietnam’s seaport environmental pollution control is quite synchronous and the management system has been arranged from central to local. The legal basis stipulating the roles, responsibilities and participation and coordination of stakeholders has been legislated, serving as the basis for the practical implementation of seaport pollution prevention and control. The content of coordination has been relatively fully regulated on issues related to the seaport environment.

The Law on Environmental Protection 2020 officially took effect with a system of regulations and environmental management tools in each phase of the project, starting from the stage of considering investment policy, appraise and implement the project until the project is officially put into operation and ends. Seaport projects are one of the subjects that will be governed by the Law on Environmental Protection 2020. Therefore, to ensure the compliance of port enterprises, management units need to organize propaganda and dissemination, guiding the implementation of new regulations.

At the same time, in order to be proactive in pollution control and prevention of environmental incidents at seaports,

specialized management agencies should consider and issue specific guidelines for port enterprises on the development of a port business plan. Environmental pollution prevention and response plans, environmental incident response plans apply to all seaport enterprises, relevant organizations and individuals.

As mentioned above, environmental management at seaports, at the central level, is the responsibility of MONRE and MOT; at the local level are the Port Authority and the Department of Natural Resources and Environment. These units have been prescribed with specific functions and tasks. However, in the implementation process, there is still overlapping and interlacing functions, leading to sometimes difficult coordination between these agencies in reality. Therefore, it is necessary to review, consider and adjust the functions and tasks of the management units, to ensure the clear identification of the lead unit, the coordinating unit and the coordination principle between the units.

REFERENCES

United Nations. (1982). *United Nations Convention on the Law of the Sea*. Montego Bay, Jamaica. Retrieved from https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf

United Nations. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development*. Retrieved from https://sdgs.un.org/2030agenda

International Maritime Organization. (1973). *International Convention for the Prevention of Pollution from Ships (MARPOL)*. Retrieved from https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Prevention-of-Pollution-from-Ships-%28MARPOL%29.aspx

National Assembly of Vietnam. (2015). *Law No. 82/2015/QH13 on Natural Resources and Environment of Sea and Islands*. Retrieved from https://english.luatvietnam.vn/law-no-82-2015-qh13-dated-june-25-2015-of-the-national-assembly-on-marine-and-island-resources-and-environment-96366-doc1.html

National Assembly of Vietnam. (2020). *Law No. 72/2020/QH14 on Environmental Protection*. Retrieved from https://english.luatvietnam.vn/law-on-environmental-protection-no-72-2020-qh14-dated-november-17-2020-of-the-national-assembly-195564-doc1.html

Government of Vietnam. (2018). *Decree No. 159/2018/ND-CP on Management of Dredging Operations within Seaport Water and Inland Water Areas*. Retrieved from https://english.luatvietnam.vn/decree-no-159-2018-nd-cp-dated-november-28-2018-of-the-government-on-the-management-of-dredging-operations-within-seaport-water-and-inland-water-are-169183-doc1.html

Government of Vietnam. (2017). *Decree No. 37/2017/ND-CP on Conditions for Commercial Operation of Seaports*. Retrieved from https://english.luatvietnam.vn/decree-no-37-2017-nd-cp-dated-april-04-2017-of-the-government-on-conditions-for-commercial-operation-of-seaports-113502-doc1.html

Government of Vietnam. (2021). *Decree No. 55/2021/ND-CP Amending and Supplementing a Number of Articles of Decree No. 155/2016/ND-CP on Sanctioning Administrative Violations in the Field of Environmental Protection*. Retrieved from https://english.luatvietnam.vn/decree-no-55-2021-nd-cp-dated-may-24-2021-of-the-government-amending-and-supplementing-a-number-of-articles-of-the-governments-decree-no-155-2016-202521-doc1.html

Government of Vietnam. (2016). *Decree No. 155/2016/ND-CP on Sanctioning Administrative Violations in the Field of Environmental Protection*. Retrieved from https://english.luatvietnam.vn/decree-no-155-2016-nd-cp-dated-november-18-2016-of-the-government-on-sanctioning-of-administrative-violations-in-the-field-of-environmental-protection-112363-doc1.html

Ministry of Transport of Vietnam. (2020). *Decision No. 2027/QD-BGTVT on Approving the Project on Green Seaports in Vietnam*.

Babin, B., Plotnikov, O., & Chvaliuk, A. (2021). Attempted annexation of Crimea and maritime environment legal protection. *Lex Portus, 7*(1), 21–35. https://doi.org/10.26886/2524-101X.7.1.2021.2

Lin, J., Diekmann, P., Framing, C.-E., & Abel, D. (2022). Maritime environment perception based on deep learning. *IEEE Transactions on Intelligent Transportation Systems, 23*(5), 1–11. https://doi.org/10.1109/TITS.2022.3140933

Burić, E., Kovačić, M., & Šimić Hlača, M. (2021). Some issues of conversion and protection of maritime domain. *Pomorstvo, 35*(1), 1–10. https://doi.org/10.31217/p.35.1.1

Papadopoulou, M. P., & Vlachou, A. (2022). Conceptualization of NEXUS elements in the marine environment (Marine NEXUS). *Euro-Mediterranean Journal for Environmental Integration, 7*(1), 1–12. https://doi.org/10.1007/s41207-022-00322-6

National Geographic. (n.d.). Water pollution is a rising global crisis. Here's what you need to know. Retrieved January 3, 2022, from https://education.nationalgeographic.org/resource/water-pollution

National Geographic. (n.d.). Marine pollution, explained. Retrieved January 30, 2022, from https://education.nationalgeographic.org/resource/marine-pollution

National Geographic. (n.d.). Air pollution, explained. Retrieved January 10, 2022, from https://education.nationalgeographic.org/resource/air-pollution