

Marine pollution and remedies of Vietnamese Government

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Abstract: The marine environment is severely polluted by industrial, agricultural and aquacultural waste, household waste. However, the impact of oil pollution on shipping, shipbuilding and seaports is questionable to “hurt” the managers and it needs to warn to be conscious, responsible for minimizing pollution from this source. According to the implementation plan of Annex III, IV, V and VI of the MARPOL, in Decision No.795/QD-TTg on 01/05/2016 of the Prime Minister in the period of 2016 to 2020, the Government will review and improve the system of legal normative documents for the prevention of environmental pollution caused by ships and the management of waste arising from ships in maritime shipping.

Keywords: marine environment, shipping, maritime, remedies.

1. Introduction

Environmental experts say that vessels are a major source of pollution to the environment. Especially in port cities and coastal areas because of their use of poor quality asphalt fuels, which have high levels of emissions such as nitrogen oxides (NO), sulfur dioxide (SO₂). In addition, these wastes also produce acid rain and tiny particles of soot in the air.

Ship operations (including fishing vessels and cargo ships) are one of the artificial sources that contribute significantly to air pollution. According to US government statistics, ships are responsible for two-thirds of SO₂ emissions in the transport sector in 2002, with a lack of controls that could make up 98 percent of the total in 2020. Therefore, the US government has set new emission standards for large ships. Accordingly, from 2015, new ships will have to reduce 96% SO₂ compared to today. Similarly, ships built after 2016 will have to cut 80% of their NO emissions.

The European Union's report on the impact of ship emissions on the health of the European Union shows that toxic emissions from ships are killing about 39.000 people each year in Europe, of which England suffered the most heavy damage because of the long sea route and also busiest trade, the bustling passage.

The study also showed that the average life expectancy of residents in the West Coast of England will be reduced from 20 to 30 months from 2020. Meanwhile, shipping companies will face the potential to meet lower SO₂ emissions and cleaner fuel costs, which have raised shipping rates. The EU accepted IMO's proposal to reduce the sulfur content of marine fuels, with the sulfur limits for all vessels cutting to 0.5% by 2020 (currently 3.5%). The limits for all ships in the Baltic and North Sea (known as the control area emissions), will be cut to 0.1% from 0.5% starting from 2015. Marine operators can also use alternative treatment technologies to clean the emissions of ships to minimize pollution.

Currently, Vietnam has over 1.700 transport vessels, with the number of fishing vessels of about 130.000, corresponding to the amount of gasoline fuel consumed about 4 million tons per year. It can be said that this is the source of pollution to the sea, coastal areas and many places, seriously affecting the marine ecosystem, destroying marine resources, endangering human health.

The quality of Vietnamese ships is not high, many vehicles are too old, obsolete, low fuel burning efficiency and no exhaust gas treatment system ... so they emit more toxic gases such as: SO₂, CO₂, CO, NO₂, C_xH_y ... The quality of Vietnamese ships is not high ... so they emit more toxic gases. The Prime Minister has approved the Implementation Plan of Implementation of Appendices III, IV, V and VI of the MARPOL Convention - International Convention for the Prevention of Pollution from ships. This plan aims to fully and fully implement the provisions of Appendices III, IV, V and VI of the International Convention for the Prevention of Pollution from Ship (MARPOL) of which Vietnam is a member. To ensure the legitimate rights and interests of the coastal state, the port State, the flag State.

According to this plan, from 2016 to 2020, the Government will review and improve the system of legal documents on environmental pollution prevention caused by the ship and management of waste arising from ships in operation. Marine navigation, offshore oil and gas exploration and exploitation, investigation and detection of violations and marine accidents in order to fully and comprehensively implement legal documents and regulations of Appendices III, IV, V and VI of the MARPOL Convention. Annually implement the provisions of Annexes III, IV, V and VI of the MARPOL Convention, including the inspection and control to

fulfill the responsibility of the State for vessels flying the Vietnamese flag. , The responsibility of the coastal state and the responsibility of the port state.

Besides, capacity building for the inspection and certification of vessels carrying the Vietnamese national flag, conducting marine casualties investigations, timely handling of violations, including Both the training of seaport State Inspectorate officers, the State Port State Inspection (PSC) and the inspectors shall conduct the assessment, inspection and control of the ship's systems and techniques. From 2016 to 2030, study mechanisms and policies for investment in the construction and upgrading of waste reception systems at seaports in accordance with MARPOL Annex III, IV, V and VI; To study and apply the equipment for inspection and control of waste arising from ships. Assessment of current environmental pollution caused by the seagoing vessel, the situation of waste management at Vietnamese seaports and the extent to which they meet the requirements of the MARPOL Convention; Study, develop and propose the establishment of environmental protection measures to prevent pollution caused by ships in Vietnamese waters to submit to the International Maritime Organization through; Propaganda, dissemination, training, training for organizations and individuals involved in the implementation of the provisions in Annex III, IV, V and VI of the MARPOL Convention. Strengthen cooperation with international organizations in the maritime field and other countries in the region to exchange information, provide technical assistance, train civil servants, civil servants, officers and boats. Membership and transfer of technology related to the implementation of the MARPOL Convention; Promote bilateral cooperation with the States Parties to the Convention in order to consult the experience and take advantage of their technical assistance and assistance.

It can be said that this is a new step in the prevention of pollution caused by ships of Vietnam. The MARPOL Convention is one of the key conventions on marine environmental protection and Vietnam has acceded to the Convention since 1991. The Convention establishes regulations to prevent pollution caused by the carriage of goods by oil. Mine, dangerous goods, toxic, as well as water, garbage and emissions from the ship. As the relentless development of science and technology as well as the environmental issues that arise in the maritime industry's practices (oil spills, emerging pollution problems, etc...) The technical requirements of MARPOL 73/78 have been continuously amended and amended. Up to now, the MARPOL 73/78 has six appendices detailing the relevant contents.

2. Causes and impacts

2.1. Causes

As we all know, pollution is occurring everywhere, such as air pollution, soil pollution and not outside of that is the pollution of the marine environment. Recently, the media as well as other mass media have reported a lot about the phenomenon of mass death fish in the central coastal area makes the lives of people here are difficult and even more difficult

This raises many concerns about whether to live in this land. There is no article about the official cause of the problem, but what we can easily see is that the marine environment is increasingly polluted. The sea is rich and diverse in terms of resources, filled with potential for diversified economic development. Not only that, the sea is also an easy place to develop tourism and develop aquaculture.

While beautiful sea is, it is useful but the sea is also gradually polluted by many agents, which is mainly the agent itself.

The first -The consciousness of the people

Every day tons of untreated wastes pour into the sea, people living along the coast also take the coast as a dumping ground. The lack of awareness of the people contributes to the polluted marine environment. In addition, factories and factories that discharge waste water along with toxic chemicals to the sea not only pollute the sea, but also harm human health and all living things. Pollution of the marine environment also occurs in some seaports due to inadequate access of vessels to and from the canal, dumping of waste, etc. Some seaports also have excess mercury levels, such as Vung Tau port. Up to 3.1 times. Many people also catch fish using landmines which cause a lot of harmful chemicals. Between 70% and 80% of domestic waste comes from inland waterways when factories, factories, industrial parks and residential areas discharged wastewater, untreated solid waste into inland rivers. Coastal plains or discharge directly to the sea. For example, aquaculture also produces a significant amount of solid waste directly to the sea. The main sources of waste are fertilizers and artificial feeds used in aquaculture. On average, one hectare of shrimp ponds will emit about 5 tons of solid waste and tens of thousands of m3 of waste water in one crop. With a total shrimp farming area of more than 600,000 hectares, it will emit nearly 3 million tons of solid waste each year. Specifically, in the provinces from Quang Ninh to Quang Binh, over 37,000 hectares have been exploited and used for aquaculture (accounting for 30-35% of the area of salt water). Most of the establishments have come into aquaculture on an industrial scale,

resulting in the habitat of living creatures, spawning grounds, breeding grounds, and diseases. The marine pollution due to waste of people life is shown in Fig.1.



Fig.1. The marine pollution due to waste of people life

The second-Marine resources are over-exploited

The second cause of pollution is due to the adverse effects of social development. The society is developing more and more and at the same time, the demand of the people has been improved, and the tourism industry has grown tremendously. However, tourism is increasingly developed, it means that the marine resources are over-exploited leading to the exhaustion of marine resources and also waste a small amount of waste into the sea. And another small cause is the oil spill.

Economic growth speeds up the consumption of oil. The economic benefits associated with over-exploitation of oil, which causes large amounts of oil to leak into the oceans, pollute the sea, and fish die from not having enough oxygen to survive, causing great damage. For the marine environment and aquaculture areas. The marine pollution due to oil spill is shown in Fig.2.



Fig.2. The marine pollution due to oil spill

Vietnam has hundreds of wells for exploration and exploitation of oil and gas. In addition to waste water and oil in large quantities, this activity generates 5,600 tons of oil and gas waste each year, of which 20% Up to 30% of hazardous solid waste has no dump and place of disposal. That is not to mention the oil pollution caused by the exploitation and transportation of oil and gas on the sea constantly increasing. Every year, over 100 rivers in our country emit 880 km³ of water and 270-300 million tons of silt, pulling substances that can pollute the sea like organic substances, nutrients, heavy metals and many substances. Hazardous from concentrated residential areas, industrial and urban areas, coastal aquaculture and agricultural production areas. In 2010, the amount of waste has increased dramatically in coastal waters, of which oil is about 35,160 tons / day, total nitrogen is 26-52 tons / day and total ammonium is 15-30 tons / day.

The final - lax management

The final reason is probably due to lax management and has not really tightened control over garbage treatment of businesses, enterprises and tourism.

2.2. Impacts

Pollution of the marine environment leads to very serious consequences. It directly damages human health and gradually loses its marine resources such as seafood, marine tourism, etc. A 2008 study found that

Vietnam lost about \$ 69 in industry revenue annually Travel because of poor sanitation. The polluted marine environment also reduces the attraction to tourists.

In order to contribute to the protection of the environment in general and the marine environment in particular, everyone needs to raise their awareness and responsibility for environmental protection such as not littering the sea or organizing many field trips and Beach cleaners, ...

State management agencies also need to strengthen management to reduce the amount of harmful waste in the marine environment to keep the natural landscape from being robbed under the death hand and allowing people to live on. The sea is less hard about the rice paddies.

3. Existence of pollutant emissions from ships and proposed remedies

At present, marine pollution sources in maritime, aquaculture, tourism, oil and gas, etc., are related to the diverse and complicated use of marine resources. These are the sources of oil pollution (from oil used for fuel, lubrication, hydraulic for ships, to oil shipped by ship); Liquid chemicals on board; Dangerous goods (explosives, radioactive substances, inflammables, toxins ...) carried by train; trash; wastewater; Antifouling paint used for hull; Toxic materials used for shipbuilding (asbestos, heavy metals, chemicals); Pollution caused by the movement of aquatic species through ballast water; Communicable diseases spread through the maritime route; Operation of old ships demolition, exploration and exploitation of oil and gas on the sea.

Ship operations (including fishing vessels and cargo ships) are one of the artificial sources that contribute significantly to air pollution. The quality of Vietnamese ships is not high, many means are too old, obsolete, low fuel burning efficiency and no exhaust gas treatment system ... so they emit more toxic gases such as SO₂, CO₂, CO, NO₂, C_xH_y ...

Currently, Vietnam has over 1,700 transport vessels, with the number of fishing vessels of nearly 130 thousand ships, corresponding to the amount of gasoline fuel consumed about 4 million tons per year. It can be said that this is the source of pollution to the sea, coastal areas and many places, seriously affecting the marine ecosystem, destroying marine resources, endangering human health.

US environmental experts say that ships' vehicles are a major source of pollution to the environment, particularly in port cities and coastal areas because of their use of poor quality bituminous fuel, It has high emissions such as nitrogen oxide (NO), sulfur dioxide (SO₂). In addition, these wastes also produce acid rain and tiny particles of soot in the air. The US Environmental Protection Agency (EPA) has released the information, which is intended to prevent approximately 8,300 deaths each year in the United States and Canada from inhaling fumes and toxic gases from ships. According to US government statistics, ships accounted for two-thirds of SO₂ emissions in the transportation sector in 2002, and the lack of controls could lead to a higher proportion of SO₂ emissions. In addition, the US and Canadian governments have set new emission standards for large vessels, with new ships falling to 96% of SO₂ by 2015. Compared to today. Similarly, ships built after 2016 will have to cut 80% of their NO emissions.

According to the European Union's report on the effects of ship emissions on the health of the European Union, toxic emissions from ships are killing about 39,000 people each year in Europe, with Britain Suffered the most heavy losses. Lead researcher Janusz Cofala of the Applied Systems Analysis Institute in Austria said that the acceleration of international trade and the number of ships that are mostly from China has increasingly. The field is more polluted. He was most affected because of the long sea route and also the busy market, the bustling traffic. The study also shows that the average life expectancy of West Coast residents will be reduced by 20-30 months from 2020.

The EU is currently planning to establish the first low-emissions areas, minimizing pollution from thousands of cargo ships moving through the seas each year. The EU requires governments to assist maritime companies to meet strict SO₂ standards. In support of EU solutions, the International Maritime Organization (IMO) agrees to limit the SO₂ content of the ship's fuel to ships passing through the emission control area (effective Meanwhile, shipping companies will face the potential to meet low SO₂ emissions and cleaner fuel costs, which have raised ocean freight rates. The EU accepted IMO's proposal to reduce the sulfur content of marine fuels, with the sulfur limits for all ships cutting to 0.5% by 2020 (currently at 3 , 5%), and the limits for all ships in the Baltic and North Sea (called "controlled area emissions") will be cut to 0.1% from 0.5% by 2015. Instead of using low sulfur fuel,

Ship operators can also use alternative treatment technologies to clean the emissions of ships to minimize pollution. In order to properly control the emissions of ships in maritime activities, Vietnam should have policies, legal documents, regulations, and state regulations for fishing vessels and transports. Reduce emissions - especially greenhouse gas emissions, ship science and technology, ship engines, waste gas collectors. For transport vessels, Vietnam should soon consider fully participating in Annex VI - "Regulations for the prevention of air pollution caused by ships" of MARPOL 73/78.

At the same time, the development of IMO Energy Efficiency Design Indicators (EEDI) sets is an indispensable indicator for the calculation of vessel design parameters. This index is a means for fleet owners to compare the efficiency of the same ship designs with the same size of many different shipyards.

In addition, human resource training, awareness raising on marine gaseous emissions and climate change should be organized for marine, fishery and marine economy stakeholders. The technology of building marine ships according to the standards of marine navy needs to be renewed in order to reduce the emission of engines - ship engines, incinerators. The policies on taxation and collection of charges for ship gases should be promulgated; Cooperate and exchange experience with international maritime-environment organizations in the field of marine emissions; Researching, building and setting up a number of "emission control" or "special" sea-going areas in seaports near sea areas of special ecological value in Vietnam's sea areas. Accordingly, all large vessels with excess emissions exceeding the permitted standards will be restricted from landing or under special pilot regimes. This "Emission Control Zone" can be established in two coastal areas of Quang Ninh - Hai Phong and Vung Tau - Ho Chi Minh City. Ho Chi Minh.

4. Conclusion

To protect the marine environment, Vietnamese government has carried out some solution such as

1. Promote dissemination and awareness raising for all levels, sectors, localities, economic sectors and the entire population on the sustainable management and use of marine resources; To attach importance to preventive and preventive work in combination with efficient treatment of pollution and improvement of the marine and coastal environment.
2. Strengthen the implementation of the Law on Environmental Protection, especially for acts of damaging the marine environment. To continue well performing the integrated management of the sea and islands so as to ensure multi-sectoral, multi-purpose and multi-benefit development between the State, the private sector, the concerned parties and the local communities. Phoenix; Limit conflicts of interests between parties in the process of exploitation and use of marine resources and environment.
3. Pay close attention to strict control of the marine environment, especially the use of relevant legal instruments in controlling and assessing environmental standards and impacts; Monitoring - warning identify "environmental hot spots" or pollution, ... to take measures to handle in time.
4. The State shall soon develop and promulgate economic instruments in the management of the marine environment, in particular details of the extent of violations and penalties; To intensify consultations with concerned parties and create positive changes in the management and protection of the sea and islands of the Fatherland.

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