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An overview on implementation of annex V-MARPOL 73/78 in Vietnam

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Abstract
In order to carry out dual task, including economic development and marine environment protection, Vietnam not only actively involved in important International Conventions in this field, but also attempts to review and improve the laws on marine environmental protection. At present, Vietnam is an active member of United Nations Convention on the Law of the Sea 1982 (UNCLOS 1982). It is important to mention that the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78) is an important International Convention that directly regulates the protection of the marine environment from the bad effect of pollutants from ships. Nevertheless, Vietnam has participated in mandatory Annexes I and II since 1991, and joined other voluntary Annexes since 2014 due to the increase in the number of inspections and detentions of Vietnam ships at foreign ports, and the escalation of environmental pollution caused by garbage, wastewater, oil, etc from ships. Therefore, this article focuses on the implementation of Annex V MARPOL 73/78 in the past few years in Vietnam. From the result of analysis and evaluation, solutions for problems in implementation are recommended.

Keywords: annex V, ship's garbage, MARPOL 73/78, implementation

Introduction
Marine pollution is showing signs of increasing concern along the coastal areas of Vietnam from north to south [3]. According to the United Nations Convention on the Law of the Sea (UNCLOS 1982), pollution of the marine environment is caused by various sources [5]. Among these sources, ship's garbage is considered one of the main sources of pollutants, which adverse impact upon the quality of the sea water of Vietnam [3]. Meanwhile, the Vietnamese laws on prevention of marine environment from pollution caused by ship's garbage are limited and incomplete [6]. Since 2016 Vietnam has started to incorporate Annex V of this Convention into national laws in order to improve the laws on the control and marine environmental protection from the bad impacts of ship's garbage, as well as other ship-sources pollutants. Therefore, it is essential have an overview about the implementation of Annex V-MARPOL 73/78 in Vietnam by giving an insight into marine environment in Vietnam, showing a brieft description of Annex V-MARPOL 73/78, analyzing the significance of Annex V-MARPOL 73/78 to current national law on marine environment preservation from ship's garbage in Vietnam.

Marine environment
VietNam has a long coastline of 3260km, and sea area is three times larger than the mainland area [7], and the Vietnam economy cannot be separated from the sea [8]. As reported by the Vietnam Maritime Administration, cargo transportation by sea has developed and occupied a large market share in Vietnam [8]. Then, parallel to that development is the problem of marine pollution caused by marine activities, especially by ship-source pollution [6]. In particular, the pollution caused by oil is always the pollution that causes serious damage to the economy and the value of the sea [9]. The sea in Vietnam is located on the important maritime route in the world [10], there are approximately 200 ships crossing the sea of Vietnam on the daily basis [7]. Therefore, in addition to the risk of oil pollution, there are still high risks of marine pollution caused by garbage, sewage, etc from ships to the marine environment. The types of garbage on board of ships are extremely varied and classified on the Annex V-MARPOL 73/78. In addition, according to the analysis of Paul V. Horsman [11], there are total 6 816 000 metal, 426 000 glass and 639 000 plastic containers are disposed of daily. Among the waste produced by the ship, it is noteworthy that plastic waste, which can exist in the environment for hundreds of years [12], may accumulate and cause potential harm to the marine environment [13], causing death to marine species, marine mammals, turtles and sea birds [14], especially caused human health problems [39].

Table 1: Time taken for biodegrading garbage at sea

Type of garbage	Time taken to biodegrade
Paper Towel/ Orange or Banana Pee	2-5 weeks
Newspaper	6 weeks
Apple Core/ Waxed Milk Carton	2-3 months
Plywood	1-3 years
Wool Sock/ Cigarette Butt	1-5 years
Plastic Bag	10-20 years
Nylon Fabric	30-40 years
Leather/ Tin Cans/ Foamed Plastic Cups	50 years
Rubber-Boot Sole	50-80 years
Foamed Plastic Buoy	80 years
Aluminum Can	80-200 years
Plastic Beverage Bottles/ Disposable Diapers	450 years
Monofilament Fishing Line	600 years
Glass Bottle	1 million years

Source: https://www.nh.gov/index.htm

In addition, according to report of Asia-Pacific Port State Control (Tokyo-MOU) [15], table 2 shows that the number of

ships violating the regulations of Annex V-MARPOL 73/78 on marine pollution prevention from ship's garbage is always large, following the ships violating the provisions of Annex I-MARPOL 73/78 on oil pollution and Annex IV on sewage pollution. It proves that the ship's garbage is not strcitly managed. The amount of garbage discharged into marine environment surpasses the one received by facilities at ports. Thus, it is the main cause of the accumulation of garbage, especially plastic waste in the marine environment [39].

Table 2: Number of deficiencies ships under MARPOL 73/78

	No. of deficiencies					
Year	**Annex I**	**Annex II**	**Annex III**	**Annex IV**	**Annex V**	**Annex VI**
2011	2339	21	37	996	1055	680
2012	2335	27	17	1013	981	796
2013	2037	40	14	1070	2618	915
2014	1679	13	33	1199	1587	758
2015	1607	17	30	1301	1252	847
2016	1609	25	12	1199	1162	845
2017	1468	30	10	1131	1014	886

Source: Annual report of Tokyo-MOU 2011-2017

Moreover, according to the Vietnam Maritime Administration, a large number of Vietnam ships operating on domestic routes are older than 17 years. Therefore, the structure of ships and equipment on the ship often do not meet the requirements of Annex V, so the risk of marine pollution is very high [8].

According to the Report of Vietnam Environment 2011-2015 [3], the quality of coastal and offshore waters in Vietnam is still good and the parameters specific to the quality of sea water remain within the limits set by the Vietnam Standards-QCVN10-MT:2015/BTMT [16]. However, under the influence of land-based waste and marine activities, some waters have high TSS (turbidity & suspended solids). The report also shows that in some areas such as Da Nang, Ba Ria Vung Tau and Ho Chi Minh city, the TSS content is much higher than that of QCVN10-MT:2015/BTMT [16].

In addition, monitoring parameters of organic and grease content in coastal waters of Vietnam, particularly in the northern (Quang Ninh and Da Nang) and the south area (Ba Ria-Vung Tau) [3], are high and exceed the permitted level of QCVN10-MT:2015/BTMT [16]. Besides, according to monitoring results of Centre For Environmental Monitoring Portal of Vietnam, along the coasts of Khanh Hoa, Ninh Thuan and Binh Thuan provinces, red tide phenomenon has occurred and caused serious consequences for marine biological resources and environment [3].

Vietnam consists of 63 provinces and cities, of which 29 are adjacent to the sea, the population is concentrated on these provinces are approximately 30 million, accounting for approximately 1/3 of the population of Vietnam [17]. In particular, environmental pollution in coastal provinces is in a state of red alert, not only causing serious consequences for human health [3], but also altering causes the natural environment, overwhelming the ecosystem's self-regulating capacity, leading to a broken ecological balance, seriously threating to biodiversity and ecosystems [3]. Moreover, environmental pollution also has a significant socio-economic impact. It is estimated if Gross Domestic Product (GDP) increase doubles, then environmental pollution will increase tripled. Thus, for every 1% increase in GDP, the damage from environmental pollution will lose 3% of GDP [3]. Coastal pollution is also a cause of damage to aquaculture, capture fisheries due to the deterioration of the marine environment. Last but not least is the impact on Vietnam's tourism industry-which is mainly due to the increasing waste on the coast, and reducing the attractiveness of tourism guest [3].

The International Convention for the Prevention of Pollution from Ships 73/78 (MARPOL 73/78)

The history of MARPOL 73/78

MARPOL 73/78 is considered an important International Convention in terms of marine environmental prevention from pollution from ships or accidents [1]. The predecessor of MARPOL 73/78 was Oilpol Convention 1954, which was amended in 1962, 1969 and 1971, then intended to deal with environmental problems caused by oil from ships. However, the cause of marine pollution is not only oil, in fact, there are many other sources of pollution that Oilpol Convention does not cover [19]. The incident Torrey Canyon-1969 could be considered the greatest cause of environmental pollution at the time [20]. The accident raised questions for the IMO on the prevention of oil pollution caused by the ship. IMO quickly convened an extraordinary meeting to address the Torrey Canyon incident. The IMO then decided to hold an International Conference in 1973 to deal with marine, land and air pollution from ships [19].

Finally, in 1973 International Conference MARPOL was officially adopted. The 1973 Convention incorporated many regulations of Oilpol 1954, which was amended into Annex I. Furthermore, the Convention was also intended to address other pollution from ships and other substances, including chemicals carried in packaged forms, sewage and garbage [19]. However, the 1973 Convention was supposed to be ineffective because of an insufficient number of nationally-required ratification by 15 States, whether the Convention was deemed very important.

Until 1978, IMO held a Conference on Tanker Safety and Pollution Prevention in February 1978. The Conference adopted measures affecting tanker design and operation, which were incorporated into both the Protocol of 1978 related to the 1974 Convention on the Safety of Life at Sea (1978 SOLAS Protocol) and the Protocol of 1978 related to the 1973 International Convention for the Prevention of Pollution from Ships (1978 MARPOL Protocol) adopted on 17 February 1978 [19]. The 1978 MARPOL protocol allowed States to become members of MARPOL by simply signing only Annexes I and II compulsorily, while other Annexes optionally. As the 1973 Convention had not yet entered into force, the 1978 MARPOL Protocol absorbed the parent Convention [1]. The combination of the International Convention for the Prevention of Marine Pollution from Ships in 1973 and the Protocol of 1978 was modified as MARPOL 73/78 which was finally entered into force on 2 October 1983 [1]. MARPOL 73/78 consists of six Annexes: Annexes I and II were adopted innitiall; Annex V, covering garbage, achieved sufficient ratifications to enter into force on 31 December 1988; while Annex III, covering harmful substances carried in packaged form, became available on 1 July 1992; Annex IV, covering sewage, was active from 27 September 2003, Annex VI, covering air pollution, was adopted in September 1997 and entered into effect on 19 May 2005 [1].

Annex V-MARPOL 73/78

It is worthy to mention that before the 1978 Protocol was ratified and the Annex V came into effected in 1988, ship's garbage was tossed directly into the sea [39]. Annex V stated that the ship's garbage are discarded in two ways: to the sea and to the reception facilities at port. Annex V also provides the regulations for the prevention of pollution from ship's garbage, which can be as deadly as marine life as oil or chemicals [21]. In particular, plastic garbage can cause harm to the marine environment [13], marine life, marine animals and human health [14], since it can float and survive in the environment for a long time, even hundreds of years [12] and caused the human health problmems [39]. Annex V is designed to prevent and minimize the amount of garbage discharged from the ships to the environment. Annex V applies to all types of ships when operating in the marine environment. According to International Maritime Organization (IMO) statistics, more than 150 countries have officially signed Annex V [21], of which Vietnam is an official member of this Annex on 19 December 2014 and come into effect on 19 March 2015 [2].

According to Annex V-MARPOL 73/78, garbage on ships is divided into many categories, including all kinds of food, domestic and operational waste, all plastics, cargo residues, incinerator ashes, cooking oil, fishing gear, and animal carcasses generated during the normal operation of the ship and liable to be disposed of continuously or periodically. The Annex also sets out regulations which types of garbage and on which areas that garbage allowed to disposed. In addition, the regulations on port state control, placard, garbage management plan, garbage record book, port reception facilities, shipboard incinerators, etc are also specified in this Annex [21].

In order to assist Member States in implementing Annex V, the Marine Environment Protection Committee (MEPC) has developed and adopted series of Guidelines for the implementation of MARPOL Annex V, the latest of which is resolution MEPC.295 (71) [21].

Table 3: List of amendments to MARPOL Annex V

No.	Resolution	Adoption	Entry into force	Comments
1	MEPC.36(28) (designation of the North Sea as a special area)	17 Oct. 1989	18 Feb. 1991	Addition of a new special area under Annex V.
2	MEPC.42(30) (designation of the Antarctic area as a special area)	16 Nov. 1990	17 Mar. 1992	Addition of a new special area under Annexes I and V.
3	MEPC.48(31) (designation of the Wider Caribbean area as a special area)	4 Jul. 1991	4 Apr. 1993	Addition of a new special area under Annex V.
4	Resolution 3 (Port State control on operational requirements)	2 Nov. 1994	3 Mar. 1996	Addition of new regulations in Annexes I, II, III and V relating to port state control on operational requirements, ie ability to detain a ship if crew is not familiar with essential shipboard functions.
5	MEPC.65(37) (guidelines for garbage management plans)	14 Sept. 1995	1 Jul. 1997	Addition of new regulations relating to Garbage Management Plans, Garbage Record Books, and placards.
6	MEPC.89(45) (amendments to regulations 1, 3, 5 and 9 and to the Record of Garbage Discharge)	5 Oct. 2000	1 Mar. 2002	Amendments to various regulations to prohibit the discharge into the sea of incinerator ashes from plastic products. Amendment to regulation 9 to permit placards to be written in Spanish.
7	MEPC.116(51) (amendments to the Appendix to Annex V)	1 April 2004	1 Aug. 2005	Amendments to the form of Garbage Record Book to add requirements for recording the discharge of cargo residues.
8	MEPC.201(62) (Revised MARPOL Annex V)	15 Jul. 2011	1 Jan. 2013	Completely revised to prohibit the discharge of almost all types of garbage into the sea, with very limited exceptions.
9	MEPC.216(63) (Regional Arrangements for Port Reception Facilities under MARPOL Annexes I, II, IV and V)	2 Mar. 2012	1 Aug. 2013	Amendments relating to regional arrangements for port reception facilities under Annexes I, II, IV and V.
10	MEPC.246(66) (Amendments to MARPOL Annexes I, II, III, IV and V to make the use of the III Code mandatory)	4 Apr. 2014	1 Jan. 2016	Amendments to Annexes I, II, III, IV and V to make use of the IMO Instruments Implementation Code (III Code) mandatory.
11	MEPC.265(68) (Amendments to MARPOL Annexes I, II, IV and V to make the use of the environment-related provisions of the Polar Code mandatory)	15 May 2015	1 Jan. 2017	Amendments to make the environment-related provisions of the polar code mandatory.
12	MEPC.277(70) (Amendments to HME substances and Form of Garbage Record Book)	28 Oct. 2016	1 Mar. 2018	Amendments to: 1. align the terminology of the recording requirements of MARPOL Annex V with the form of the Garbage Record Book to ensure consistent and complete recording in the record book; 2. provide a new Record of Garbage Discharges to facilitate consistent recording, including a new Part II to record cargo residues; and mandate the classification and declaration of cargo as harmful to the marine environment (HME) or not.

Source: International Maritime Organization

Implementation of annex V-MARPOL 73/78

After being officially a member of V-MARPOL 73/78 [2], Vietnam has invested time and effort to study the conditions, the specific situation of the country to get the right direction and efficiency. In the past few years, the implementation of the Annex V-MARPOL 73/78 has achieved encouraging results, as follows:

Achievements: First of all, it is necessary to mention that

Vietnam fleet has escaped from the blacklist of Asia Pacific Port State Control (Tokyo-MOU) [15]. Vietnam has a huge number of ships [22], however, The average age of a Vietnamese ship is about 17 years, which is considered the old fleet.Therefore, ship equipment and structure do not comply with the regulations of the International Convention and the regulations of the port state [8].

As a consequence, the number of ships subjected to inspections, detentions and forcible remediation of deficiencies related to annex V-MARPOL 73/78 at foreign ports has always been significant and frequently on the blacklist of Tokyo-MOU. However, after taking part in six Annexes of MARPOL 73/78 gradually, quality of Vietnam shipping fleet has been continuously improved in terms of structure, equipment, documents and certificates on the prevention of marine pollution caused by garbage from ships. As a result, since 2014 Vietnam shipping fleet has been always listed in the white list of Tokyo-MOU [15], as illustrated in the table below:

Table 4: Vietnam shipping listed on the Tokyo-MOU statistic

Blacklist			Whitelist				
2011	2012	2013	2014	2015	2016	2017	2018
not a member of annex V			joined	official member of annex V			

Source: Annual report of Tokyo-MOU

In addition to the positive change of Vietnamese ship fleet in Tokyo-MOU statistic, the considerable decrease in number of Vietnamese ships detentions at foreign ports also proves that the implementation of Annex V-MARPOL 73/78 has been effective and fruilful [4].

Table 5: No. of detentions under Annex V

Year	No. detentions under Annex V	Total No. detentions	No. inspections
2011	25	103	738
2012	9	56	785
2013	18	53	767
2014	7	30	733
2015	8	30	722
2016	6	30	742
2017	9	32	788
2018	9 (31/10/2018)	29 31/10/2018)	751 (31/10/2018)

Source: Vietnam Register

As illustrated on the above table, it can be seen that 2014 marked the turning point for Vietnam maritime industry, as the number of ships detentions, including detentions under Annex V has been substantially diminished [8]. These achievements are the result of effort to implement Decision No.1517/QĐ-Ttg [23] on modernization of Vietnam shipping fleet, improvement of the quality of sea transport services. As stated in Decision No.1517/QĐ-Ttg [23], poor quality ships, old ships, and ships that do not meet the requirements of maritime safety, as well as environmental prevention must be eliminated.

Participation in Annex V of MARPOL 73/78 is a legal basis for Vietnam to improve its national laws on marine environmental preservation from ship's garbage by enacting different relevant decisions.

Innitially, based on the experience of joining and implementing Annexes I and II of MARPOL 73/78 [24], Vietnam government has rapidly issued the Decision No.795/Decision-Prime Minister to implement Annex V as well as the Annex III, IV and VI of MARPOL 73/78[25]. As stated in the Decision, the Ministry of Transport and involved organizations are required to overview legal documents in this field, analyze, evaluate and improve the current national laws by studying the IMO guidelines on implementing Annex V, as well as other Annexes of MARPOL 73/78, obtaining the experience of law-making in this field of countries in the region and in the world, and incorporating the regulations of the Convention into a national laws system.

Moreover, tofulfill the tasks mentioned in the Decision No.795/QD-TTg [25] and Vietnam Maritime Code 2015 [26], the Ministry of Transport has issued Circular No.07/2018/TT-BGTVT [27], which provides regulations on the inspection of maritime safety, maritime security, maritime labor and prevent environmental pollution caused by foreign ships operating in seaport waters and waters under the jurisdiction of Vietnam. The Circular has applied a wide range of International Conventions that Vietnam joined, such as: International Convention for the Safety of Life at Sea 1974 and amendments (SOLAS); Protocol 1988 relating to the International Convention for the Safety of Life at Sea 1974 and amendments thereto (SOLAS Protocol 1988); International Convention on the Load, 1966 (LOAD LINES); 1988 Protocol Relating to the 1966 International Convention on Load (LOAD LINES Protocol 1988); International Convention on the Prevention of Environmental Pollution from Ships 1973 and Amendments; Protocols 1978 and 1997 relating to the International Convention for the Prevention of Environmental Pollution from Ships 1973 (MARPOL); International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 and amendments thereto (STCW); International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 and amendments thereto (STCW); International Convention on Tonnage Measurement of Ships 1969 (TONNAGE); International Convention on the Control of Harmful Anti-fouling Systems on Ships 2001 (AFS); Maritime Labor Convention 2006 (MLC); International Convention for the Prevention of Collisions 1972 (COLREG) [27].

This Circular will be the basis for Vietnam to exercise the right to inspect ships, detentions ships, and force ships to remedy before leaving ports. In case, there are minor deficiencies, ships may be allowed to leave ports, but it must overcome on the way and must be checked at the next port. However, there is no preference for ships of countries, which are not members of the above-mentioned conventions, the inspector shall evaluate and compare it with the regulations of the Conventions to have an insight into the ships current status. In pite of that, ships can leave port if only they can satisfy the seaworthy, maritime safety, maritime security and prevent environmental pollution [27].

Limitations in implementation

Despite above-mentioned achievements, there are some limitations that Vietnam should overcome in the future, as follows:

According to the Tokyo-MOU annual report, the number of Vietnam ships detentions at foreign seaports due to violations of Annex V-MARPOL 73/78 has significantly declined and often appeared in the white list of the Tokyo-MOU [15]. However, in recent years, the number of deficiencies related to this Annex of a ship has increased,

compared with only one or two deficiencies before 2014. This argument will be proved by the Table 6 showing that there are many deficiencies of a ship involving Annex V, even up to 1/3 of all deficiencies [4].

Table 6: Deficiencies of Ships under the Annex V

Company	Ship's name	Deficiencies under Annex V	Total of deficiencies	Port
Chu Lai-Truong Hai Ocean Shipping Company	TRUONG HAI STAR 2 VR 062555 IMO 9419606	3	16	Qinzhou China
Thuan Phat Commercial Transportation Business Co., Ltd.	THUAN PHAT 18 VR 093303 IMO 9565259	5	15	Qinzhou China
Ha Trung Transportation Co., Ltd.	ROYAL FLEET VR 123573 IMO 9593024	3	8	Haikou China
Nam Thinh Company Limited	NAM PHUONG 02 IMO 9551129 VR 093301	3	9	Haikou China
Tien Phong Company Limited	DYNAMIC OCEAN 01 IMO 9594262 VR 103477	4	16	Zhanjiang China
Hoang Dat Company Limited	HODASCO 09 IMO 9405356 VR 062466	4	9	Haikou china
Dai Duong Shipbuilding Company Limited	DAI DUONG SEA IMO 9579963 VR 103418	3	16	Zhanjiang China

Source: Vietnam Register

In particular, there are many ships of shipping company detentions at foreign seaports that do not meet the requirements of Annex V, showed in the table 7 below [4]:

Table 7: List of arrested shipping company

Shipping company	Year	Ship name	Port
Dai Duong Shipbuilding Company Limited	2013	DAI DUONG SEA IMO 9579963 VR 103418	Zhanjiang, China
	2014	DAI DUONG SUNRISE IMO 9136852 VR 963178	Nanjing, China
Vietnam Ocean Shipping Joint Stock Company	2013	VEGA STAR IMO 9061588 VR 942064	Rio Grande, Brazil
	2015	VINH HUNG IMO 9276212 VR 021864	Xiamen, China
	2016	VOSCO SUNRISE IMO 9391634 VR 133662	Shanghai, China
Hai Au Ocean Shipping Company	2013	SEA DRAGON IMO 9216341 VR 993177	Imabari, Japan
	2014	SEA DREAM IMO 9407653 VR 062514	Tianjin, China
	2016	SEA DRAGON IMO 9216341 VR 993177	Bintulu, Malaysia
Northern Shipping Joint Stock Company	2012	EASTERN SUN IMO 9054846 VR 922594	Kandla, India
	2013	NOSCO GLORY IMO 9104469 VR 952765	Nantong, China
	2015	VR 082962 IMO 9525699 HONG LINH	Bandar Abbas, Iran

Vietnam National Shipping Lines	2011	VINALINES OCEAN VR 932645 IMO 9047013	Jiangyin, China
		HOA LU` VR 032145 IMO 9309344	Chennai, India
		VINALINES SKY VR 972618 IMO 9168269	Kwinana, WA, Australia.
		VINALINES OCEAN VR 932645 IMO 9047013	Chennai, India
		TAY SON 3 VR 052386 IMO 9355599	Kandla, India
	2013	HOA LU VR 032145 IMO 9309344	Beihai, China
	2016	VINALINES GLORY VR 062600 IMO 9337303	Qingdao, China
		VINALINES OCEAN VR 932645 IMO 9047013	Zhenjiang, China
Chu Lai-Truong Hai Ocean Shipping Company	2012	VINALINES GLORY VR 062600 IMO 9337303	Fangcheng, China
	2018	TRUONG HAI STAR 2 VR 062555 IMO 9419606	Qinzhou, China
Nam Phat Ocean Shipping Company	2012	NAM PHAT STAR VR 113670 IMO 9563835	Shenzhen, China
	2014	NAM PHAT STAR VR 113670 IMO 9563835	Shenzhen, China

Source: Vietnam Register

The data of the table indicates the fact that the implementation and compliance with the requirements of Annex V-MARPOL 73/78 of the Vietnam shipping fleet has been not thoroughly. There are many problems must be resolved in the future.

Subsequently, according to statistics from the Tokyo-MOU [15], the number of Vietnam ships inspected and arrested is only Vietnamese ships operating on international maritime routes. In fact, according to statistics of the Vietnam Register, up to now only 400 specialized ships among 1334 ships [22] are operating on international maritime routes [8], the remain are service ships, supply vessels, domestic transportation, etc. In particular, Vietnam ships are often outdated, old-age, outdated equipment, missing or failing to comply with the requirements of Annex V, as well as other MARPOL 73/78 Annexes [8]. In addition, loosen controls on domestic transportation are also causes of marine pollution [8]. Even Article 2 of the latest Circular of the Ministry of Transpor has been only applied for the inspection of maritime safety, maritime security, maritime labor and marine environmental protection of foreign [27]. Thus, domestic ships also contribute to the complicated problem of environmental pollution in coastal areas of Vietnam.

Finally, despite many efforts to improve the law in this field, Vietnam has not yet established a special regulation on the prevention and control of marine environmental pollution caused by ship's garbage, as well as other ship-source pollutants. In Chapter V of Law on Environmental Protection 2014 [28] there are some general regulations for the control, treatment and protection of the marine environment and island. However, there is a lack of clear regulations on the protection marine environment from the impact of ship-source pollutions, as well as caused by ship's garbage. Furthermore, Vietnam Maritime Code 2015 has some general regulations in chapter V article 128, and Law on Natural Resource and Environment of Sea and Islands [29] also provides a few general regulations on pollution control of the sea and islands in Chapter VI.

Undoubtedly, above-mentioned laws are quite general in providing fundamental reglations on environmental protection, while they are the basis for the development and promulgation of more detailed specific regulations in this field.

Solution in future

It is undeniable that research and development of a special regulation on the prevention and control of marine environmental pollution caused by ship's garbage, as well as other pollutants from ships are an urgent tasks for Vietnam in the coming time. According to the above analysis, to solve the problems that existed during the implementation of Annex V-MARPOL 73/78, several solutions are suggested as follows:

Firstly, to continue to exist on the white list of Tokyo-MOU and to minimize the number of ships detentions at foreign ports due to violation of the relevant regulations in Annex V, Vietnam should make more efforts to implement thoroughly and seriously the regulation of this Annex V of

MARPOL 73/78, Decision No.795/QĐ-TTg and Decision No. 1517/QĐ-Ttg [24] on the modernization of the Vietnam fleet, eliminate old ships, obsolete ships, ships that does not meet the requirement of maritime safety, maritime security, maritime labor and marine environment protection.

Beside, in order to carry out the control, inspection and arrest of foreign vessels as well as Vietnam ships operating in the waters under the jurisdiction of Vietnam, the country should study and develop a specific regulation on the prevention and control of marine environmental pollution caused by ship-source pollutants, as well as ship's garbage. Furthermore, in order to shorten the time for completing the laws in this field, obtaining the experiences of countries with advanced and complete legal systems is essential for Vietnam in the current period. For instance, the United State has promulgated of a series of regulations related to this field such as Act to prevent pollution from ships, 1980 [30]; Tittle 33–Navigation and Navigable waters [31] and CFR 1999 Title 33 Navigation and Navigable Waters [32]. Meanwhile, Australia has set up special regulations in this field very early, including Protection of the Sea (Prevention of Pollution from Ships) Act 1983 [33], Navigation Act 2012 [34], Marine Order 95 (Marine pollution prevention-garbage) 2018 [35]. Besides, China, which has many similarities with Vietnam, has also set up special regulations in this field, such as Marine Environmental Protection Act of the People's Republic of China, 1982 [36]; Regulation on the Prevention and Control of Vessel-induced Pollution to the Marine Environment", 2010 [37].

Subsequently, for the current legal documents, Vietnam should proceed to consolidate and synchronize. Article 128, Chapter V of Vietnam Maritime Code 2015 [26] on marine environment protection should be updated, specified and attached with more regulations on protection of the marine environment from impacts of ship-source pollution. Chapter V of the Law on Environmental Protection 2014 [28], Chapter VI of the Law on Natural Resource and Environment of Sea and Islands [29] are also required adding some additional regulations in this field.

Finally, although Vietnam has issued National Technical Regulation on Marine Pollution Prevention Systems of Ships-QCVN 26:2014/BGTVT replaced by QCVN 26:2016/BGTVT [38]. The standard includes detailed regulations on the structure and equipment installed on the ship to prevent oil pollution, noxious liquid substances in bulk, sewage and Air Pollution from Ships. However, there are no regulations on the structure and equipment installed on ships to meet the requirements of Annex V-MARPOL 73/78. Therefore, to effectively implement Annex V-MARPOL 73/78, Vietnamese promulgation of standards on structure and equipment installed on ships operating on international and domestic routes plays an important role in the coming time.

Conclusion

Along with the investment and rapid development of marine economy [8], coastal environmental pollution in Vietnam has shown signs of increase along the coastal provinces from the north to the south [3], bringing difficulties to Vietnam in controlling pollution of the marine environment, especially from ship-source pollutants, as well as ship's garbage. Recognizing the importance of economic development and marine environmental preservation, in recent years Vietnam has achieved many encouraging results in improving marine laws and upgrading shipping fleet standards. However, these achievements are still not meet the requirement of economic development. Besides, there are still many problems to be solved in the coming years, such as: incomplete implementation of Annex V-MARPOL 73/78, and a lack of specific regulation on prevention of marine pollution caused by ship's garbage. It is expected that recommendations summarized based on the overview over the implementation of Annex V-MARPOL 73/78 can help Vietnam to improve the national law on environmental protection from impacts of ship's garbage, as well as other pollutants from the ship.

References

1. International Maritime Organization. International Convention for the Prevention of Pollution from Ships (MARPOL 73/78). Retrieved November, 29, 2018, from: www.imo.org.
2. Ministry of Foreign Affairs. Notice No. 05/2015/TB-LPQT (2015). The effect of International Treaties. 2015 Retrieved November, 29, 2018, from: https://thukyluat.vn.
3. Vietnam Environment Administration. Report on the Environmental Status National Period, 2011-2015. Retrieved November, 29, 2018, from: http://cem.gov.vn
4. Vietnam Register. List of Vietnam Fleet. Retrieved November, 29, 2018, from: http://xm.vr.org.vn/
5. United Nations. The United Nations Convention on the Law of the Sea. Retrieved November, 30, 2018, from: www.un.org.
6. Luu Ngoc To Tam. The law on control of marine environmental pollution in maritime activities in Vietnam, PhD thesis. Hanoi Law University, 2012.
7. Pham Van Tan. A Comparative Study of the Civil Liability Regime of International, China, Korea and Vietnam for Oil Pollution Damage Caused by Ships, PhD thesis. Dalian Maritme University, 2017.
8. Vietnam Maritime Administration. Report on Maritime Management of Maritime Sector, 2016. Retrieved November, 29, 2018, from: http: //www. vinamarine. gov.vn
9. Mai Hai Dang. International law and foreign laws on the prevention of oil pollution from ships, PhD thesis. Ha Noi National University, 2013.
10. Mai Hoa. The strategic position of the Vietnam's sea and Vietnam's sovereignty over the South China Sea. Vietnam Ministry of Justice. Retrieved November, 29, 2018, from: http://tcdcpl.moj.gov.vn
11. Horman PV. The amount of garbage from merchant ships. Marine Pollution Bulletin. 1982; 13(5):167-169.
12. Approximate Time it Takes for Garbage to Decompose in the Environment. Retrieved November, 29, 2018, from: https: //www. des. nh. gov/ organization /divisions /water /wmb/ coastal /trash/ documents/ marine_debris.pdf
13. Christopher C, Joyner, Scot Frew. Plastic pollution in the marine environment. Ocean Development & International Law. 1991; 22(1):33-69, DOI: 10. 1080 /00908329109545949
14. Quayle DV. Plastics in the Marine Environment: Problems and Solutions. Chemistry and Ecology. 1992; 6:1-4, 69-78.
15. Annual report of Asia-Pacific Port State Control, 2011-2017. Retrieved November, 29, 2018, from: http://www.tokyo-mou.org

16. Vietnam Environment Administration. National Technical Regulation on Marine Water Quality, 2015, QCVN 10-MT:2015/BTNMT. Retrieved December, 4, 2018, from: http://vea.gov.vn
17. Nguyen Chu Hoi. Vietnam Sea and Islands Administration: Stepping up the population of coastal areas and islands with a vision to 2020, 2012. Retrieved November, 29, 2018, from: http: //www. tapchicongsan. org.vn
18. International Maritime Organization. Background of MARPOL 73/78. Retrieved November, 29, 2018, from: http://www.imo.org
19. International Maritime Organization. History of MARPOL 73/78. Retrieved November, 29, 2018, from: http://www.imo.org
20. International Tanker Owners Pollution Federation Limited. TORREY CANYON, United Kingdom, 1967. Retrieved November, 29, 2018, from: https://www.itopf.org/
21. International Maritime Organization. Prevention of Pollution by Garbage from Ships – Annex V. Retrieved November, 29, 2018, from: http://www.imo.org
22. Vietnam Register. List of Vietnam Fleet. Retrieved November, 29, 2018, from: http://xm.vr.org.vn/
23. Ministry of Transport. Decision No.1517/QD-TTg. Approving the Master Plan on Development of Vietnam's Sea Transport up to 2020, with Orientations Toward 2030, 2014. Retrieved November, 29, 2018, from: http://vanban.chinhphu.vn/
24. Pham Van Tan. Vietnam Law on Marine Environment Protection and the Implementation of MARPOL Convention 73/78 in Current Period. Journal of Law, Policy and Globalization. 2016; 46:67-73.
25. Ministry of Transport. Decision No.795/QĐ-TTg. Approving the Implementation Plan for Annex III, IV, V and VI of the International Convention for the Prevention of Pollution from Ships, 2016. Retrieved April, 10, 2018, from: https://thuvienphapluat.vn/
26. National Assembly of Vietnam. Law No.95/2015/QH13. Vietnam Maritime Code, 2015. Retrieved November, 29, 2018, from: https: //thuvienphapluat.vn
27. Ministry of Transport. Circular No.07/2018/TT-BGTVT. Providing for Ships Inspection, 2018. Retrieved November, 29, 2018, from: https://thuvienphapluat.vn.
28. National Assembly of Vietnam. Law No.55/2014/QH13. Law on Environmental Protection, 2015. Retrieved November, 29, 2018, from: http: /www.moj.gov.vn/
29. National Assembly of Vietnam. Law No.82/2015/QH13. Law on Natural Resource and Environment of Sea and Islands, 2015. Retrieved November, 29, 2018, from: https://thuvienphapluat.vn
30. 96th United States Congress. Act to prevent pollution from ships, 1980. Retrieved October, 15, from: https://www.govtrack.us/
31. United States House of Representatives. Tittle 33-Navigation and Navigable waters, 1987. Retrieved October, 15, from: https://www.gpo.gov/
32. National Archives and Records Administration. CFR 1999 Title 33 Navigation and Navigable Waters, 1999.Retrieved October, 15, from: https://ecfr.io/
33. Australian Government. Protection of the Sea (Prevention of Pollution from Ships) Act 1983, 1983. Retrieved October, 15, from: https://www.legislation.gov.au/
34. Australian Government. Navigation Act 2012, 2012. Retrieved October, 15, from: https: //www. legislation.gov.au/
35. Australian Maritime Safety Authority. Marine Order 95 (Marine pollution prevention-garbage), 2018. Retrieved October, 15, from: https://www.legislation.gov.au/
36. People's Republic of China. Marine Environment Protection Law, 1983. Retrieved April, 18, from: http://www.lawinfochina.com/
37. People's Republic of China. Regulation on the Prevention and Control of Vessel-induced Pollution to the Marine Environment. Retrieved October, 15, from: http://www.lawinfochina.com/
38. Ministry of Transport. QCVN 26:2016/BGTVT. National Technical Regulation on Marine Pollution Prevention Systems of Ships, 2016. Retrieved November, 29, 2018, from: https://vanbanphapluat.co/
39. National Research Council Marine Board. Clean Ships, Clean Ports, Clean Oceans: Controlling Garbage and Plastic Wastes at Sea, 1995. Retrieved December, 8, 2018, from: https://www.nap.edu