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## Legal regulations in the function of ensuring ship safety

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### ABSTRACT

The existence and enforcement of legal regulations is imperative of maritime navigation. All legal regulations relating to maritime security and whose goal is securing the safety at sea, can be divided to regulations relating to navigable vessels, regulations relating to cargo carried by ships; regulations governing maintenance of waterways; regulations relating to human factor (regulations concerning education, schooling, training of naval personnel) and regulations relating to supervision, i.e. control of maritime security. In this paper, the author particularly analyses legal regulations relating to ship safety. First, the author defines the concept of maritime security and indicates its differentiation from similar concepts like safety of navigation, safe trade and maritime security. Then, she talks about seaworthiness and the most common risks whose realization would lead to endangering ship safety, cargo and human lives. In conclusion, the author emphasizes the importance and necessity of exercising control over ships in order to verify compliance with the standards laid down by international conventions.

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### 1. Introduction

Since the earliest times, there has been a tendency to make time spent at sea safer and to reduce as much as possible risks related to maritime navigation. The need for safety at sea came gradually to the fore in the wake of major maritime accidents and disasters, which each time provoked taking numerous actions and measures. Many maritime accidents had a significant impact on legal regulations in the field of maritime security. Accidents of *Titanic*, *Torrey Canyon* and *Achille Lauro*, which were the incentive for the adoption of numerous regulations, are particular.

It has been known that the *Titanic catastrophe*<sup>1</sup> was the reason for convening the international conference in 1913 at which the first *Convention for the Safety of Life at Sea* was adopted (*The International Convention for the Safety of Life at Sea*), i.e. the SOLAS Convention. Then, the

tanker *Torrey Canyon disaster*<sup>2</sup> which is considered one of the first large tanker disasters, led to changes in institutional structure of the IMO and adoption of many conventions. After *Torrey Canyon* disaster, IMO established a *Legal Committee* and adopted a number of international conventions relating to the protection of the sea against pollution, liability and compensation for damage caused by pollution of the sea by oil. Therefore, in 1969 the *International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties* was adopted, INTERVENTION, in 1969 *International Convention on Civil Liability for Oil Pollution Damage*, CLC Convention, in 1971 *International Convention on the Establishment of an International Fund*

<sup>1</sup> On 10 April 1912, the passenger ship *Titanic* sailed from Southampton. It was its maiden voyage to New York. At that time, the *Titanic* was the largest and most luxurious ship ever built. On 14 April, at 23:40, the *Titanic* struck an iceberg about 400 miles off *Newfoundland*, Canada. Less than three hours later, the *Titanic* sank to the bottom of the sea, with more than 1502 passengers, while, unfortunately, only 705 passengers were rescued.

<sup>2</sup> Liberian tanker, on 18 March 1967, owing to a navigational error by its Master, stranded in the open sea, near the southwest coast of England. The ship was carrying 119,328 tons of oil. Storms broke up the tanker after grounding spilling 60,000 tons of oil into the sea. Different techniques have been used to remove spilled oil from the sea but did not give the expected results. In order to reduce harmful effects, different detergents are used for cleaning the surface of the sea and the cost of that project was 1.6 million English pounds. As a final measure, which was partially successful, the British Government gave orders for the tanker to be destroyed by aerial bombardment. However, the oil slick still continued to expand to the southwest of England, which resulted in additional problems (bad summer tourist season, the deaths of seabirds).

for Compensation for Oil Pollution Damage FUND Convention and in 1973 the International Convention for the Prevention for Pollution from Ships) MARPOL Convention.

The event that marked suffering of the ship *Achille Lauro*<sup>3</sup> happened in Egypt in 1985 and was the reason for the adoption of the Convention for the suppression of unlawful acts against the safety of maritime navigation concluded in 1988, i.e. SUA Convention.<sup>4</sup>

Historically, all major maritime accidents had a positive effect on maritime security, since they significantly contributed the improvement of maritime transport safety through the adoption of legal regulations. However, despite the positive effect it is much better to act preventively, i.e. prevent maritime accidents through adoption of certain strategies and prevention regulations. But, if we have a situation that, despite preventative measures undertaken, maritime accident happened, it would be useful to undertake activities aimed at detection and identification of reasons that led to the accident (to establish the failures, omissions, irregularities in work), in order to avoid such situations in the future.

## 2. Defining the concept of maritime safety

The term *security* is a very complex and complicated social phenomenon. Various definitions of the term *security* have emerged through history. In the Croatian language *security* means the state of being secure, a feature of one who is safe, that is, what is safe and it means that someone or something is not in danger of being endangered<sup>5</sup>. In relation to the Latin root *securit'*, as well as the English derivative *securit'*, the word *security* has a broader meaning in the Croatian language. The word *security* includes all those notions that include the meanings of English words *safety* and *security*.<sup>6</sup> Therefore, the term *maritime safety*, in

its full meaning also includes meanings of English terms *maritime safety* and *maritime security*.<sup>7</sup>

Although in the literature of the Maritime Law, as a rule, the authors do not address a problem of defining the *maritime security*<sup>8</sup> it could be said that the term *maritime security* implies a certain material condition arising from a lack of, i.e. non-existence of exposure to danger, as well as the organization of all the factors whose aim is to create or to extend such a situation. In an attempt to analyze the above mentioned definition, two elements for the existence of the state of maritime security may be noticed. First, it is necessary that there is such a condition in which there is no danger. This primarily refers to absence of dangers emerging from the sea, and dangers in connection with the sea. The second element presumes proper organization and compliance of numerous factors which are indispensable links in the creation of such a state, starting from owners of naval vessels, operators, administration, i.e. Maritime Administration, employees of the ports, as well as many other maritime state and non-state organizations and institutions.

It is necessary to distinguish the term *maritime security* from other similar terms like *safety of navigation*, *safe trade* and *maritime safety*. The term *safety of navigation* implies preservation of human lives at sea, property (ship and cargo) and marine environment from all *perils of the sea* including also natural disasters, maritime accidents like collisions, grounding and other accidents that are inevitable companion of maritime navigation. This definition also contains the aim of *maritime security*. Unlike the previous one, *safe trade*, among other things, implies protection of the ship from dangers caused by illegal actions, such as piracy, maritime frauds, mutiny aboard, etc.

The distinction between the terms *maritime safety* and *maritime security* is quite debatable, especially because some languages do not distinguish between these terms.<sup>9</sup> There is no universal or universally accepted definition of *maritime security*. Especially for this reason, there have been attempts to define the term *maritime security* through identifying specific activities that pose a peril, i.e. threat to maritime security. In this regard, we would emphasize the 2008 Report of the UN Secretary General, known as the Oceans and the Law of the Sea,<sup>10</sup> which identifies seven specific threats for maritime security, such as: piracy and armed robbery; terrorist acts against shipping, offshore installations, and other maritime interests; illicit trafficking in

<sup>3</sup> On October 7, 1985, at about 13:30, about 700 passengers had disembarked at Alexandria (to tour the pyramids in Giza) from the ship *Achille Lauro*, which was on its regular cruise. The crew members and the remaining 400 passengers continued sailing to Port Said where the passengers had to re-board. Four Palestinians, members of Arafat's PLO (Palestine Liberation Organization) under the leadership of Abu Abbas, embarked the ship unobserved, hijacked the *Achille Lauro* and threatened its destruction, demanding the release of fifty of their comrades imprisoned in Israel. It was the first passenger ship hijacking in maritime history. The ship sailed to Syria, which does not allow anchoring in its territorial waters, and when Cyprus did the same, *Achille Lauro* returned to Port Said. To prove that they are really serious, the hijackers shot and threw overboard a wheelchair-bound sixty nine year old American Jewish Leon Klinghoffer while his wife witnessed the shooting. Klinghoffer and his wife, Marilyn, were celebrating their 36<sup>th</sup> wedding anniversary. When the Egyptian government, after protracted negotiations, met the requirements of the hijackers, on 10 October 1985, they left the ship onto a tugboat and made a victory lap around the harbour of Port Said and continued their journey.

<sup>4</sup> In addition to the Convention the Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf was adopted. Both the Convention and the Protocol entered into force on 1 March 1992. They were changed and amended by the 2005 Protocol, which entered into force on 28 July 2010.

<sup>5</sup> Anić, V., Croat Language Dictionary, Zagreb, 1991, p. 649.

<sup>6</sup> Bujas, Ž., English-Croatian dictionary, Nakladni zavod Globus, Zagreb, 1999, pp. 773, 790.

<sup>7</sup> Anić, V., n.d., Zagreb, 1991, p. 649.

<sup>8</sup> Law on Maritime and Inland Navigation ('Official Journal of FR Yugoslavia', Nos. 12/98, 44/99, 74/99 and 73/00.), Law on Maritime and Inland Navigation of RMNE (Official Gazette of the Socialist Republic of Montenegro, Nos. 19/78, 8/79, 19/97, 39/89, 22/90, 13/91, 48/91, 17/92, 59/92, 27/94, 51/08, 73/10, 40/11.) and the Law on Safety on Maritime Navigation of Montenegro do not contain definition of the term 'maritime safety'.

<sup>9</sup> In the Croatian language, as well as in Russian (*bezopasnost*) and German (*sicherheit*) there are no different terms where aspects of security are separated from aspects of the lack of security. In English and French there is a clear difference between the term *safety* that is *sarete* and the term *security* that is *securire*.

<sup>10</sup> United Nation, Secretary – General, Report of the Secretary – General on Oceans and the Law of the sea, UN Doc. A 63/63 (March 10, 2008).

arms and weapons of mass destruction; illicit trafficking in narcotic drugs and psychotropic substances; smuggling and trafficking of persons at sea; illegal, unreported, unregulated fishing and international and unlawful damage to the marine environment.

In the shipping industry *maritime security* is defined as a set of measures taken by all persons involved in realization of maritime transport. In addition, these persons mean owners of sea-going vessels, operators, administration, i.e. maritime administration, employees of the ports, as well as other naval and state organizations and institutions that contribute to protection of various dangers at sea, such as piracy, kidnapping and armed robbery against ships, pilferage and theft, stowaways, smuggling and trafficking in human beings, drug trafficking, arms trafficking and terrorism. On the other hand, maritime security creates conditions to establish and maintain certain protection measures against intentional and illicit acts directed towards the ship. The task of maritime security is to make access to target more difficult in order to discourage perpetrators of the attempted attack. In order to achieve this, it is necessary on the one hand to have a good knowledge of all threats to maritime security (e.g. piracy, terrorism), and on the other hand to react in the right manner.

In the context of interpretation of the terms safety and security, IMO emphasizes that "...the term *safety* has to be interpreted as *safe movement and integrity of ships and security provided protection from threats*."<sup>11</sup> From the above mentioned and in order to establish a clear boundary between *maritime safety* and *maritime security* we can conclude that the term *maritime safety* includes providing protection from *perils of the sea*, i.e. marine risks while *maritime security* implies protection of intentional and unlawful acts oriented against the ship. However, what must be borne in mind is that *maritime safety* and *maritime security* have the same goal, which is to protect human life at sea (of passengers and crew), marine property (of the ship and cargo) and the sea and the marine environment against pollution.

### 3. Safety of ships as one of the aspects of maritime safety

From the perspective of law, safety of navigation is a condition without which the ship is not permitted to navigate. The existence of safety at sea is imperative of maritime navigation. However, securing the existence of safety at sea is not an easy task. In order to be able to talk about safety of navigation it is necessary to cumulatively fulfill certain conditions, i.e. requirements. Actually there are requirements relating to different aspects of maritime safety. First of all it is necessary to comply with the requirements relating to the safety of ships, then requirements relating to safe transport in terms of different types of cargo, requirements relating to human factor, i.e. crew on board, as

well as with the requirements relating to safety of navigation (the existence of *aids to navigation*).

Cargo on board can seriously damage the ship and the crew, as well as the marine environment. Therefore, it is necessary to provide safe carriage of cargoes on board. Safe transportation of cargo implies strict compliance with the rules, as well as the adoption of necessary measures when handling certain types of cargo.<sup>12</sup> Taking precautionary measures or safety precautions on all cargo ships is also of great importance, in order to prevent or reduce as much as possible the occurrence of certain maritime risks, realization of which may lead to damage of the ship and/or cargo and endangering the crew.

Human factors significantly affect safety of navigation. When we talk about human personnel in maritime affairs, we primarily refer to sailors who represent a specific category of employees. In order for navigation to be safe, it is necessary to fulfill certain requirements in terms of the ship's crew. On the one hand, it is necessary that the ship is no a minimum number of crew members is present on the ship, or that *manning* is adequate, while, on the other hand it is required that the crew is skilled, i.e. qualified to perform corresponding activities on the ship. The existence of these two elements is inevitable and it is imperative stipulated by the international instruments.<sup>13</sup>

In order to provide safe and efficient navigation and to avoid dangers, aids to navigation play very important role. Their use in maritime transport is inevitable. It is neces-

<sup>12</sup> Legal regulations relating to the safe transport of cargo can be divided into general regulations, special regulations and dangerous goods regulations. General regulations includes *Chapter VI of the SOLAS Convention*, which contains provisions on carriage of cargoes. Especially important is *Regulation 5, titled Stowage and securing of cargo*, which generally regulates the safety of cargo. Various regulations (codes, codexes) adopted by the IMO make also a part of general regulations. Ordinances regulate in detail many issues relating to safe carriage of cargo. Particularly important are the *Code of Safe Practice for Cargo Stowage and Securing - CSS Code* and the *International Maritime Solid Bulk Cargoes Code - IMSBC Code*. Regulations relating to the safe transport of certain types of cargo by the sea make special regulations, first of all: grain cargoes, timber deck cargoes and containers. In this part the following have been adopted: *International Code For The Safe Carriage of Grain In Bulk - International Grain Code*; *Code of Safe Practice for Ships Carrying Timber Deck Cargoes*; *CSC Convention - International Convention for Safe Containers*. Dangerous goods are also regulated by *Chapter VII of the SOLAS Convention titled Carriage of dangerous goods*. In addition the *SOLAS Convention* also *MARPOL Convention* regulates certain types of dangerous goods. The provisions on dangerous goods are mostly of general nature and are further elaborated by individual codes. The most important codes that have been adopted, concerning the dangerous goods are: *International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk - IBC Code*; *International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk - IGC Code*; *The International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High Level Radioactive Wastes on Board Ships - INF Code*.

<sup>13</sup> The most significant international instruments adopted in this part are the *International Management Code for the Safe Operation of Ships and for Pollution Prevention, ISM Code*; the *International Convention on Standards of Training, Certification and Watch-keeping for Seafarers, STCW Convention of 1978* which governs the requirements regulating the conditions for obtaining authorizations of the staff. The provisions of the *SOLAS Convention* and *Maritime Labour Convention, MLC Convention*, as well as numerous resolutions relating to manning of ships are also important.

<sup>11</sup> IMO, Maritime Safety Committee, Report of the Maritime Safety Committee on its Eighty-Fifth Session, MSC 85/26, 19 December 2008, p. 29.

sary to distinguish between two types of aids to navigation, such as: aids to navigation to be used on waterways and aids to navigation used on the ship itself. In English, the term 'aids to navigation' or the abbreviation AtoNav is used for aids that are used on waterways, while the term 'navigation aids' or the abbreviation NAVAIDs is used for navigational aids used on the ship. Providing aids to navigation is the duty of every country that borders the sea to which it is obliged by international conventions, primarily the 1982 United Nations Convention on the Law of the Sea and the SOLAS Convention.

In order for a naval ship to be considered the ship in a legal sense, she must comply with established international rules (standards or requirements) on its safety, i.e. she must be seaworthy. Seaworthiness must exist since ship launching (entry of ship into the water), all the time while the ship is sailing, until the day the ship is withdrawn from navigation.

We can talk about navigation capability of the ship (*seaworthiness*) and capability of the ship to transport cargo in the condition she had received it (*cargo worthiness*).

Namely, in order for the ship to be able to carry out the navigation task she must be appropriately qualified. Navigation ability means that the ship is seaworthy in a structural sense, which would mean that its hull and machinery are in good order, that she is appropriately equipped, manned, equipped with necessary inventory and prepared (by bringing storage, refrigerators, freezers and all other parts of the ship in proper condition). This would mean that the ship structure must be satisfactory.

Capability of the ship to carry cargo in the same condition it was received for carriage refers to capability and equipment of the ship to load, stow, store, carry and unload cargo in the same condition it was received for carriage. The ship's capability is particularly evident during execution of the contract for carriage of goods, where a shipping company is required to make available to the client the ship capable for execution of the contract for carriage of goods. Making the ship seaworthy is a personal duty of the shipping company and by the rule, the shipping company cannot delegate liability for its non-execution to other persons. However, the shipping company is not always able to establish professional condition of the ship and therefore it entrusts the seaworthiness to independent entrepreneurs.

The SOLAS Convention is the basic legal act that, among other things, contains regulations and requirements that each ship must comply. These are mainly regulations relating to construction of ships, which, according to the above mentioned Convention must be constructed in a certain manner in order to be strong and watertight. Furthermore, the Convention contains provisions which stipulate that ships must be properly supplied with the necessary equipment that provides safe transportation of passengers, cargo and ship's crew. It also includes regulations and requirements for ships as regards the existence of: radar, satellite navigation devices, fire equipment, boats and oth-

er equipment for rescue of passengers and crew, and the like. If the ship fails to comply with safety requirements it can lead to stopping of the ship and give rise to criminal responsibility of a commander, i.e. the shipping company, or to loss of insurance. However, what might be characterized as the most dangerous is that these ships represent a serious risk to the ship itself, the crew, passengers and the marine environment. Seaworthiness is determined in the course of ship's construction, as well as during the examination of used boats and this is confirmed by certain documents, i.e. certificates.

The boat must be safe for navigation at all times, i.e. until she is withdrawn from navigation. There are three different stages in which safety of the ship for navigation is provided. First, during the construction of the ship and installation of the equipment, then during its operation – from the time when the ship was commissioned, until her withdrawal and the third stage is the stage that refers to time during navigation. In each of these stages different regulations, rules and standards apply.

#### 4. Safety of ships and maritime risks

It could be said that the ship is safe for navigation if it is well protected from dangers that are immanent to navigation. Experience shows that the three most difficult risks, whose realization leads to endangering the ship, cargo and human lives, are as follows: total or partial structural failure, causing the ship to sink very quickly; flooding, i.e. penetration of water into the ship, due to which the ship breaks apart, whether it is a vertical gap in the panelling caused by collision or a horizontal gap at the bottom as the result of grounding or striking of the ship into an obstacle, and a fire on board.

It is very important to take certain preventive measures, in order to avoid these risks. Prevention measures especially relate to compliance with the standards when it comes to the construction of the ship (structure of the ship as strongest as possible) seaworthiness, stability of the ship and fire protection.

When we talk about the strength of the ship there are two factors that must be taken into account. First, during the construction of the ship, the material that is installed in the ship must be taken into account. It is necessary that the ship is in such condition to withstand various hazards or accidents which she will meet up with during navigation. The ship needs to withstand all hydrostatic and hydrodynamic forces at sea. Also, the space intended for cargo must be within the permissible limits. If there is some deformation it has to be within acceptable limits.

The ship must be able to continue sailing, even if her hull is damaged. Whether the ship in such a situation would be able to continue navigation depends on two factors, such as: buoyancy and stability of the ship. Buoyancy is the ability of the ship to sail in the required position, in the particular waterline, loaded with cargo she carries. Stability is the ability of the ship to sail in an upright position and to with-

stand any slide. Therefore, the ship must be able to return to the upright position after being tilted due to influence of external forces. It is necessary to oppose the forces that tend to move her from its equilibrium position. Actually, it is necessary that the ship automatically returns to the upright position (the position of equilibrium) after the cessation of external forces. The ship that does not have such a characteristic cannot sail at all. If the ship is stable, but not sufficiently, it is not safe for navigation, and presents a grave danger to persons and cargo.

In order to protect ships from fire numerous activities are undertaken. Regardless the fact that modern ships are built of steel plates, it does not mean immunity of these ships of possible fire. This is quite understandable if we bear in mind that ships often carry flammable or highly flammable materials and other products, which can create smoke and various gases. Therefore, it is necessary to take certain security measures in order to ensure protection from fire. It is especially important to take account of the choice of quality materials during construction of ships (to remove flammable products). On the other hand, it is important to detect a fire at an early stage, and in this sense provide access to fire extinguishers, as well as to ensure that the crew of the ship is specifically trained for the use of fire extinguishers.

International organizations, states and classification societies put enormous efforts into prevention of these risks. Their efforts are reflected in undertaking various measures and actions, inter alia, in the adoption of technical regulations on the construction and equipment of merchant ships. All of these regulations make a whole and represent the general regime of ship safety.

Technical inventories are largely contained in international conventions, but also in regulations of classification societies. The most important conventions adopted by the IMO relating to the safety of ships are:

- International Convention for the Safety of Life at Sea (*SOLAS Convention*), 1974 with amendments;
- International Convention on Load Lines, 1966, (*LL Convention*) and the 1988 Protocol and
- The International Convention for the Prevention of Pollution from Ships 1973/78 (*MARPOL Convention*).

In addition to these conventions, a significant one for safety of ships is also the *International Convention on Tonnage Measurement of Ships*, 1969, and as regards fishing vessels the *1977 Torremolinos International Convention for the Safety of Fishing Vessels* occupies a special place. These conventions will be discussed in more detail in the sequel of this paper.

## 5. Regulation of safety of ships by IMO

### 5.1. International Convention on Safety of Life at Sea, 1974, SOLAS Convention

The *SOLAS convention* with numerous changes and amendments is the most important and the most com-

prehensive international instrument on maritime safety. At the initiative of the British government, in 1913, an international conference attended by representatives of the thirteen states was held. Conference resulted in the adoption of the International Convention for the Safety of Life at Sea in 1914. The Convention has never entered into force due to the outbreak of the First World War.

Once again, at the initiative of the British government in 1929, the second convention was convened and was attended by representatives from eighteen countries. At this conference the second International Convention for the Safety of Life at Sea was adopted. The Convention came into force in countries that have acceded to it and has undergone several changes and amendments. Therefore, in 1948 and 1960 a new convention under the same name was adopted, except that the 1960 Conventions was repeatedly amended, as follows: in 1968, 1969, 1971 and in 1973. In 1974, the fifth SOLAS Convention was signed, which entered into force on 25 May 1980 and has been in force since then, naturally with numerous changes and amendments. This Convention was amended with two protocols: Protocols of 1978 and 1988. The Protocol of 1978 was adopted at the *International Conference on Tanker Safety and Pollution Prevention* and became an integral part of the Convention. It entered into force on 1 May 1981. Soon after, the *International Conference on the Harmonized System of Survey and Certification* was held. At this conference, on 11 November 1988, the second Protocol was adopted, which entered into force on 3 February 2000.

The main objective of the *SOLAS Convention* is to ensure minimum standards regarding construction of ships, their equipment and usage in accordance with their safety. According to the *SOLAS Convention* the flag States are responsible for ensuring that ships under their flag comply with the requirements of the Convention and a number of certificates are prescribed in the Convention as proof that this had been done.<sup>14</sup> Especially significant are the control provisions, which stipulate that States Parties have the right to inspect ships of other Contracting states, if there are clear grounds for believing that the condition of the ship and its equipment does not correspond substantially with the *SOLAS Convention*. This procedure is known as the port State Control. Unless expressly agreed otherwise, the rules of the SOLAS Convention shall apply only to ships on international voyages.<sup>15</sup>

The *SOLAS Convention* contains twelve chapters followed by an Annex with certificates, as well as annexes of resolutions and recommendations. Chapters of the *SOLAS Conventions* are as follows: Chapter I – contains general provisions, i.e. provisions concerning the survey of the various types of ships and the issuing of documents (certificates) signifying that the ship meets the requirements

<sup>14</sup> According to Regulation XII *Certification* Chapter I General provisions, Part B-Surveys and Certificates of the SOLAS Convention, certificates which must be issued are: Cargo Ship Safety Certificate, Cargo Ship Safety Equipment Certificate, Cargo Ship Safety Radio Certificate.

<sup>15</sup> Chapter I General provisions, Part A Application, definitions, etc. Regulation 1 item b.

of the Convention, as well as the provisions for the control of ships in ports of other Contracting Governments; Chapter II 1. Construction (subdivision and stability, machinery and electrical installations); 2. Construction (Fire protection, fire detection and fire extinction); Chapter III – Life-saving appliances and arrangements; Chapter IV – Radiocommunications; Chapter V – Safety of navigation; Chapter VI – Carriage of Cargoes; Chapter VII – Carriage of dangerous goods; Chapter VIII – Nuclear ships; Chapter IX – Management for the Safe Operation of Ships (*ISM Code*); Chapter X – Safety measures for high-speed craft (*HSC Code*); Chapter XI – 1. Special measures to enhance maritime safety, 2. Special measures to enhance maritime security; Chapter XII – Additional safety measures for bulk carriers.

The SOLAS Convention has still been changed and amended. IMO Regulations stipulate that the Convention may be amended also without convening international conferences. Namely, amendments to the SOLAS Convention are accepted in the process of tacit acceptance, which means that all changes enter into force on a specified date, unless an agreed number of States Parties object within the term of one year. In this way all States Parties of the *SOLAS Convention* are able to monitor all innovations and overall development in the field of safe and secure construction of ships.

Montenegro is a Party State to the 1974 *SOLAS Convention* and the Protocol of 1978 and 1988.

## 5.2. International Convention on Load Lines, 1966 and the Protocol of 1988, LL Convention

One of the most effective ways to improve safety of ships is the limitation of draught on which the ship can sail. In fact, every merchant ship must have a load line assigned. Load line is a marking indicating the extent to which the weight of a load may safely submerge a ship.

In ancient times, many shipwrecks were caused by the negligence and it could be said by the greed of shippers, who overloaded their ships with the aim to increase its exploitation disregarding their safety. Therefore, the need for adoption of certain regulations that would regulate these issues emerged. In the nineteenth century, in England, a member of the Parliament *Samuel Plasmon*, promoting his national campaign against the so-called *coffin ships*, fought for passing the Law in the Parliament. In fact, at that time, the practice of overloading of cargo ships was widespread. Unscrupulous owners of such boats would subsequently overinsure their boats, securing at the same time extra profits for themselves from maritime voyages, thus exposing the ship's crew to mortal danger.

The adoption of such regulations continued in 1930 when the *first International Convention on Load Lines, LL Convention* was adopted. The aim of its adoption was improving safety of ships, preventing overloading cargo on board, as well as preventing forcing the ship into danger. In 1966, at the international conference held in London, the regulations of 1930 *LL Convention* were reviewed

and modified and a new *LL Convention* was adopted on 5 April 1966. The Convention entered into force on 21 July 1968. The Convention was amended six times, as follows: 1971, 1975, 1979, 1983, 1995 and in 2003. Amendments adopted in 1971, 1975, 1979 and in 1983 have never entered into force, since they were not accepted by the required number of states. Two-thirds of the state Parties was needed to accept the amendments to come into force.

The Convention states ships it obliges, as well as determination and control of freeboard. *The LL Convention* includes three annexes:

Annex I – Regulation for determining load lines – contains regulations under which load lines are determined particularly determining the minimum freeboard depending on the length and type of ship. Annex I is divided into four chapters. Chapter I – contains general provisions; Chapter II – contains conditions of assignment of freeboard; Chapter III – contains provisions related to freeboards; Chapter IV – contains special requirements for ships assigned timber freeboards. Annex II – covers Zones, areas and seasonal periods – contains geographical distribution, contains regulations as regards the load line to which ships may be loaded in some parts of the world in a certain season; Annex III – Certificate – contains certificates, including the International Load Line Certificate.

In 1988 the *Protocol to 1966 LL Convention* was adopted and entered into force on 3 February 2000. The Protocol was adopted in order to harmonize the Convention's survey and certification requirement with those contained in the *SOLAS and MARPOL conventions*. Protocol of 1988 revised certain regulations in the technical Annexes to the Load Line Convention. The procedure of tacit acceptance, changes and amendments to the Convention was also introduced.

*The LL Convention* was further amended in 1995. However, those changes and amendments have not entered into force, but new amendments to the Convention were adopted in 2003 and entered into force on 1<sup>st</sup> January 2005. The amendments, which make up a comprehensive review of technical provisions to the *LL Convention*, do not affect the Convention of 1966, but it was stipulated that changes apply only to those ships flying under the flags of states bound by the Protocol of 1988. However, it should be borne in mind that the number of Parties to the Protocol of 1988 has risen so far and represents more than 90% of world tonnage, while states parties of the *LL Convention* cover more than 99% of world tonnage.

The amendments to Annex B to the 1988 Load Lines Protocol include a number of important revisions, in particular to regulations concerning: strength and intact stability of ships; definitions; superstructure and bulkheads; doors; position of hatchways, doorways and ventilators; hatchway coamings; hatch covers; machinery space openings; miscellaneous openings in freeboard and superstructure decks; cargo ports and other similar openings; spurling pipes and cable lockers; side scuttles; windows and skylights; calculation of freeing ports; protection of

the crew and means of safe passage for crew; calculation of freeboard; sheer; minimum bow height and reserve buoyancy.

According to *the LL Convention* each ship must have a load line mark, i.e. a freeboard mark which is located exactly below the deck-line. A load line mark is a ring 300 millimeters in outside diameter and 25 millimeters wide, intersected by a horizontal line 450 millimeters long and 25 millimeters wide the upper edge of which passes through the center of the ring. The center of the ring shall be marked amidships vertically below the deck-line. The center of the circle is located at the middle of the ship, the vertical distance equal to the assigned summer freeboard below the upper corners of the deck line.

The freeboard is marked with a ring 300 millimeters in outside diameter on each side of the ship, amidships. The most important is the line which passes through the very center of the ring, which indicates the boundary draught of overloaded ship. Freeboard means the distance from the waterline to the upper deck level, on the main (middle) rib of the boat.

In addition to freeboard ring, there are load lines which indicate different values of draft permitted. There are six of these lines which correspond to the maximum draught of the ship, depending on the season and areas of navigation.<sup>16</sup>

Determination of load lines, i.e. freeboard provides greater buoyancy, protection of the crew from possible risks due to overloaded cargo, provides the strength of hull, stability of the ship, as well as sufficient buoyancy level and stability in the event of damage.

*The LL Convention* covers two types of ships, i.e. types "A" and "B". Type "A" ships are ships, designed to transport only liquid cargo in bulk, whose cargo tanks have small openings with watertight lids. Type "B" ships are all other types of ships that do not meet these requirements.

According to the *LL Convention*, no ship shall sail on international voyage unless it has the *International Load Line Certificate* or *International Load Line Exemption Certificate*. The *International Load Line Certificate* is a document issued for the period of five years and subject to regular annual verification. It is issued by the classification society which assigned a class designation (e.g. BV, HR, RINA).

Montenegro is a Party State to *the 1966 LL Convention* and the Protocol of 1988.

### 5.3. International Convention for the Prevention for Pollution from Ships 1973, MARPOL, 73/78.

A significant convention regarding the safety of ships is also the *International Convention for the Prevention of Pollution from Ships*, i.e. *the MARPOL Convention*. *The MARPOL Convention* was adopted in 1973 in London and

represents a basic preventive act covering protection of the sea and the marine environment against pollution by ships. The aim of *the MARPOL Convention* is to prevent pollution from ships by various substances, regardless of whether the pollution is a consequence of extraordinary events or regular operations of the ship. *The MARPOL Convention* prohibits pollution of the sea in any manner – by throwing out, releasing, discharging, spillage or leakage. In this sense, it contains a large number of technical measures restricting the discharge of harmful substances, especially oil and lays down standards for construction of ships.

*The 1973 MARPOL Convention* has been amended and extended by the Protocol of 1978 (known under abbreviation MARPOL 1973/78) and entered in force in 1983 as such.<sup>17</sup> Otherwise, the Convention is constantly being changed and amended and, as the previous conventions, it includes tacit acceptance procedure. Amendments shall enter into force one year after the decision of the IMO, unless one-third of contracting parties object.

*The MARPOL Convention*, in addition to its basic text, consists of six Annexes containing Regulations, as follows: Annex I – Regulations for the Prevention of Pollution by Oil; Annex II – Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk; Annex III – Prevention of Pollution by Harmful Substances Carried by Sea in Packaged form; Annex IV – Prevention of Pollution by Sewage from Ships; Annex V – Prevention of Pollution by Garbage from Ships; Annex VI – Prevention of Air Pollution from Ships.<sup>18</sup> All of the above mentioned technical annexes to *the Marpol Convention* entered into force. States Parties must accept Annexes I and II (Prevention of Pollution by Oil and by Noxious Liquid Substances in Bulk) while other annexes are not mandatory.<sup>19</sup>

Annex I stipulates that every oil tanker of 150 gross tonnage and above shall be subject to the surveys due to control of their safety in connection with pollution of the sea. After the survey the *International Oil Pollution Prevention Certificate*, i.e. IOPP Certificate, shall be issued to tanker. Certificate verifies that the ship subjected to survey was completely surveyed in accordance with the Regulation 6 of the Annex I of *the MARPOL Convention*, as well as that its structure, equipment, fittings, arrangements and material are satisfying in every part. In the Annex to the Certificate there are detailed descriptions of equipment and devices for prevention of pollution. Certificate is valid for a period which shall not exceed 5 years. Regular surveys are carried out every year and recorded on the back of the Certificate.

<sup>17</sup> The Protocol that makes an integral part of the MARPOL Convention was adopted in 1978 at the international Conference on Tanker Safety and Pollution Prevention.

<sup>18</sup> By the 1997 Protocol, the MARPOL Convention was amended by Annex VI, which entered into force in 2005.

<sup>19</sup> Annexes I and II of the MARPOL Convention, as well as Annex III and V cover about 95% of the world merchant fleet, while Annexes IV and VI are represented in a smaller percentage – about 69% of the fleet.

<sup>16</sup> Boisson, Ph., *Safety at Sea: Policies, Regulations & International Law*, Bureau Veritas, Paris, 1999, p. 202.

Montenegro is a Party State to *the MARPOL Convention*. Montenegro accepted all Annexes to the MARPOL Convention.<sup>20</sup>

#### 5.4. International Convention on Tonnage Measurement of Ships, 1969

International Convention on Tonnage Measurement was adopted by the IMO on 23 June 1969. The Convention entered into force on 18 July 1982. *International Tonnage Convention* represents the first successful attempt to introduce a universal tonnage measurement system. Prior to adoption of the Convention various systems were used to calculate the tonnage of merchant ships. Although the method used was the method devised by George Moorsom of the British Board of Trade in 1854, all states did not adopt his system. In fact, other tonnage measurement systems appeared like the system of the Nordic countries, a tonnage measurement system of ships passing the Suez and the Panama Canal and the like. Since there were significant differences between these systems, there was a need for introduction of an international system according to which the tonnage of ships would be calculated. By adoption of the *International Tonnage Convention*, a unique system for tonnage measurement was formed. When creating this system, special attention was paid to the fact that gross and net tonnage calculated under the new system do not differ from those calculated on the basis of previous methods.

*International Tonnage Convention* consists of two Annexes and every reference to the Convention constitutes at the same time a reference to the Annexes. The Convention applies to all ships built on or after 18 July 1982, while ships built before that date were allowed to retain their existing tonnage for 12 years after entry into force of the Convention, or until 18 July 1994. The phase-in period of 12 years was intended to ensure that ships were given reasonable economic safeguards, since port and other dues are charged according to ship tonnage.

The Convention stipulates that the tonnage measurement of naval ships is conducted in order to determine the gross and net register tonnage,<sup>21</sup> which are calculated independently from each other. Gross register tonnage (GRT) includes the total volume of all enclosed spaces of the ship, i.e. all internal capacities of the ship. Net register tonnage (NRT) equals gross tonnage minus deductions for space which not intended for the carriage of goods or passengers. Namely, it is a space intended for commercial use.

Tonnage measurement is used to obtain the exact shipping volume, which is important, since ships are classified

into specific categories by size, on the basis of tonnage measurement (tonnage data). All of the above mentioned is relevant to the application of law in many situations. Tonnage data also serve as a benchmark for implementation of certain regulations on the ship safety, on the minimum number of crew members, number of passengers and goods the ship can accommodate. Further, ships pay port taxes in ports around the world according to their gross tonnage. We must not forget that tonnage data are an essential element of ship's individualization. Deadweight tonnage data also serve as the complement to tonnage data. Deadweight tonnage is the difference between the fully loaded and empty ship.

The determination of gross and net tonnage shall be carried out by the Government of the State whose flag the ship is flying, although the Government may entrust such determination to persons or organizations recognized by the Administration, like classification companies. In every case the Administration concerned shall accept full responsibility for the determination of gross and net tonnages.

Each ship whose tonnage has been calculated according to the *International Tonnage Convention* shall be issued an International Tonnage Certificate. Determination of the ship's tonnage is carried out prior to its entry into the Register of Ships. The ship, which has an International Tonnage Certificate, while in the ports of other States Parties, may be surveyed in order to check whether it holds the aforementioned certificate and whether her actual state corresponds to the data contained in the Certificate. Certificate issued in one State Party shall be accepted in other States Parties. If the ship changes her flag the Certificate ceases to be valid.

Montenegro is a Party State to *the 1969 International Tonnage Convention*.

#### 5.5. Torremolinos International Convention for the Safety of Fishing Vessels of 1977, SFV

*Torremolinos International Convention for the Safety of Fishing Vessels of 1977* is the first convention dedicated to the safety of fishing vessels. The main reason for the adoption of *1977 Torremolinos Convention* was the fact that the safety standards, set forth in *the SOLAS and LL Conventions*, do not correspond to fishing vessels, due to their differences in relation to other vessels. Specifically, there is a difference in terms of construction, equipment and operation of these vessels. Therefore, it was necessary to adopt a separate legal instrument, in order to adapt these standards to fishing vessels. This was done and *the Torremolinos Convention* was adopted. However, as *the Convention* did not meet the requirements, it has never entered into force. These were, generally, technical reasons, one of which was that *the Torremolinos Convention* based its technical requirements on *the SOLAS Convention of 1974*.

In order to create conditions for its entry into force, the Convention was amended by the Protocol, which was adopted on 2 April 1993. The full title of the Protocol is

<sup>20</sup> Annex VI of the MARPOL Convention "Official Gazette of Montenegro – International Agreements", No. 3/2013.

<sup>21</sup> The register tonnage or tonnage means the size of the merchant ship expressed by its volume. The procedure of determining the tonnage of the ship is called tonnage measurement and is regularly carried out according to the British system of tonnage measurement, via the so-called registered tons. Register Ton is 100 English cubic feet or 2,832 cubic meters (hence the name).



the *Torremolinos Protocol of 1993 relating to the 1977 Torremolinos International Convention for the Safety of Fishing Vessels*, or shortly *the Torremolinos Protocol*. Certain provisions of *the Torremolinos Convention* were amended by the Protocol, considering new needs, technical requirements from the standpoint of construction and equipment of modern fishing vessels, while taking into account the corresponding changes and amendments to *the SOLAS Convention*.

For entry into force of *the Torremolinos Protocol* it is required that the Protocol is confirmed by not less than 15 States the aggregate of whose fleets of fishing vessels constitutes not less than 14,000 of fishing vessels of 24 meters in length and over. However, this Protocol has not met the requirements for entry into force yet.<sup>22</sup>

The articles of *the Torremolinos Protocol* and the regulations contained in the annex to *the Torremolinos Convention*, shall be subject to the modifications set out in the annex to the present Protocol be read and interpreted as one single instrument.<sup>23</sup> Modified regulations in the annex to *the Torremolinos Convention* are contained in the annex to *the Torremolinos Convention* and constitute an integral part of the Protocol.<sup>24</sup>

Conference Resolution 2 contained in *the Annex to the Torremolinos Protocol* invites States willing to accept modified safety regime of fishing vessels to express their consent to be bound by *the Torremolinos Protocol*, without taking any actions from the standpoint of *the Torremolinos Convention*.

*The Annex to the Torremolinos Protocol* consists of ten chapters prescribing the requirements that should be met by fishing vessels, and which relate to: construction, watertight integrity and equipment, stability and associated seaworthiness, machinery and electrical installations, fire protection, as well as protection of the crew, life-saving appliances, emergency procedures, radio communications and navigational equipment, as well as to navigation devices.

*The Torremolinos Protocol* applies to marine fishing vessels, including those vessels also processing their catch and which are authorized to fly the flag of the State Party to *the Torremolinos Protocol*. The provisions of the annex shall not apply to vessels exclusively used for sport or recreation, for processing fish, for research and training, as well as fish carriers. *Torremolinos Protocol* shall apply to fishing vessels of 24 meters in length or above.<sup>25</sup>

Certain chapter apply to vessels of 45 meters in length or above, and the competent authorities in States Parties are allowed to determine which regulations of that chapter relating to vessels of 45 meters in length or above should apply to fishing vessels of 24 meters in length.<sup>26</sup>

<sup>22</sup> According to Article 10 paragraph 1 of the *Torremolinos Protocol* 17 States agreed to be bounded by the *Torremolinos Protocol* until 30 September 2014, which represents 18.68 % of the total fleet tonnage.

<sup>23</sup> Article 1, item 2 of the Protocol.

<sup>24</sup> Article 1, item 3 of the Protocol.

<sup>25</sup> Article 3, paragraphs 2 and 3 of the Protocol.

<sup>26</sup> Article 3, paragraph 4 of the Protocol.

According to *the Torremolinos Protocol*, fishing vessels are required to hold an appropriate certificate as a proof for meeting the requirements stipulated in *the Torremolinos Protocol*, and in States Parties' ports may be subject to appropriate control.<sup>27</sup>

We have already mentioned that the 1993 Protocol was still not in force in the 2000s, so the IMO began reviewing the *Torremolinos Protocol*. At a diplomatic conference held from 9 to 11 October in Cape Town, South Africa a new *Cape Town Agreement of 2012 on the Implementation of the Provisions of the 1993. Protocol relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977* was adopted. *The Cape Town Agreement of 2012* will enter into force 12 months after the date on which not less than 22 States the aggregate number of whose fishing vessels of 24 m in length and over operating on the high seas is not less than 3,600 have expressed their consent to be bound by it. However, the requirement for its entry into force has not been met yet.<sup>28</sup>

*The Cape Town Agreement of 2012* updates and amends provisions of *the Torremolinos Protocol*, relating to chapters IX, VII, VIII and X. The provisions relating to the manner of issuing certificates in relation to the Protocol are being amended.

We would like to mention that the IMO have long cooperated with other organizations with which jointly adopts a number of legal instruments relating to safety of fishing vessels. In this sense, particularly significant are *Food and Agriculture Organization of the United Nations*, FAO<sup>29</sup> and the International Labour Organization, ILO, which jointly adopted *Voluntary Guidelines for the Design, Construction and Equipment of Small Fishing Vessels* and *The Code of Safety for Fishermen and Fishing Vessels* that were revised in 2005.

## 6. Conclusion

The guarantee for maritime safety is not enough for the existence of legal regulations. It is necessary to ensure the actual implementation of obligations referred to in international conventions. The largest number of international conventions, which include safety standards that must be met by ships, were adopted under the auspices of the IMO. In order to determine whether the ships comply with international standards certain controls and surveys

<sup>27</sup> Article 4 of the Protocol.

<sup>28</sup> Until 30 September 2014, three States, i.e. Iceland, Netherland and Norway expressed their consent to be bound by the *Cape Town Agreement*, which represents 2.16% of the total fleet tonnage.

<sup>29</sup> Food and Agriculture Organization of the United Nations – FAO was established in 1945 with the aim to improve production of agricultural products and food of all people in the world. FAO is making efforts at the international level to overcome hunger and provides support to both developed and developing countries. This organization is also a source of knowledge and information, and assists its member countries in the procedure of modernization and improvement of agriculture, forestry and fishery and in ensuring global food security.

are carried out. This primarily refers to a type of control such as inspection, i.e. surveys of ships by the competent authorities intended, on the one hand, to ascertain compliance with the standards of applicable international conventions, and on the other hand, to comply with navigation regulations. The flag State shall exercise jurisdiction and control over its ships. But, at the international level, when it comes to implementation of international conventions, there is no uniformity in compliance with the procedures during surveys and control of ships. Namely, many flag States are not held accountable in the same way. It is noted that some states do not fulfill their obligations, or simply are not able to satisfy obligations provided for by international conventions.

A reckless behavior of a large number of states in relation to their points is often actually present, and often a complete lack of interest in pursuing implementation of international standards. Also the attitude of the state towards ships depends also on other factors such as the size of the fleet (number of ships flying under its flag), or the administrative resources available to the state. Some states have a large fleet, however, do not have the material capacity to exercise control over the safety of certain vessels. All of these situations create conditions for the emergence of problems and the emergence of sub-standard ships, i.e. ships which do not meet international safety standard, against which the international community effectively fights.

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