
INTERNATIONAL JOURNAL OF ADVANCED LEGAL RESEARCH

**MARITIME SAFETY APPLIANCES, EQUIPMENT AND
CERTIFICATES: A STUDY OF SIGNALLING LAMPS, SAFETY AND
EXEMPTION CERTIFICATES, AND PRECAUTIONS DURING
VOYAGES UNDER INTERNATIONAL LAW**

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1. ABSTRACT

Safety at sea forms part of international maritime laws designed to protect human lives, vessels, cargoes and the marine environment from dangers posed by navigation at sea and shipping in general. This research paper seeks to analyse the legal and operational issues involved in safety at sea in respect of safety appliances, equipment and certificates in the light of signals lamps, safety and exemption certificates and safety measures to take during voyages under international maritime laws. Signals lamps and other means of navigational and communication equipment are very critical in ensuring proper communication and avoidance of collision, especially under conditions of restricted visibility and emergencies. The research will also focus on the significance of statutory safety certificates proving compliance with international standards.

The research further investigates the case of exemption certificates, which grant specified vessels to be exempted from certain statutory requirements where the exemptions are justifiable and reasonable in pursuit of maritime safety. More emphasis is placed on the International Convention for the Safety of Life at Sea, 1974 (SOLAS) and other international standards concerning maritime safety. The precautions to be taken on voyages are assessed by the study; these include maintenance and inspection of safety equipment, navigational caution, preparation for emergencies, communications and weather forecasting, and compliance with relevant safety regulations. The study analyzes the roles

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of the flag states, port states, shipowners, masters and crews in implementing maritime safety standards. It is concluded that the installation, maintenance, and certification of safety appliances and equipment along with strict observance of voyage precautions are essential in the prevention of maritime casualties.

Keywords: Maritime Safety, Safety Appliances, Signalling Lamps, Safety Certificates, Exemption Certificates, SOLAS, Voyage Precautions, Navigational Safety, International Maritime Law, Ship Safety.

2. INTRODUCTION

Maritime safety is one of the fundamental objectives of modern international maritime law. A ship at sea is exposed to numerous risks including collision, grounding, fire, flooding, machinery failure, adverse weather, loss of stability, cargo shifting and casualties involving passengers or crew. Consequently, maritime law imposes comprehensive obligations upon flag States, shipowners, masters and operators to ensure that ships are properly constructed, equipped, surveyed, certified, maintained and safely navigated. The international framework is principally developed through conventions adopted under the International Maritime Organization (IMO), while individual States implement these obligations through domestic legislation, rules, surveys and certification systems.

The principal international instruments relevant to maritime safety include the International Convention for the Safety of Life at Sea, 1974 (SOLAS), the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG), the International Convention on Load Lines, 1966, the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW), and the International Safety Management (ISM) Code. Among these, SOLAS and COLREG are particularly important for safety appliances, equipment, signalling arrangements and safe navigation.

In India, maritime safety is presently governed principally by the Merchant Shipping Act, 2025, which was enacted on 18 August 2025 and came into force on 15 March 2026. The Act seeks to consolidate and amend Indian merchant shipping law and expressly aims to ensure compliance with India's obligations under maritime treaties and international instruments. The new legislative framework is supplemented by rules made under the Act, including the

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Merchant Shipping (Life-Saving Appliances and Arrangements) Rules, 2026 and the Merchant Shipping (Safety of Navigation) Rules, 2026.

3. CONCEPT OF MARITIME SAFETY APPLIANCES AND EQUIPMENT

Safety appliances and equipment on board ships constitute an essential part of the laws of the safety of ships and people at sea. Ships operate in an environment that is prone to accidents and in a situation where external help is not easily accessible. The safety of the people aboard the ship is subject to threats of danger in a variety of forms including collision, grounding, fire, flooding, malfunctioning of equipment, storm, loss of stability among others. As a result of this, ships have to be provided with adequate safety equipment and appliances in accordance with maritime law in order to prevent or reduce the danger and save people's lives in case of accidents.²

Maritime safety equipment can be defined as equipment which has been specially provided with the specific intention of saving human lives in case of maritime emergencies. This includes life boats, rescue boats, life rafts, life jackets, life buoys, immersion suits, thermal protective equipment, emergency position indicating radio beacons (EPIRBs), search and rescue transponders (SARTs), distress flares, rocket parachute flares, hand flares, and buoyant smoke signals. These safety devices are highly important especially in situations where abandonment of the ship becomes necessary. In order for these to be effective, these devices must be available in sufficient quantities and be functional. They are preventive as well as remedial, since their purpose is not only to reduce the impact of the emergency situation but also allow people aboard to escape safely.³

The international legal framework for maritime safety appliances is principally established by the International Convention for the Safety of Life at Sea, 1974 (SOLAS). SOLAS establishes minimum standards concerning the construction, equipment and operation of ships, compatible with their safety. Chapter III of SOLAS deals specifically with Life-Saving Appliances and Arrangements. The chapter is supplemented by the International Life-Saving Appliance (LSA) Code, which establishes detailed technical requirements for life-saving

²International Maritime Organization (IMO), *International Convention for the Safety of Life at Sea, 1974 (SOLAS 1974)*, Chapters I–V.

³IMO, *International Life-Saving Appliance (LSA) Code*, 2023 Edition, International Maritime Organization.

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appliances, including their construction, performance, testing, marking, maintenance and availability. The mandatory nature of the LSA Code ensures that life-saving appliances carried on ships conform to internationally recognised technical standards rather than being selected solely according to the discretion of individual shipowners or operators.⁴The importance of SOLAS lies in the establishment of uniform minimum safety standards applicable to ships engaged in international navigation. Under the Convention, the flag State bears the primary responsibility for ensuring that ships flying its flag comply with the applicable requirements. Compliance is verified through surveys, inspections and certification. Port State Control provides an additional mechanism through which foreign ships may be inspected when they enter the ports of another State. Thus, maritime safety equipment is regulated through a continuing system of legislation, technical standards, survey, certification, inspection and enforcement rather than through a one-time requirement to carry equipment.

Yet another key principle is that the safety appliances should be able to carry out their role under real conditions at sea. If the safety appliance satisfies technical requirements but it is either damaged or cannot operate when it is needed the most, then obviously it will fail to serve the purpose for which it is required according to the law. Therefore, maintenance and operability of safety equipment receive due consideration in international maritime safety law. Safety equipment must be inspected from time to time and all defects in its functioning must be remedied at once. Further, the crew members should be aware about the location of such safety equipment and its operation.⁵The marine environment adds importance to the maintenance of safety equipment. Safety appliances come into contact with salt water, humidity, sun, corrosion, vibrations, temperature variations and so forth. This may result in deterioration of ropes, inflatables, electrical appliances, batteries and signaling devices and so forth. It means that safety appliances must have good quality and construction and must also withstand the marine environment. Even Indian maritime safety law has acknowledged the importance of quality, construction, maintenance and operability of lifesaving appliances.⁶

⁴SOLAS 1974, Chapter III; IMO, International Life-Saving Appliance (LSA) Code, 2023.

⁵ Ibid

⁶ Merchant Shipping (Life-Saving Appliances and Arrangements) Rules, 2026; see also the earlier Merchant Shipping (Life Saving Appliances) Rules, 1991 for the development of the Indian regulatory framework.

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Availability of the equipment as well as its proper storage is of equal importance. Equipment for safety must be available in such a way that it can be used instantly in case of an emergency situation. The lifesaving appliances, lifeboats, rafts, emergency communication and positioning devices and others must not be blocked by cargo or machinery or anything else. In regard to emergency equipment even small delays may cause negative results. Hence, the concept of carriage of the safety equipment in terms of law does not mean only ownership but also accessibility for immediate use.

The amount and the types of equipment for safety can depend on the type, size, structure, purpose of the ship and also on the number of persons on board. The requirements to passenger ships can be different from the requirements to cargo ships because of more passengers that have to evacuate and also because of a different procedure. Some ships can require additional safety measures due to some specific dangers that they have to face. This means that the regulations on safety equipment are based on the risk factor when the requirements for the equipment depend on the operating conditions of the ship.

There is also a very important link between maritime safety equipment and human factors. The fact is that even the best equipment will be of no use when it comes to incompetent masters and crewmembers who are able to operate with it properly. Thus, the STCW Convention establishes international standards with regard to training, certification and watch keeping of seafarers. In other words, it is necessary to realize that maritime safety relies on technology and human competency. Proper training will allow the crew to respond promptly to the emergency situation, use rescue equipment, understand signals and perform emergency actions.⁷ It is very important to consider the preventive role of signaling and navigational equipment. In this regard, it is necessary to pay attention to the light signaling devices that are provided for by the Convention on International Regulations for Prevention of Collision at Sea, 1972 (COLREG). These devices help vessels detect the existence, nature and circumstances of the presence of other vessels in case of darkness or poor visibility. In this way, colors, arcs and visibility range of the lights established by the Convention become the

⁷ International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW), as amended.

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recognized means of communication between vessels. Incorrect lighting may hinder other vessels in assessing collision hazard.⁸

The Indian legal regime also needs to be looked into in light of these international standards. The Merchant Shipping Act, 2025 forms the main legislative framework for Indian merchant shipping, with rules made under the Act containing provisions regarding different aspects of maritime safety. The current Indian regime includes the Merchant Shipping (Safety of Navigation) Rules, 2026 and the Merchant Shipping (Life-Saving Appliances and Arrangements) Rules, 2026.⁹ The above rules provide an illustration of how international maritime safety standards are incorporated in Indian domestic law.

In this context, the issue of maritime safety appliances and equipment can thus be described in terms of four elements that need to work in combination with each other – namely, prevention of maritime accidents; protection of persons in case of an emergency situation; facilitating communication and rescue operations; and maintenance of such appliances and equipment on board ships for ensuring continuous compliance. In other words, merely the possession of the required equipment onboard a ship at the commencement of a voyage will not satisfy the legal requirement.

Thus, the maritime safety appliances and equipment represent a preventive, protective and regulatory mechanism within maritime law. Their regulation reflects the fundamental principle that the preservation of human life at sea requires not only technically adequate ships but also reliable equipment, competent personnel, proper maintenance and effective enforcement. The combined operation of SOLAS, COLREG, the LSA Code, STCW and national legislation such as the Merchant Shipping Act, 2025 creates a comprehensive legal structure intended to ensure that vessels are adequately prepared to prevent accidents and respond effectively when emergencies arise.

4. INTERNATIONAL LEGAL FRAMEWORK

4.1 SOLAS, 1974

⁸ Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG), Rules 20–31 and Annex I.

⁹ Merchant Shipping Act, 2025; Merchant Shipping (Safety of Navigation) Rules, 2026; Merchant Shipping (Life-Saving Appliances and Arrangements) Rules, 2026.

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The International Convention for the Safety of Life at Sea, 1974 (SOLAS) is considered the most significant international convention that ensures the safety of ships and human life at sea. The Convention was adopted by the International Maritime Organization (IMO) and entered into force in 1980. The main objective of SOLAS is the establishment of the minimum international standards concerning the construction, equipment and operation of ships so as to ensure the safety of the ships and people on board. SOLAS is an essential Convention since the maritime transport is an international one and ships operate in different jurisdictions. It is necessary to have an international uniform regime in order to avoid the impact of different national standards on the safety at sea.¹⁰

SOLAS establishes different chapters addressing various aspects of ship safety. Chapter II-1 addresses such issues as construction, subdivision and stability, machinery and electrical installations and thus it concerns the structural and technical safety of ships. Chapter II-2 deals with requirements concerning the fire protection, fire detection and fire extinction, i.e., it addresses the prevention of the fire outbreak and spread as well as evacuation of the people from the ship. Chapter III covers the requirements concerning Life-Saving Appliances and Arrangements. Chapter IV establishes the requirements regarding radiocommunications and Global Maritime Distress and Safety System. Finally, Chapter V is applicable to all ships on all voyages except as otherwise provided in the Convention. It covers the requirements concerning the safety of navigation.¹¹

Chapter III of SOLAS plays an especially significant role in regard to the present topic, as it establishes international requirements concerning the life-saving appliances and arrangements carried on board of ships. As the chapter states, ships shall be provided with adequate life-saving appliances depending on various parameters, including types of ships, their size and number of people on board. Life-saving appliances include lifeboats, rescue boats, liferafts, lifejackets, lifebuoys, immersion suits and other required life-saving appliances. Besides SOLAS Chapter III, there is one more set of requirements known as the International Life-Saving Appliance (LSA) Code. LSA Code stipulates detailed technical requirements concerning the construction, performance, testing, maintenance and availability of life-saving appliances. Mandatory application of the LSA Code ensures that safety appliances on board

¹⁰ International Maritime Organization, *International Convention for the Safety of Life at Sea (SOLAS), 1974*, IMO.

¹¹ *Ibid.*, Chapters II-1, II-2, III, IV and V.

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of ships are manufactured in accordance with internationally accepted technical standards and capable of performing their functions in emergency situations.¹² It is necessary to point out that the SOLAS Convention is directly connected with the process of survey and certification of ships. The requirements established by the Convention are proved by the surveys performed either by or on behalf of the flag State administration. Depending on the type of the ship and the way it operates, the following certificates may be required: Passenger Ship Safety Certificate, Cargo Ship Safety Construction Certificate, Cargo Ship Safety Equipment Certificate and Cargo Ship Safety Radio Certificate. All these certificates mean that the survey of the ship has been performed and all the requirements have been fulfilled. Nevertheless, certification does not absolve shipowners and masters from providing safety of the ship and its equipment. Safety of the ship is the responsibility of the entire voyage period.

The relevance of the SOLAS convention is in the fact that it establishes an international standard of ship safety. The responsibility of ensuring that ships flying its flag comply with the SOLAS and other international standards falls upon the flag state. The Port State Control, on the other hand, represents the tool that will allow the port state to inspect vessels arriving at its ports in order to identify any shortcomings in safety equipment and/or procedures. In other words, the implementation of the SOLAS convention requires the use of international standards, national law, surveys, certification and inspection.¹³ In the Indian case, the international law is implemented in the national maritime legislation which is now Merchant Shipping Act, 2025 and the regulations promulgated under it in respect of safety of navigation and life-saving appliances.

4.2 COLREG, 1972

The Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG)¹⁴ is among the key international conventions governing safe navigation of ships and avoiding collision of vessels. The Convention was adopted on 20 October 1972 through the International Maritime Organization (IMO) and entered into force on 15 July 1977. The Convention establishes internationally recognized rules for conduct of vessels in regard to each other. There are 41 rules divided into six sections: general, steering and sailing, lights

¹²Supra note 3, chapter 3

¹³ Supra note 2,

¹⁴ International Maritime Organization, *Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG)*, IMO.

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and shapes, sound and light signals, exemptions, and verification of compliance. The standardization of rules adopted through COLREG becomes especially important because ships of different nationalities often sail in the same water area, and non-unified navigation practice may lead to substantially increased risks of collision.

The Part C of COLREG containing Rules 20 to 31 becomes especially important in connection with signaling lamps and navigational lights. The Rule 20 establishes the general applicability of the rules regarding lights and says that lights prescribed are to be shown from sunset to sunrise and at any other time when lights would be required. Rule 21 lists the main types of lights, such as masthead light, sidelights, sternlight, towing light, all-round light, and flashing light. The importance of each of these types lies in the fact that each of these lights has its color, location, visibility range, and function. In this way, the rules establish standardized visual communication between the ships.¹⁵

The second rule, i.e., Rule 22 of COLREG specifies the minimum range of visibility of different types of navigation lights depending on the type and size of the vessel. The range of visibility of navigation lights differs for different types of vessels. For example, the required range of visibility of the masthead light depends on the size of the ship while the range of visibility of sidelights, sternlights and all-round lights differs. These rules are established for the purpose of providing proper visibility of navigation lights from a particular distance which would enable other vessels to recognize the situation and take appropriate action. The technical requirements for positioning, vertical and horizontal separation, intensity and other characteristics of the navigation lights are discussed in detail in Annex I of COLREG. In other words, COLREG not only prescribes the use of navigation lights but also provides how they should be positioned and displayed.¹⁶

Then, Rules 23 to 31 prescribe the lights and shapes for different types of ships. For example, Rule 23 prescribes lights for power-driven vessels underway; Rule 24 – for vessels engaged in towing or pushing; Rule 25 – for sailing vessels and vessels under oars; Rule 26 – for fishing vessels; Rule 27 – for vessels that are not under command or restricted in their ability to manoeuvre; Rule 28 – for vessels constrained by their draught; Rule 29 – for pilot vessels; and Rules 30 and 31 – for vessels at anchor, aground and seaplanes. All these rules make it

¹⁵COLREG, 1972, Rules 20–21.

¹⁶ Ibid., Rule 22 and Annex I.

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possible to determine the type, condition and operational status of another ship by analysing the lights and shapes displayed.¹⁷ For example, the lights displayed by a vessel towing something are different from those displayed by a regular power-driven vessel underway. This is important because different vessels have different maneuverability and obligations depending on the situation.

COLREG further emphasizes the fact that visual signals cannot be taken separately from sound and other signals. Section D of the convention talks about sound and light signals. Rule 34 of COLREG states manoeuvring and warning signals with lights, if necessary, while Rule 35 states sound signals when visibility is restricted. Further, Rule 36 and 37 talk about signals to attract attention and distress signals respectively while referring to Annex IV.¹⁸ These rules, in addition to regulations of navigation lights, make sure that there are multiple ways of communicating with each other on board ships. This provision assumes importance particularly during the night time or any weather condition like fog and rains where visibility is restricted. Hence, the use of navigation lights, sound signals, and other signals increases the effectiveness of the overall system of collision avoidance established under COLREG.

Taking into account the above-discussed provisions, it may be concluded that the legal significance of COLREG goes far beyond the mere regulation of lamps. Navigation lights are regarded as a legal form of communication at sea, helping vessels know and understand each other and their situations. Colours, positions, arcs, and range of visibility of every navigation light help vessels gather information, which can influence navigational decisions of another vessel. Thus, any improper positioning, defectiveness or obstruction of navigation lights will not only cause a collision but also violate the maritime safety obligations. COLREG should be read in conjunction with the rules of proper lookout, safe speed, risk of collision and maneuvering, etc.¹⁹ As far as the Indian context is concerned, the above-mentioned international requirements have been complied with in India through its maritime laws and regulations, which are currently working under the Merchant Shipping Act, 2025 and Merchant Shipping (Safety of Navigation) Rules, 2026.²⁰

5. SIGNALLING LAMPS

¹⁷ Ibid., Rules 23–31.

¹⁸ Ibid., Rules 34–37 and Annexes II–IV.

¹⁹ Ibid., Rules 5–8, 20–31 and 34–37.

²⁰ Supra note 5

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5.1 Meaning and Purpose

Signalling lamp is an important mode of visual communication in navigation at sea. Signalling lamps are used by ships to communicate information with another ship or with shore stations or with any maritime authority through light signals. Visual communication becomes more necessary during night time when visibility is poor or when communication cannot be done through oral medium. Lights in marine navigation are not meant only for lighting purpose but are a part of international system of communication through which vessels communicate their identity, condition and intentions. Proper use of lights is crucial in prevention of collision and saving of life at sea.²¹

Lights and Light signals as per COLREG, 1972 have certain legal importance. Part C of the COLREGs deals with Lights and Shapes and Part D deals with Sound and Light Signals. Rule 34 deals with manoeuvring and warning signals including light signals where appropriate and Rule 36 deals with signals to attract the attention of another ship. Rule 37 along with Annex IV deals with internationally recognized distress signals.²² Light signals have certain legal significance and may serve various purposes. Light signals can be used to indicate navigational status of the ship, manoeuvring intention of the ship, attract attention of other ships or in case of distress of the ship or its crew.

Performance of the signalling lamp can be influenced by the following elements: color, luminosity, position, arc of visibility and range of visibility. The rules of COLREG establish certain specifications, which will guarantee that the same light will signify the same situation regardless of the nationality of the vessel. In particular, red and green side-lights will allow to determine the relative position of the other vessel, while such lights as masthead and sternlights, which are white, will provide additional information about the position and maneuvers of the ship. Rule 22 defines the minimum ranges of visibility of navigation lights depending on the category and size of the vessel. Annex I provides certain technical requirements about the positioning and vertical and horizontal separation of lights.²³

The proper maintenance and operation of the signalling lamps is essential. A navigational light that is obstructed, not properly positioned, is inoperative or invisible is not able to assist

²¹ Supra note 13, Part C and Part D.

²² Supra note 14, Rules 34, 36 and 37 and Annex IV.

²³ Ibid., Rules 20–22 and Annex I.

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another ship in identification of the status of the vessel and, therefore, increase the risks of collision. Thus, the masters and navigating officers have to ensure proper checking and monitoring of the navigation lights both before and during the voyage, especially when the weather conditions are unfavorable.²⁴ The spare lamps, as well as the emergency lighting equipment, have to be available in any necessary place. This means that the legal importance of the signaling lamps cannot be limited only by their installation but also by their function during the whole voyage.

In addition to the regular navigational lights, there will be signaling apparatus which acts as an alternative mode of communication when the regular means of communication are not effective enough. These lights help in assisting radio communication, sound signals, and many others types of communication in the maritime field.²⁵ The importance of such signals becomes clear during the time of emergencies, where the exchange of information becomes important for avoiding any collisions, attracting the attention of the neighboring ships, and assisting in search and rescue operations. Signaling lights, therefore, form an essential part of the total maritime safety system established in accordance with COLREGs alongside SOLAS and Indian maritime laws.

5.2 Navigation Lights

Navigation lights are one of the most important visual safety devices that are provided under the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG). The main function of navigation lights is to identify a vessel and determine its relative position, course and situation, especially during the night time. Rules 20-31 (part C of COLREG) lay down specific rules related to lights and shapes whereas the technical specifications of positioning and visibility are provided in Annex I.²⁶ It is necessary to standardize the color code, positioning and visibility ranges because the vessels belonging to different nations need to read the same signals in the same way when they sail through international waters.

²⁴ Ibid., Rules 20–22; International Maritime Organization, *SOLAS*, 1974, Chapter V, Safety of Navigation.

²⁵ Supra note 3, III, IV and V; supra note 14, Parts C and D.

²⁶ Supra note 14, Part C and Annex I, IMO, available at <https://www.imo.org/en/about/conventions/pages/colreg.aspx> (last visited 29 August 2026).

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The masthead light is a white light that is placed above the fore and aft centerline of the vessel. This light plays an extremely important role in the identification of a power-driven vessel underway. The masthead light also helps in determining the direction of approach and aspect of the vessel according to the situation. The sidelights include the green light on the starboard side and the red light on the port side. These lights help to determine the relative direction of the vessel as the color seen by the other vessel determines the side of the vessel. The stern light includes a white light placed as far forward as possible at the stern of the vessel. This helps the observer vessel to see the vessel in view from astern. Rule 23 of COLREG lays down the lights to be shown by power-driven vessels underway while technical specifications for positioning and visibility are provided in Annex I.²⁷

The towing light refers to the yellow light displayed by vessels when engaged in towing or pushing operations. It is used to indicate a towing vessel as distinct from a regular power-driven vessel because towing operations will definitely affect the manoeuvrability of a vessel and the navigational space taken up by the vessel being towed. According to COLREG Rule 24, there is a special set of lights to be used for vessels involved in towing and pushing operations. All-round lights shine throughout an angle of 360 degrees and are required to be used in certain situations according to the Convention. In turn, such all-round lights may indicate certain condition of a vessel, for instance, whether the vessel is at anchor or restricted in manoeuvring, depending on certain rule. Flashing lights are also intended to be used in a certain way and should not be mixed up with navigation lights.²⁸

It is crucially important from legal point of view that the color, position, angle of illumination and the range of visibility should be strictly regulated. The Rule 22 of COLREG regulates the minimum ranges at which the navigation lights should be visible and the range of visibility depends on the type of the vessel and its length. Annex I contains additional specifications regarding positioning and characteristics of lights and shapes. This regulation ensures the visibility of lights at the distance necessary for enabling the navigating officer of another vessel to evaluate the situation and take the required measures. A light, despite being technically installed, may be invisible, positioned incorrectly, insufficiently visible or

²⁷ Supra note 7 Rules 21–23 and Annex I.

²⁸ Ibid Rules 24–30.

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mistaken for some other light thereby negating the entire idea of a collision prevention system.²⁹

The significance of navigation lights in law is seen more clearly if we consider how they interact with the steering and sailing rules provided in Part B of COLREG. The understanding of other vessels' navigation lights by the vessel helps the master or the navigating officer determine whether the scenario is that of an overtaking, head-on encounter, or another type of meeting. Rules 13–18 set out the responsibilities of vessels in relation to one another in different scenarios, while Rule 5 mandates that every vessel should be kept on proper lookout and Rule 6 that vessels should keep a safe speed. Consequently, navigation lights are not independent entities they work as part of a larger system of visual observation, lookout, risk assessment and collision prevention.³⁰ So, it is necessary for the master and navigating officers to maintain the prescribed navigation lights during the voyage. It is important to ensure that the prescribed lights are functioning properly, properly installed and able to give visibility to other vessels. If the navigation lights of a ship are defective, they might cause misunderstanding of the identity, status or movements of a vessel which could lead to a collision accident. In India, the international provisions relating to safety of navigation are enforced through the domestic maritime laws such as Merchant Shipping Act, 2025 and Merchant Shipping (Safety of Navigation) Rules, 2026. According to the Directorate General of Maritime Administration, the 2026 Safety of Navigation Rules are part of Indian maritime laws which supersedes the 1997 Safety of Navigation Rules.³¹

6. SIGNALLING LAMPS UNDER INDIAN LAW

Statutory regulation of signaling lamps has always played an important role in Indian legislative acts regulating safety at sea. The relevant provisions regulating signaling lamps and navigation lights, as well as life-saving appliances, safety certificates and exemption certificates have been contained in the Indian maritime legislation in accordance with the provisions of the Merchant Shipping Act, 1958. The above can be justified by the necessity of communication between ships in order to prevent collisions and ensure safe navigation.

²⁹Ibid., Rule 22 and Annex I.

³⁰ Ibid., Rules 5–8 and 13–18.

³¹Directorate General of Maritime Administration, *Merchant Shipping (Safety of Navigation) Rules, 2026*, Ministry of Ports, Shipping and Waterways, Government of India, available at <https://www.dgma.gov.in/mercantile-marine-law/the-merchant-shipping-act-2025> (last visited 29 August 2026).

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Hence, the statutory regulation of signaling lamps implied more general responsibilities concerning the maintenance of certain equipment and compliance with navigation requirements.³² The current Indian legal regime is primarily based on the Merchant Shipping Act, 2025, which entered into force on 15 March 2026, as well as rules made under the Act. In terms of signaling lamps and navigation lights, it is necessary to pay particular attention to the Merchant Shipping (Safety of Navigation) Rules, 2026, regulating the domestic regulations concerning navigational safety. Moreover, the Merchant Shipping (Life-Saving Appliances and Arrangements) Rules, 2026 might also apply in relation to the signaling equipment as part of the life-saving arrangements on board. The modern regulatory regime deals with maritime safety, including carrying, maintaining, surveying, certifying and inspecting of the relevant equipment.³³

Regulation of signaling lamps in India can never be viewed as completely independent of international maritime law. Being a signatory to the international maritime conventions, India enforces internationally accepted standards in its national legislation and regulation. For example, the COLREG, 1972 has provided internationally accepted uniform standards concerning navigation lights, including their colors, visibility and positioning as well as usage, while the SOLAS, 1974 has provided internationally accepted more general standards concerning safety of ships, navigation, communication and lifesaving arrangements.³⁴ This means that whereas the international conventions have provided the substantive international safety standards, the national legislation and regulation provide the enforcement mechanisms for implementation, survey, certification, inspection and enforcement of the international standards in the national territory. In other words, ships flying under the Indian flag are subject not only to Indian laws but also to internationally recognized maritime safety standards.

7. LIFE-SAVING APPLIANCES AND EQUIPMENT

Life-saving appliances constitute one of the most important categories of maritime safety equipment. Their primary purpose is to preserve life following abandonment of a ship or during a maritime emergency.

³² The Merchant Shipping Act, 1958

³³ Supra note 8 .

³⁴ Supra note 9, Chapters III–V.

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Typical life-saving appliances include:

- Lifeboats
- Rescue Boats
- Liferrafts
- Lifebuoys
- Lifejackets
- Immersion Suits
- Thermal Protective Aids
- Emergency Position-Indicating Radio Beacons (Epirbs)
- Search And Rescue Transponders
- Distress Flares
- Rocket Parachute Signals
- Hand Flares
- Buoyant Smoke Signals
- Signalling Mirrors
- Waterproof Torches
- Whistles And Sound Signalling Devices.

The International Convention for the Safety of Life at Sea, 1974 (SOLAS) is an important instrument of international law relating to life-saving appliances aboard ships. Chapter III of the SOLAS convention relates to “Life-Saving Appliances and Arrangements” which makes it compulsory for ships to be provided with appropriate appliances as per the class of the ship and its operational method. Some of the life-saving appliances include lifeboats, rescue boats, liferafts, lifejackets, and other survival equipment as per the regulations. The International Life-Saving Appliance (LSA) Code provides more details about the technical specifications of these appliances in terms of construction, performance, testing, and maintenance. Regulation 34 of Chapter III of the SOLAS makes the relevant provisions of the LSA Code compulsory.³⁵ Thus, international law does not only make it necessary to have life-saving equipment on board the ships, but also that such equipment must satisfy certain technical standards.

³⁵Id. chapter. III

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The Indian regulations also provide for Merchant Shipping (Life Saving Appliances) Rules, 1991 that stipulate the specific requirements with regard to the approval, testing, carriage and maintenance of life-saving appliances. In particular, the Rules provided that the life-saving appliances should be of adequate quality and workmanship. The Rules also established specific requirements concerning the equipment including lifebuoys, lifejackets, emergency communication equipment, EPIRBs, distress signals and self-igniting lights. In addition, according to the Rules at least one half of the lifebuoys prescribed should be fitted with self-igniting lights, while lifejackets should have appropriate lights where prescribed. In addition, specific requirements concerning the intensity and duration of the lights were established by the Rules. It becomes clear from the above-mentioned requirements that signalling lights can be regarded as an integral component of the life-saving appliances since they help to locate people and survival craft in conditions of darkness and low visibility.³⁶ On the other hand, the current Indian regulation on the matter should be considered with regard to the Merchant Shipping Act, 2025 and the Merchant Shipping (Life-Saving Appliances and Arrangements) Rules, 2026. The Directorate General of Maritime Administration refers to the Rules of 2026 as to the current ones. The continuing importance of the earlier Rules, 1991 is associated with their role in the evolution of the Indian legislation in relation to the technical standards and operational requirements for the life-saving appliances.

8. SAFETY CERTIFICATES

Safety certificates are legal documents demonstrating that a ship has undergone the prescribed survey and satisfies applicable statutory and international safety requirements.

The principal SOLAS certificates include, depending upon the type of ship:

- Passenger Ship Safety Certificate;
- Cargo Ship Safety Construction Certificate;
- Cargo Ship Safety Equipment Certificate;
- Cargo Ship Safety Radio Certificate; and
- Cargo Ship Safety Certificate.

³⁶ Supra note 31, 5, 6 and 7, Second Schedule and Seventh Schedule..

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The Maritime safety certificate is an absolutely essential method of certification in order to prove the seaworthiness of the vessel as per the relevant standards. As per the IMO regime, the vessels are surveyed by the flag state authority or by the organisations / surveyors authorised by the flag state administration for the issuance of statutory certificates. Such certificates prove that the ship's structure, fittings, safety management systems and other matters have been checked and certified as being in conformity with the international standards. Such certificates also act as a form of verification on the part of Port State Control Authorities and where there are enough grounds for the belief that the actual condition of the vessel does not conform to the certificates, the ship is subjected to more detailed inspection.³⁷ The importance of such certification process can be seen from the decision in *M.V. Elisabeth v. Harwan Investment & Trading Pvt. Ltd.*,³⁸ where the Supreme Court of India had recognised the importance of international maritime standards in developing the Indian maritime law. Thus the process of certification cannot be merely taken to be a formality.

9. SAFETY EQUIPMENT CERTIFICATE

The Cargo Ship Safety Equipment Certificate (CSSE Certificate) is one of the important certificates in the safety certification scheme as it is an evidence of the survey and its confirmation that the prescribed safety equipment and arrangements have been examined and are in accordance with the respective requirements. The above certificate is closely associated with the rules set forth in SOLAS Chapter III, namely those which concern life-saving appliances and arrangements and other SOLAS requirements for fire and navigational safety. Depending upon the applicable regulation system and the class of the vessel, the survey shall cover various equipment like lifeboats, liferafts, lifejackets, lifebuoys, rescue boats, distress signaling equipment, fire-fighting appliances and other safety equipment and arrangements as prescribed. It should be noted that historically, according to the Indian Merchant Shipping Act, 1958, the Cargo Ship Safety Equipment Certificate, Cargo Ship Safety Radio Certificate and exception certificates were provided thus reflecting the international certificate system in the Indian maritime law.³⁹ At present, the Indian statutory system of maritime safety and navigation has passed an essential reform through the adoption of the Merchant Shipping Act,

³⁷ Supra note 1 available at <https://www.imo.org/en/ourwork/iis/pages/survey-verification-certification.aspx> (last visited 29 August 2026)

³⁸ *M.V. Elisabeth v. Harwan Investment & Trading Pvt. Ltd.*,³⁸ (1993) Supp (2) SCC 433

³⁹ Supra note 31

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2025 which is the primary legislation governing the merchant shipping in India.⁴⁰ It is clear that this certificate is not only documentary but a part of the entire legal procedure of flag State verification of the appropriate equipping of cargo ship and its safety for navigation.

10. SAFETY RADIO CERTIFICATE

Cargo Ship Safety Radio Certificate is one of the most important marine safety certificates. This certificate is intended to ensure that radio communications installations on board of a cargo ship have been inspected and meet relevant international and national regulations. According to SOLAS Chapter IV (regulations on radiocommunications), there are requirements for the Global Maritime Distress and Safety System (GMDSS). This system provides the possibility for vessels to be well-equipped and to be able to perform distress alerts transmission, maritime safety information reception, and communication with rescue organizations as well as other ships.⁴¹ Communication facilities are particularly important when it comes to emergencies such as collisions, fires, grounding or abandon. Communication facilities play a particularly important role in obtaining assistance and conducting search and rescue operation in case of emergency situations. Thus communication via radio should be regarded as an additional safety means, which does not substitute but complements visual navigation means such as navigational lights, signal lights and distress signals. On other hand, a ship can use visual signals to draw attention of other ships as well as transmit a distress alert via radio communications equipment simultaneously.

11. EXEMPTION CERTIFICATES

Maritime safety law recognises that, in certain circumstances, a vessel may require an exemption from a particular statutory or convention requirement. Such exemptions may be necessary where the strict application of a requirement is impracticable because of the special characteristics, construction, intended service or operational circumstances of a ship. However, an exemption certificate does not constitute an unrestricted permission to disregard maritime safety standards. Under SOLAS, exemptions are permitted only in circumstances specifically contemplated by the Convention and are subject to prescribed conditions and

⁴⁰Supra note 8

⁴¹Supra note 9

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approval procedures. The purpose of an exemption is therefore to provide limited regulatory flexibility without compromising the fundamental objective of protecting human life at sea.⁴²

The COLREG, 1972 also recognises the possibility of exemptions. Part E of COLREG deals specifically with exemptions, and Rule 38 provides exemptions for certain vessels in relation to requirements applicable after the Regulations came into force. These provisions recognise that some vessels may have been constructed or already under construction before the new international requirements became applicable. The exemption mechanism consequently seeks to balance the need for uniform maritime safety standards with the practical difficulties associated with applying newly introduced technical requirements retrospectively. Such exemptions, however, operate only within the limits expressly recognised by the Convention.⁴³ The Indian legal system has similarly recognised exemption certificates as part of the maritime certification framework. Under the Merchant Shipping Act, 1958, section 302 specifically dealt with exemption certificates, while section 307 imposed restrictions concerning the operation of ships without the certificates required under the Act. These provisions demonstrated the importance attached to statutory certification and the control exercised over ships proceeding to sea. The present Indian framework is now governed by the Merchant Shipping Act, 2025 and the rules made under it, which should be read together with India's obligations under applicable international maritime conventions.⁴⁴

The fundamental legal principle governing exemptions is that they must be strictly and narrowly construed. An exemption should be granted only by the competent authority in accordance with the applicable legal provisions and should specify the extent and conditions of the exemption. Where the applicable international or national framework requires equivalent or alternative safety arrangements, those measures must be maintained so that the exemption does not create an unacceptable reduction in the level of safety. Consequently, an exemption certificate should be regarded as a controlled exception to a general safety requirement, rather than a waiver of the shipowner's or master's fundamental obligation to ensure the safety of the vessel and persons on board.

12. SURVEY, INSPECTION AND CERTIFICATION

⁴²Ibid

⁴³ Supra note 14, Rule 38.

⁴⁴ Supra note 31 ss. 302 and 307

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As such, surveys and inspections are necessary prerequisites to the issuance of safety certificates because without verifying the safety conditions of the vessel, the certificate will not provide any real assurance. Survey is defined as the examination of the ship, her structure, machinery, equipment, and safety devices to ensure compliance with the relevant regulations. Pursuant to the international regime, surveys are conducted either by the flag State administration itself or recognized organizations which are entitled to conduct such examinations. Depending on the type of the vessel and corresponding conventions, the International Tonnage Certificate, International Load Line Certificate, Passenger Ship Safety Certificate, Cargo Ship Safety Construction Certificate, Cargo Ship Safety Equipment Certificate and Cargo Ship Safety Radio Certificate can be issued after conducting surveys.⁴⁵ Certification does not end with just the issuance of a certificate. Another mechanism to ensure continued compliance is the Port State Control which enables the authorities of the port state to carry out inspections of vessels calling at their ports. In case of clear grounds indicating that the condition of the ship or some of her equipment is different from the particulars in the documents of the ship, a more thorough inspection can be conducted. This is important for the continued accountability since this ensures that a ship cannot use just the fact of having a valid certificate as an indicator of compliance, in case she has deteriorated since then.

The importance of this system can be understood through *M.V. Elisabeth v. Harwan Investment & Trading Pvt. Ltd.*⁴⁶, where the Supreme Court of India recognised the significance of international maritime conventions and internationally accepted principles in the development of Indian maritime law. Although the case did not specifically concern a safety certificate, it is relevant to the broader principle that Indian maritime law must be interpreted with due regard to the international character of shipping. Similarly, in *Liverpool & London S.P. & I Association Ltd. v. M.V. Sea Success I*,⁴⁷ the Supreme Court recognised the relevance of international maritime conventions and developments in international maritime law while dealing with Indian admiralty jurisdiction. The decision is useful in demonstrating the importance of interpreting Indian maritime legislation consistently with the wider international maritime legal framework.

⁴⁵ Supra note 1

⁴⁶ Supra note 37

⁴⁷ *Liverpool & London S.P. & Association Ltd. v. M.V. Sea Success I*, (2004) 9 SCC 512.

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Thus, the system of certification and inspection revolves around three highly interconnected steps such as the step of survey, issuing of certificates and then the step of verification. In the first step, the ship will undergo a survey, either carried out by the competent authority of the flag State or the Recognised Organisation. The second step will involve issuance of the certificate only if all the conditions are satisfied. Lastly, the ship will continue undergoing further inspections, including port state control inspections, in order to ensure maintenance of the standards. Thus, through this scheme, the responsibilities will be shared between the ship owner, ship operator, master, flag State, Recognised Organisation and the port State. The objective of this scheme is not only to produce the certificates but also to ascertain the condition of the ship.

13. INTERNATIONAL LOAD LINE CONVENTION, 1966

The International Convention on Load Lines, 1966 (Load Lines Convention) is one of the important international maritime safety conventions adopted through the International Maritime Organization (IMO). This Convention has been adopted on 5 April 1966 and entered into force on 21 July 1968. The principal objective of the Convention is to prevent ships' overloading by determining certain limits within which a ship can safely navigate in water. Loading limits of a ship are expressed in terms of freeboard, i.e. the vertical distance from the waterline to the upper edge of the deck line. Freeboard provides a ship with a necessary reserve of buoyancy and diminishes the risk of flooding and loss of stability and structural strength. The Convention also seeks to ensure adequate watertight and weathertight performance of ships.⁴⁸ According to the IMO, the Convention establishes freeboards considering such factors as subdivision, damage stability, geographical zones and seasonal variations.

The Convention does not determine one and only limit of loading applicable to all types of ships. The allowable freeboard and load line depend on the type of the ship, its size and construction and the area in which the ship is operating. There are different zones and seasonal waters because ships face different maritime dangers depending on the weather and sea conditions. Technical requirements relate to such elements as hatchways, doors, freeing ports, etc. which have influence on the watertight and weathertight performance of the

⁴⁸International Maritime Organization, *International Convention on Load Lines, 1966*, adopted 5 April 1966, entered into force 21 July 1968.

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ship.⁴⁹ Thus, the load line mark is not only the mark drawn on the side of a ship; this mark is an element of a complex safety system ensuring necessary buoyancy and structural strength of the ship. The main principle here is that a ship should not be loaded in a way undermining the reserve of buoyancy.

Survey and certification is yet another important feature of the convention. According to Article 16, an International Load Line Certificate (1966) shall be granted to all ships that have been surveyed and marked in conformity with the requirements of the convention.⁵⁰ The certificate includes details concerning the freeboard allocated and load lines allocated to the ship. It is used as proof that the ship has been examined in conformity with the requirements of the convention. According to Article 19, the International Load Line Certificate shall be granted for a period determined by the Administration, which should not be more than five years. There are some provisions of the convention allowing recognition of certificates granted by other Contracting Governments and control by the authorities of the port-State over the ships in its ports to make sure that the ship holds a valid certificate and is not overloaded.⁵¹

It is clear from *Amership Management (P) Ltd. v. Union of India*⁵² that the importance of the Load Lines Convention in the law of the sea in India has been recognized where the Bombay High Court has explained the legal status of oil rigs and the importance of the International Load Line Certificate. It is stated in the decision of the court that India is a signatory to the International Convention on Load Lines, 1966 and in the same context, the court has mentioned the International Load Line Certificate issued with regard to an oil rig which states that the oil rig has been surveyed, freeboards have been assigned and load line have been marked in accordance with the said Convention. It can be concluded from this case that the requirements of the Load Lines Convention are not merely international standards but hold practical importance in respect of regulatory and safety requirements of vessels/structures.

In India, the implementation of the Load Lines Convention is done with the help of the provisions of the Merchant Shipping Act, 1958 and Merchant Shipping (Load Line) Rules,

⁴⁹ International Maritime Organization, *International Convention on Load Lines, 1966*, Annex I, Regulations for Determining Load Lines.

⁵⁰ *Ibid*, art 16.

⁵¹ *Ibid* art 19(1), 20, 21.

⁵² *Amership Management (P) Ltd. v Union of India*, 1996 SCC 290.

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1979. Section 315 of the said Act gives the power to the surveyor to inspect an Indian ship to see whether the statutory load line requirements have been fulfilled including boarding power and issuing the certificates. Section 316 of the said Act allows the issue of International Load Line Certificate in respect of qualifying Indian ships and Indian Load Line Certificate for other ships.⁵³ Merchant Shipping (Load Line) Rules, 1979 provide the way for survey, assignment and marking of freeboards and issue and continuance of load line certificates. Rule 7 of the said Rules provides for the issuance of International Load Line Certificate (1966) and India Load Line Certificate while Rule 8 provides that the validity of a load line certificate cannot exceed five years.⁵⁴ It also provides for periodic survey and for International Load Line Exemption Certificate if any exemption has been granted.

14. PRECAUTIONS DURING VOYAGES

Maritime safety is an ongoing process and not a process that stops once all the necessary certificates are obtained by the ship. The International Convention for the Safety of Life at Sea, 1974 (SOLAS) handles maritime safety comprehensively. In particular, Chapter V of SOLAS deals with safety of life at sea and among other issues, includes navigation, safety equipment, preparations and operations. The Contracting Governments must ensure that necessary measures are taken to promote safe navigation and one of the regulations is Regulation 34 which stipulates that the master ensures the proper planning of the voyage to sea taking into account nautical information.⁵⁵ Consequently, passage planning becomes a key activity which has to be done in all voyages. Passage planning must include the route of the voyage, navigational hazards, charted depths, tides and currents, weather, traffic conditions, restricted areas, navigation marks, available ports of refuge and contingency plans. The master is supposed to also ensure that the passage plan is updated in the event of changes in circumstances while in the course of voyage. Navigational responsibilities were discussed in *The Eurasian Dream*, where the English High Court noted the significance of proper systems, competent staff and good management in promoting maritime safety.

Secondly, one needs to make sure that there will be a proper lookout and an effective bridge watch organized. According to COLREG rule 5, "every vessel shall at all times maintain a

⁵³Supra note 31, ss 315–316.

⁵⁴ Supra note 48, p 7- 12.

⁵⁵ Supra note 9, Chapter V, Regulation 34.

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proper lookout by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision."⁵⁶ Lookout cannot be treated merely as a routine duty, the one who performs lookout has to be alert enough, competent and able to notice other vessels, navigational hazards and environmental changes. The discussed rule is tightly connected with the master's duty to organize an efficient watchkeeping. As far as *The Sundancer* case is concerned, the problem of lookout and its connection with the navigation standards was found to be crucial in order to determine who was responsible for the collision. Similarly, in the case of *The Sea Empress*, a court analyzed the navigational and operational errors in the context of a major maritime accident.⁵⁷ This example proves that improper procedures and inefficient decision making may result in disastrous consequences. Therefore, a bridge watch implies constant observations, communications and assessments rather than mere presence of an officer on the bridge.

The third important measure to take in order to prevent a ship grounding incident from occurring is strict adherence to the COLREG 1972. It is an international convention that provides rules for avoiding collisions at sea. The Rules impose basic duties in respect of safe speed, risk of collision, actions to avoid collision, behaviour of vessels in narrow channels and traffic separation schemes and navigational lights and shapes.⁵⁸ In particular, Rule 6 obliges a ship to navigate at a safe speed, considering such factors as visibility, traffic density, manoeuvrability, background illumination, wind, sea and current conditions and presence of navigational hazards. Rules 7 and 8 impose on the vessels' crew an obligation to evaluate whether there is a risk of collision, and if it exists – to undertake the necessary actions in order to prevent it. The importance of such rules is proved by *The Bywell Castle* case, in which the court evaluated the navigational conduct of ships involved in the collision and stressed the necessity of proper assessment and manoeuvring.⁵⁹ Similarly, in the *Nautilus* case the courts acknowledged the significance of the collision regulations in assessing whether a vessel and its navigational crew have exercised due diligence. Therefore, the compliance with COLREG should not be viewed in terms of mechanical observance of

⁵⁶Supra note 13, Rule 5.

⁵⁷*The Sea Empress*, [2002] 1 Lloyd's Rep. 58 (QBD).

⁵⁸ Supra note 55 Rules 6–10.

⁵⁹*The Bywell Castle*, (1879) 4 P.D. 219 (CA)

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navigational lights, but rather proper navigation, reasonable speed, collision risk assessment and prompt manoeuvring.

Further important measure that should be considered is the condition of the life-saving appliances, firefighting appliances, and other emergency appliances. SOLAS chapter II-2 deals with fire protection, fire detection and fire extinguishing while SOLAS Chapter III concerns life-saving appliances and arrangements.⁶⁰ The idea of this rule is that all safety appliances should be readily available for operation. Therefore, all safety appliances including life-saving appliances, emergency appliances, alarms, fire-fighting appliances and other safety appliances should be kept in good condition, periodically inspected, stowed properly and readily available. This rule has been highlighted again in The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW), which emphasizes that all seafarers should possess appropriate competence and training in case of emergency.⁶¹ While in the case of *The Lady Gwendolen* it has been proved how crucial navigational and operational precautions were in order to establish the concept of maritime responsibility, it has once again been proved in all cases related to major casualties that the seaworthiness and safety of a ship depends not only on the actual state of the vessel, but also on its systems and crew.⁶²

Lastly, conducting drills and being prepared constitute one of the important measures which must be taken during the voyage. Chapter III of SOLAS stipulates that vessels shall be provided with arrangements for their emergency preparedness and drills concerning situations like fire and abandoning the ship.⁶³ The objective of drills is to ensure that every crew member knows what duties he or she has in case of emergencies like fire, collision, grounding, flooding, or abandoning. STCW Convention prescribes requirements concerning emergencies, occupational safety, medical care, and survival. Thus, equipment must correspond to the competence of the personnel who will operate it. The Indian law implements these international obligations through the Merchant Shipping Act, 1958 along with the rules and regulations concerning safety, lifesaving appliances, navigation, and training and certification of seafarers. The general judicial principle is that shipowner and

⁶⁰ Supra note 9, Chapter II- and Chapter III.

⁶¹ Ibid

⁶² *The Lady Gwendolen*, [1965] P. 294 (CA).

⁶³ Supra note 9, Chapter III, Regulations 19 and 30.

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master cannot use the mere presence of safety certificates while the actual operation of the vessel is negligent and dangerous. In *M.V. Elizabeth v. Harwan Investment & Trading Pvt. Ltd.* case, the Supreme Court acknowledged the importance of international maritime conventions and standards for Indian maritime law.⁶⁴ Therefore, the safety of voyage should be considered as a continuous process which consists of proper passage planning, maintaining good lookouts, compliance with COLREG, maintaining safety equipment, competent watchkeeping, and conducting of emergency drills. The precautions taken by shipowner constitute a whole that ensures that the safety standards prescribed in international certificates will be really observed in practice.

15. PRECAUTIONS RELATING TO SIGNALLING LAMPS

Before and during a voyage, the master and navigating officers should ensure that navigation lights and signalling lamps are functioning properly.

The following precautions are particularly important:

1. Navigation lights should be tested before departure.
2. Spare lamps and necessary electrical components should be available.
3. Electrical circuits supplying navigation lights should be checked.
4. Lights should not be obstructed by cargo, equipment or structural arrangements.
5. The correct colour, position and visibility of lights should be maintained.
6. Emergency and portable signalling lamps should remain accessible.
7. Morse signalling equipment and other emergency visual signalling devices should be maintained.
8. Crew members should understand the applicable light and sound signals under COLREG.
9. Faults should immediately be reported and rectified.
10. Navigation lights should be monitored during the voyage, particularly during darkness and restricted visibility.

⁶⁴*Supra* note 37

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These precautions are essential because a defective navigation light may deprive another vessel of information necessary for collision avoidance.⁶⁵

16. PRECAUTIONS DURING ADVERSE WEATHER

Negative climatic factors such as tropical cyclones, strong winds, heavy swells, stormy sea, bad visibility, thunderstorms and sudden changes in atmospheric condition significantly affect the stability, integrity, maneuverability and safe navigation of the ship. Therefore, there always remains an obligation upon the master to gather information about weather conditions, forecast of storms, direction and force of winds, waves' state, visibility, tide and current before and throughout the journey. International law concerning safety of navigation in respect of weather services, ship routing and safety of navigation measures can be found in SOLAS Chapter V.⁶⁶ The master is to consider weather information when deciding on the route which is safe for the journey. This is particularly important since weather can change suddenly and the route which was considered safe at the beginning of the voyage might become dangerous for the vessel. Thus, master's decision must always be taken into account weather conditions, giving priority to safety of the vessel and the crew. It is important to note that the decision of Indian courts, *Navinya Shipping Services Pvt. Ltd. v. IFFCO-Tokio General Insurance Co. Ltd.*⁶⁷, can be mentioned as relevant to the issue since it discussed the relevance of weather forecast and duties of the master in terms of precautions against heavy weather on the route of voyage.

The question of securing of cargo and stability becomes especially acute under bad weather conditions. Rolling, pitching and transverse accelerations might shift the cargo in case it was stowed unstably or secured improperly. The shifting of cargo might influence the location of the vessel's centre of gravity, cause the appearance of the unsafe list, reduce the stability level of the vessel and, in some extreme cases, might even lead to capsizing of the vessel. The SOLAS Chapter VI regulates the stowage and securing of cargo, while the Code of Safe Practice for Cargo Stowage and Securing approved by the IMO mentions that the forces arising from the movements of the ship in the sea way are among the sources of cargo

⁶⁵ Supra note 14

⁶⁶ Supra note 9 Chapter V, Regulations 4–5 and 34.

⁶⁷ *Navinya Shipping Services Pvt. Ltd. v. IFFCO-Tokio General Insurance Co. Ltd.*, 2023 SCC OnLine Bom 1810.

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securing problems.⁶⁸ The CSS Code states that cargo should be stowed and secured in a way that it would not constitute a danger for the ship and its crew and all the decisions related to securing of the cargo should be taken under the assumption of the worst weather conditions which might occur during the voyage. It is also necessary to ensure proper closing and securing of hatches, watertight doors, ventilators and other openings in order to avoid any entrance of the sea water. In accordance with the courts' considerations in relation to *The Ocean Victory*, it may be concluded that taking into account the severity of the weather, the safety of the port and the characteristics of the vessel is extremely important.⁶⁹

The master has to change the routing plan in case of severe weather rather than adhere to it blindly. Depending on the circumstances, appropriate actions can include the speed reduction, course alteration, distance increasing from the storm center, avoiding open waters, looking for a place of refuge or postponing the departure. The master has to take into account the size and type of the ship, its stability and cargo, condition of the machinery, navigability, and possible development of the weather system. According to the International Maritime Organization Code of Safe Practice for Cargo Stowage and Securing, during bad weather the type and stowage of the cargo and securing arrangements have to be considered when deciding about ship handling.⁷⁰ One of the examples of this statement is the case *Georgia-Pacific Corporation v. Motorship Marilyn* where the master's route choice in the presence of adverse weather was considered and the judge decided that a master cannot be automatically liable for the route choice because in the retrospectively point of view the other route could meet less adverse weather; navigational decisions should be analyzed based on the situation which occurred before the decision was made.⁷¹ Hence, one of the key principles of maritime law is that the master should demonstrate his reasonable professional judgment and not be judged by hindsight.

Furthermore, the adverse weather measures should include the watertight integrity of the ship. Before entering the area of adverse weather, the master and the crew have to make sure that all watertight doors, hatches, portholes, vents, doors, and any other openings are properly closed. The bilge systems, pumps, steering gear, machinery, navigational equipment should

⁶⁸Supra note 9, Chapter VI, Regulations 5 and 6.

⁶⁹*Gard Marine & Energy Ltd. v. China National Chartering Co. Ltd. (The Ocean Victory)*, [2017] UKSC 35.

⁷⁰International Maritime Organization, *Code of Safe Practice for Cargo Stowage and Securing (CSS Code)*, IMO Res. A.714(17), 1991.

⁷¹*Georgia-Pacific Corporation v. Motorship Marilyn*, 331 F. Supp. 776 (E.D. Va. 1971).

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operate correctly and help the ship to resist the difficult weather conditions. Moreover, freeboard and stability of the ship should be taken into account because excessive loading and improper cargo arrangement will considerably reduce the margin of safety during adverse weather. The importance of seaworthiness and preparedness is particularly stressed in the Supreme Court's case *The Shipping Corporation of India Ltd. v. Metal Box Co. of India Ltd.*⁷² discussing the effects of adverse weather and rough seas on the vessel and analyzing the legal meaning of the maritime loss due to perils of the sea.

In conclusion, the major function of the master is to ensure the safety of the vessel, its passengers, the crew and the cargo. This requires continuous evaluation rather than merely following the initial voyage plan and the weather data collected before embarking on the trip. When the weather conditions become too harsh for the vessel to cope with, the master is expected to undertake certain safety measures such as slowing down, changing the route, seeking shelter and even suspending the voyage. Such actions must be supported by proper bridge communications, weather watch and coordination of actions among the master, navigators and the crew members. The maxim is particularly important due to the fact that despite the vessel being equipped with all the necessary certificates and safety equipment, it can still end up in a hazardous situation due to lack of timely reaction from the part of the master to the changes in weather. Therefore, weather watching, cargo securing, watertightness and stability of the vessel, choice of the right routes and their changes become an inherent part of the master's continuous safe navigation duties.

17. PRECAUTIONS DURING RESTRICTED VISIBILITY

The low visibility due to fog, mist, heavy rains, snowfall, sandstorms, and other similar conditions is likely to increase collision risks because of the difficulty in detecting other ships, navigation marks, and dangers visually. According to Rule 3 of COLREG 1972, such conditions form the restricted visibility, while Rule 19 covers the conduct of ships when there is no visibility between them in the vicinity of restricted visibility.⁷³ Therefore, the primary step is reducing the ship to an appropriate safe speed for the existing conditions. Under Rule 19(b), the engine of the power-driven ship should be prepared for prompt maneuvering. The safe speed should be determined considering visibility, density of traffic, manoeuvrability,

⁷²*Shipping Corporation of India Ltd. v. Metal Box Co. of India Ltd.*, (1977) 2 SCC 648.

⁷³ Supra note 9, Rule 3.

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stopping distance, wind, sea, and current conditions, and limitations of the navigation devices. Consequently, keeping the ship at her usual service speed to maintain the schedule arrival time can be considered unsafe navigation if the visibility has worsened.

With restricted visibility, there is a need to use radar and other navigation tools to ensure safety of all ships involved. COLREG Rule 19(d) requires a ship to use radar and determine whether the situation may lead to close quarters or collision with another vessel and if this is the case, then there should be enough time to avoid the collision.⁷⁴ However, radar should never be considered a replacement of proper lookout and prudent navigation. To achieve success with this tool, one should choose the appropriate range, plot, interpret targets and have an understanding of the limitation of sea clutter, rain, small targets and other kinds of interference. SOLAS Chapter V also requires some criteria in the carriage and use of navigation equipment and systems. The importance of proper use of radar was revealed in a collision between NOCC Oceanic and Yujin Maru No. 7, where the restricted visibility due to rain made it difficult to detect the other ship, and improper settings of radar, as well as lack of sound signals, contributed to the high collision risk. This case proved that radar equipment does not bring benefits by itself but only when it is properly used by competent bridge staff.

Maintaining a proper lookout is also required during restricted visibility conditions. According to COLREG, Rule 5 requires all vessels in all conditions to maintain a proper lookout by sight and hearing using all means that are appropriate for the prevailing conditions.⁷⁵ With restricted visibility, it becomes especially important since the visual information is limited and the crew has to use information from visual observation, radar, sound signals, navigational instruments and other information to build the complete picture of the situation. Rule 19(e) states that if a ship detects the fog signal in front of her beam or she cannot avoid a close-quarters situation with a ship in front of her beam, then she has to slow down to the minimum speed she can navigate without losing her course, and if necessary, stop completely. The classic case of *The Oropesa* shows the importance of proper precautions in case of poor visibility and improper use of warning signals. The collision happened in conditions when ships approached each other and no appropriate whistle signals were

⁷⁴*Supra* note 9, Rules 6, 19(b) and 19(d)

⁷⁵ *Ibid*, Rule 5.

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sounded, thus proving the dangers arising when there are no measures to detect and communicate the presence of a vessel.⁷⁶

The use of sound signals can be considered another important safety precaution when there is restricted visibility. According to COLREG Rule 35, prescribed sound signals should be used in both daytime and nighttime restricted visibility. Power-driven vessels underway should sound one prolonged blast every two minutes or less, while other signals are to be used for vessels at rest, vessels not under command, vessels restricted in their ability to manoeuvre, fishing vessels, towing vessels and anchored vessels.⁷⁷ Restricted visibility conditions make it possible to inform others about the status and presence of vessels when it is difficult or impossible to identify them visually. Domestic implementation of collision-prevention measures in restricted visibility conditions is provided by the Indian law in the Merchant Shipping (Prevention of Collisions at Sea) Rules, 1975 which cover all provisions concerning restricted visibility, safe speed, radar detection and sound signals. Thus, non-use of prescribed fog signals can be considered a violation of a statutory navigational obligation and therefore be taken into account when discussing the responsibility for collision.⁷⁸

In conclusion, the master should make sure that the bridge team is well-prepared and effective communication is established during restricted-visibility navigation. Standing orders should establish the time when the master should be called to the bridge, and additional lookout and required bridge personnel should be assigned when needed. The engine room should be ready for immediate manoeuvring taking into consideration Rule 19 which states that a power-driven vessel should be ready for immediate manoeuvring.⁷⁹ Continuous exchange of information between the bridge team about radar targets, traffic density, visibility, sound signals, navigational dangers and planned manoeuvres should take place. It is consistent with the safe watchkeeping principles established in the provisions of the STCW Convention which require organisational arrangements for ensuring safe watch on board. An industry analysis of restricted-visibility navigation conducted recently pays attention to safe speed, proper use of radar, lookout, readiness for immediate manoeuvring and master

⁷⁶*The Oropesa*, (1940) 68 Ll. L. Rep. 21 (Adm.)

⁷⁷Supra note 14, Rule 35.

⁷⁸Merchant Shipping (Prevention of Collisions at Sea) Rules, 1975, Rules 19 and 35, Directorate General of Shipping, Government of India.

⁷⁹*Ibid.*, Rule 19(b).

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summoning.⁸⁰Therefore, restricted-visibility navigation presupposes a comprehensive approach which consists in safe speed, continuous lookout, proper radar use, appropriate sound signals, readiness for immediate manoeuvring and effective bridge team communication.

18. PRECAUTIONS AGAINST FIRE

Fire is one of the most serious threats to the safety of the ship, since this hazard presents a considerable danger to the lives of people and to the cargo as well as to the machinery and to the stability of the ship itself. With regard to fire on board, it is necessary to point out that the ship is an enclosed area, and fire may easily get from one area of the ship to another rather fast. As for the regulations, it is worth mentioning that the most important legal document concerning fire safety on board is SOLAS Chapter II-2. The standards concerning fire safety on board introduced by SOLAS Chapter II-2 regulate the fire prevention, detection, fire extinguishing and containment.⁸¹ SOLAS Convention is based on the principle that the vessel should be designed and operated in such a way that the fire hazards are minimized and if the fire starts, it can be detected and controlled immediately. Fire safety measures involve not only having the fire fighting equipment but also include maintaining the facilities in a good condition, safe handling of the combustible materials, ignition source control, fire-resistant construction and many others.

In order to provide fire safety on board a ship, it is necessary to have fire detection and fire extinguishing systems which should be in a good condition. SOLAS Chapter II-2 regulates the fire detection systems, fire alarms, fire pumps, fire mains, hydrants, hoses, portable extinguishers and fixed fire extinguishing systems which are used in different types of ships and in different ship compartments.⁸² Fire pumps and fire mains should have the ability to supply the sufficient amount of water if needed, while fire hoses, nozzles and portable extinguishers should be properly arranged and easily accessible. Different areas of the ship need different methods of fire protection. International Code for Fire Safety Systems (FSS Code) introduces technical standards in regard to fire detection systems, fire alarms, fixed gas fire extinguishing systems, emergency fire pumps, fixed foam systems and other fire-safety

⁸⁰International Maritime Organization, *International Convention on Standards of Training, Certification and Watchkeeping for Seafarers*, 1978, as amended, Chapter VIII, Section A-VIII/2.

⁸¹ Supra note 9, Chapter II-2, Regulations 1–3.

⁸²Ibid., Chapter II-2, Regulations 4–20.

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equipment.⁸³ It is worth mentioning that the above mentioned equipment should be checked and maintained regularly since any equipment that is broken or inaccessible may bring no help at all in case of fire.

It is just as vital that ships possess the means for safe escape and fire containment. In accordance with SOLAS, the ship construction and arrangement should ensure that persons on board would have an opportunity to escape from the accommodation and working spaces in case of fire.⁸⁴ Therefore, it is vital to maintain all escape routes, stairways, emergency exits and access ways free of obstructions and properly marked. Furthermore, fire doors, bulkheads, and other structural fire protection features should be provided in order to contain fire and smoke and prevent the fast spread of flames from one compartment to another. Sometimes it is required to shut down or regulate ventilation systems in order to prevent the further spread of fire and smoke. An example of the significance of proper fire prevention arrangements and preparations for emergencies is the tragedy of The Scandinavian Star, where the deficiencies in terms of fire safety, fire detection, emergency arrangements and evacuation resulted in high mortality rate. It is clear that fire safety precautions in maritime transport include the entire system of prevention, detection, containment, firefighting and evacuation but not extinguishing only.

All these fire safety equipment is efficient in case the master and the crew are ready and skillful. SOLAS Chapter III and the STCW Convention require providing emergency training and drills for seafarers in order for them to know how to act in case of fire and any other emergency situation.⁸⁵ Fire drills will enable crew members to learn the alarm signals, muster stations, fire fighting equipment, emergency communication means, escape routes and individual responsibilities. The crew should be able to operate fire pumps, hoses, breathing apparatus and other equipment in connection with assigned tasks. In accordance with SOLAS, emergency preparations should be carried out during the whole voyage and drills should be done in specified intervals.⁸⁶ The idea that emergency equipment is useless if personnel is not able to operate it is especially applicable to ships, because fire develops rather quickly and there is no much time for making decisions. Court decisions about vessel

⁸³International Maritime Organization, International Code for Fire Safety Systems (FSS Code), Resolution MSC.98(73), adopted 5 December 2000.

⁸⁴Supra note 9, Chapter II-2, Regulations 13 and 14.

⁸⁵ Ibid Chapter VI, Regulation VI/1 and Code Section A-VI/1.

⁸⁶ Ibid Chapter III, Regulation 30, and Chapter II-2, Regulation 15.

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fires also underline the necessity of making preventive measures, maintaining qualified crews and fire protection systems.

The need for fire precautions from the perspective of law has been very convincingly brought out in *The Eurasian Dream*, where the English High Court considered the matters of seaworthiness, system, and competency of people in view of an important casualty involving a ship.⁸⁷ It should be noted that the concept of seaworthiness does not refer to the seaworthiness of hull and machinery alone; additionally, there should be a correct system of management and competent people who can deal with potential hazards. Similarly, in *The Star Sea*, the House of Lords once again emphasized the need for disclosure and, in general, the broader aspects of seaworthiness and proper management of ships.⁸⁸ In India, the Merchant Shipping Act, 1958, along with the rules and regulations made thereunder, provides for the implementation of certain international safety measures related to fire and lifesaving appliances in India. Hence, fire precautions should necessarily include correct fire detection system, sufficient fire pumps and extinguishers, correct fire mains and hoses, fixed fire fighting equipment, escape routes free of obstructions, fire containment, inspection and maintenance of these apparatuses, and fire drills.

19. PRECAUTIONS CONCERNING LIFE-SAVING APPLIANCES

Life saving appliances constitute one of the most important aspects of the maritime safety system, as in case of any abandonment, collision, flooding, fire, or any other serious accident, such items might become the last means of survival for people onboard. According to Chapter III of the International Convention for the Safety of Life at Sea, 1974 (SOLAS), the ships must be equipped with the necessary survival craft, rescue boats, life jackets, immersion suits, life buoys, visual signals and the corresponding launch and recovery systems.⁸⁹ The requirements concerning the technical characteristics of these appliances are supplemented with the International Life-Saving Appliances (LSA) Code that deals with personal life-saving appliances, visual signals, survival craft, rescue boats, and launching appliances.⁹⁰ In this way, the legal requirement includes not only the obligation to have certain number of the

⁸⁷*The Eurasian Dream*, [2002] 1 Lloyd's Rep. 719 (QBD).

⁸⁸*Manifest Shipping Co. Ltd. v. Uni-Polaris Insurance Co. Ltd. (The Star Sea)*, [2001] UKHL 1, [2001] 1 Lloyd's Rep. 389.

⁸⁹Supra note 9, Chapter III, Regulations 4–6 and 20–32.

⁹⁰ Supra note 1

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appliances but also the obligation to ensure that the equipment installed on board of the ship is always in working condition and easily accessible. According to the requirements of the IMO, the life-saving appliances must conform to certain technical specifications in order to be accepted by the maritime Administration. Thus, lifeboats and liferafts must always be in ready condition for immediate use, and life jackets and immersion suits must be properly stored in order to provide easy access to such items. Regular inspections, maintenance, testing and servicing of life-saving appliances are extremely important since deterioration due to the influence of seawater, corrosion, sun exposure, and wear and tear of mechanical parts might affect the reliability of safety equipment. SOLAS Chapter III requires the life-saving appliances and arrangements to be regularly maintained and inspected while LSA Code sets forth detailed requirements with regard to construction, buoyancy, launching arrangements, communication, and survival equipment.⁹¹ The traditional Indian legislation incorporated these requirements into Merchant Shipping (Life Saving Life-Saving Appliances) Rules, 1991, providing that the life-saving appliances are to be in good working order and readily accessible when the ship leaves the port.⁹² The Merchant Shipping Act, 2025 has been passed on 15 March 2026 and amended almost all provisions of the Merchant Shipping Act, 1958, and the Central Government has promulgated the Merchant Shipping (Life-Saving Appliances and Arrangements) Rules, 2026.

Special attention should be paid to the means of communication and distress signal appliances, such as EPIRBs, search and rescue locating devices, portable two-way radio telephones and visual signals. These means enable the ship or the person who has survived the accident to inform about their location and to contact the concerned authorities who conduct search and rescue operations. Visual signals, including rocket parachute flares, hand flares and buoyant smoke signals, are explicitly provided for under SOLAS Chapter III and LSA Code, while GMDSS provides requirements concerning the emergency communication and distress alerting.⁹³ The distress signals and pyrotechnics are to be stored safely, secured from damage and periodically examined in respect of their validity and condition; it would be extremely unreasonable to use outdated and damaged appliances in emergencies. The

⁹¹Supra note 9, Chapter III, Regulations 20 and 36.

⁹²Supra note 5

⁹³Supra note 9, Chapter III; International Maritime Organization, *International Life-Saving Appliance (LSA) Code*, Chapter III, 'Visual Signals'

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importance of these requirements lies in the close relationship between them and the right to preserve one's life at sea.

Life-saving appliances are also relevant due to the questions of training of the crew, drills and preparedness to emergencies. According to the SOLAS, drills and training should be carried out on a regular basis in order to acquaint the crew and other persons aboard with the procedures of mustering, embarkation and utilization of survival equipment. STCW Convention obliges seafarers to have basic safety training which includes personal survival techniques and proficiency in survival craft and rescue boats as appropriate.⁹⁴ Drills are very important since the employment of lifeboats, liferafts, lifejackets, EPIRBs and distress signals requires the ability of the crew members to operate with the equipment in question in harsh conditions. While the vessel conforms to all the regulations concerning life-saving appliances included in its safety certificate, lack of training or improper use of the equipment during the abandonment will considerably reduce the efficiency of lifesaving equipment. As a result, the framework established by the IMO concerning life-saving appliances covers several interconnected aspects of equipment, its maintenance, testing and competence in the use.⁹⁵

Generally speaking, life-saving appliances have to be operational for the whole period of the voyage and not just at the moment of statutory survey. It means that life-saving appliances have to be seaworthy in the legal sense of the term. Seaworthiness in *McFadden v. Blue Star Line Ltd*⁹⁶ case was defined as fitness of the vessel which is reasonable to expect from a prudent owner taking into account the probable conditions of the voyage. The principle is significant in relation to life-saving equipment since it involves not only the fitness of the hull and machinery of the vessel but also the adequacy of the equipment and the arrangements connected with it to undertake the intended voyage. Thus, maintenance of lifeboats and liferaft correct storage of lifejackets and immersion suits, testing of emergency communication equipment, replacement of expired pyrotechnics and training of the crew constitute an essential component of the seaworthiness of a vessel.

20. ROLE OF THE MASTER

⁹⁴Supra note 7

⁹⁵ Supra note 1

⁹⁶*McFadden v. Blue Star Line Ltd.*, [1905] 1 K.B. 697 (K.B.)

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The master plays a crucial role in providing the safety of the vessel and its passengers. Despite the number of people whose responsibility is to keep the safety on board, the master is the person responsible for command and decisions regarding the navigation, safety, protection, and emergency of lives of all people involved in it. According to the international standards for sea transportation, the master has a number of obligations determined by SOLAS Chapter V, STCW Convention, ISM Code and COLREG 1972. Such responsibilities include voyage planning, safe navigation, proper lookout, watch keeping and safety compliance of the vessel. Moreover, in case some conditions arise making the original plan of voyage unsafe, the master has to undertake appropriate actions. Thus, the role of the master is not merely administrative one, but professional judgment based on the condition of the vessel, weather, navigation circumstances, cargo, traffic and safety of all people on board.

The other obligation of the master is crew and safety equipment supervision. Before and during the voyage, the master is supposed to make sure that safety appliances, fire-fighting equipment, navigational equipment, communication systems and emergency arrangements are present and operational. The SOLAS includes the obligations related to the maintenance, drills and readiness, while the STCW framework implies the need for the watchkeepers to do their job in a proper way in order to conduct safe navigational watch.⁹⁷ The master is responsible for conducting emergency drills and providing the crew with necessary information about their responsibilities in case of fire, collision, grounding, flooding and abandonment. Therefore, the master can be viewed as the link between statutory requirements and their implementation on board.

The Indian maritime legislation has become more explicit on this point, though. Merchant Shipping Act, 2025, effective from 15 March 2026, contains special provisions regarding the safety of the vessels, validity of safety and security certificates, unseaworthiness of the vessels, and responsibilities of shipowners, masters, and/or agents. Section 124 reads that "a vessel shall not proceed to sea without valid safety and security certificates" while Section 127 reads that "a vessel shall not be put to sea if unseaworthy". What is more important, Section 128 imposes certain responsibilities of the shipowner, master, or agent on the seaworthiness of the vessel while Section 129 regulates the issue of safety and security management. This is especially important since it is clearly stated that certification and safety

⁹⁷ Supra note 79

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are complementary obligations. Finally, the Directorate General of Maritime Administration has adopted the Merchant Shipping (Safety of Navigation) Rules, 2026, Merchant Shipping (Life-Saving Appliances and Arrangements) Rules, 2026, and other safety rules according to this Act.⁹⁸

A valid safety certificate thus cannot be considered a full defense against future safety failures. A safety certificate is just a result of the statutory survey or inspection carried out at a particular point in time; it does not grant permission to the master or the ship owner to allow the ship to deteriorate after that time. This has been amply demonstrated in the case of *McFadden v. Blue Star Line Ltd.*⁹⁹, where seaworthiness was described as the fitness of the ship for navigation based on a reasonable man's standard. This decision is clear evidence of the support for the notion that the legal definition of the concept of seaworthiness should be founded on its practical definition and not only on some papers. Similarly, in *The Eurasian Dream*, it was said that seaworthiness comprises not only the condition of the ship but also the systems of operations, procedures, and qualified personnel.¹⁰⁰ This point of view is highly relevant to discussing the master's duties because the master puts the safety requirements into practice.

The case *M.V. Elizabeth v. Harwan Investment & Trading Pvt. Ltd.*¹⁰¹ is also of great importance for the further development of Indian maritime laws. In this case, the Supreme Court of India admitted the necessity of taking into account international maritime conventions and developing Indian maritime laws according to internationally recognized principles.¹⁷ Hence, the master's responsibilities should be understood in the context of the international maritime safety laws. The master should use his skill, care, vigilance, and professional judgment in particular during emergencies and changes in navigational conditions. The master should be ready to take any actions like changing the course, slowing down, taking a shelter, implementing emergency measures and even abandoning the ship.

21. ROLE OF FLAG STATE AND PORT STATE

⁹⁸ Supra note 8, s 124, 127–129.

⁹⁹ *McFadden v. Blue Star Line Ltd.*, [1905] 1 K.B. 697 (K.B.).

¹⁰⁰ Supra note 86

¹⁰¹ Supra note 37

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It is the obligation of the flag State to ensure the safety and compliance with regulations of ships flying its flag. According to article 94 of the United Nations Convention on the Law of the Sea, 1982 (UNCLOS), all flag States shall ensure that the exercise of jurisdiction and control over ships flying its flag shall be exercised in administrative, technical and social matters. The flag State should adopt measures necessary to ensure safety at sea, including requirements concerning construction, equipment, seaworthiness, manning and operation of ships. The flag State should ensure that ships are inspected by qualified surveyors from time to time.¹⁰² The framework adopted by the IMO regarding surveys and certifications also indicates that ships shall be inspected by officers of the flag State Administration to issue statutory certificates. It means that not only flag State is responsible for registration of vessels, but also for creation and implementation of an effective legislation, inspection, certification, verification, enforcement and casualty investigations. Regarding the IMO Instruments Implementation Code, it is also an obligation of the flag State to ensure that ships that fly its flag are in compliance with international and national requirements.¹⁰³

Recognised Organisations (ROs) like classification societies are authorised by the flag State to conduct surveys, verifications and certification functions in its name. Under SOLAS, the Load Lines Convention and other major IMO instruments, such organisations can undertake statutory surveys if they have been properly recognised and authorised by the flag State.¹⁰⁴ However, the delegation of a function does not equal the transfer of international responsibility of the flag State. Such a flag State should keep adequate supervision over its ROs, including monitoring performance and compliance with statutory requirements. An example of an Indian case where classification societies' role was recognised is *Amership Management (P) Ltd. v. Union of India*¹⁰⁵, where the Bombay High Court referred to the international load-line certificates issued by the American Bureau of Shipping and India's recognition of classification societies, including Lloyd's Register, Bureau Veritas, Det Norske Veritas and others to carry out certain surveys.

¹⁰² United Nations, *United Nations Convention on the Law of the Sea*, 1982, art. 94.

¹⁰³ Supra note 1, para. 16 and para. 20.

¹⁰⁴ Supra note 48 art. 13.

¹⁰⁵ Supra note 51

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The Port State Control (PSC) is an instrument of enforcement that allows inspecting foreign ships by the authorities of the state where the port is located. According to the general rule, the flag State holds the main responsibility, but the PSC is used as an insurance measure aimed at identifying substandard ships.¹⁰⁶ PSC Officers are authorized to examine certificates and documents and, in case if there is sufficient evidence that the condition of the ship or its equipment differs considerably from information provided in certificates, PSC Officers can conduct further inspection of the vessel. The identification of serious deficiencies leads to the initiation of correction measures or detention of the vessel in compliance with international conventions and national legislation.¹⁰⁷ The role of PSC is especially significant since the condition of the ship cannot be guaranteed solely on the basis of the certificates. Therefore, the validity of the certificates should be verified in comparison with the actual condition of the ship, its equipment and operations. The Procedures for Port State Control, 2025 developed by IMO in accordance with Resolution A.1206(34) represent the last package of recommendations aimed at enhancing the degree of uniformity in the conduct of PSC inspections and correction of deficiencies.¹⁰⁸ The use of flag-state control, surveys and certification by recognized organizations and PSC means the adoption of multi-level approach to the regulation of maritime safety issues. According to Article 217 of UNCLOS, each State Party has to take measures aimed at ensuring that the vessels flying its flag have necessary certificates according to the international rules and standards and pass regular inspections that confirm the compliance between certificates and the actual condition of the vessel.¹⁰⁹ In India, these international obligations are performed on the basis of the framework of national maritime administration and statutory inspections that are provided by the Merchant Shipping Act, 2025 and subordinate safety regulations developed in accordance with this Act. Therefore, flag-State administration represents the first line of responsibility, recognized organizations conduct specialized technical surveys and certifications according to the authorizations and supervision and PSC represents an additional instrument of non-compliance detection and management.

¹⁰⁶International Maritime Organization, 'Port State Control', IMO

¹⁰⁷Supra note 9

¹⁰⁸International Maritime Organization, *Procedures for Port State Control, 2025*, IMO Resolution A.1206(34).

¹⁰⁹Supra note 101, art. 217

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22. CONCLUSION

The regulations governing maritime safety appliances, equipment and certificates represent an integrated system for ensuring protection of human life, property and the marine environment from maritime accidents. Signalling lamps and navigation lights are significant devices which can help avoid collision by indicating the identity, nature, position and movement of vessels especially during nighttime and periods of poor visibility. Life saving appliances, firefighting equipment and communication systems provide vital security in case of accidents, while safety certificates prove that the ship is surveyed and conforms to all the safety requirements. Nevertheless, the certificates would be of no use without proper functioning of the corresponding equipment during the entire voyage.

With regard to the international legislation on maritime safety, the International Convention for the Safety of Life at Sea, 1974 (SOLAS), the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG) and the International Convention on Load Lines, 1966 may be considered its fundamental components. SOLAS establishes detailed rules dealing with ship construction, fire protection, life-saving appliances, radiocommunication and navigation. COLREG provides for the international uniform rules on navigation lights and shapes, sound signals, safe speed, lookouts and avoidance of collision. Load Lines Convention ensures that the vessel is not overloaded and has sufficient freeboard, reserve buoyancy and watertightness of hull. Thus, all these conventions create a preventive system where not only safety equipment must be present but also safe operation according to international standards.

At the national level, the Indian government has managed to achieve modernization of its maritime laws regime by the promulgation of the Merchant Shipping Act, 2025, which came into force on 15th March, 2026. The Act contains various provisions regarding, inter alia, registration of vessels, seaworthiness, safety certification, survey and inspection, navigation and enforcement. These include, among others, Merchant Shipping (Life-Saving Appliances and Arrangements) Rules, 2026 and Merchant Shipping (Safety of Navigation) Rules, 2026. The regulatory regime in question is enforced through flag-State supervision, recognized organizations, casualty investigations and Port State Control.

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Finally, it needs to be emphasized that maritime safety is not a matter of mere legislative regime and certification. Only in cases when all these aspects are taken together the proper maritime safety may be guaranteed. It means that proper safety is achieved by the combination of proper design and construction of the ship, approved and properly maintained equipment, statutory certificates, well-trained personnel, proper navigation, proper emergency drills, proper weather and navigational monitoring and flag-State and port-State supervision. Thus, it may be concluded that the very goal of maritime safety law lies not in the regulation of ships or issuance of documents, but in ensuring the permanent use of the measures preventing accidents.



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