LEGAL AND REGULATORY FRAMEWORKS FOR ENSURING MARITIME SAFETY AND SEAWORTHINESS: A CRITICAL ANALYSIS

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CERTIFICATION

This is to certify that **Olumide Olayinka Phillips** with Matriculation Number **219061075** of Faculty of Law, University of Lagos is the original writer of this research work titled **"Legal and Regulatory Framework for Ensuring Maritime Safety and Seaworthiness: A Critical Analysis"** and approved by me in partial fulfilment of requirements for the award of the Degree of Master of Laws (LL.M) of the University of Lagos, Akoka, Lagos.

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DEDICATION

I dedicate this work to God Almighty, the source of wisdom and strength, for giving me the grace and providing the resources to successfully complete the LL.M programme.

I also dedicate this work to my beloved family for their constant love, unrelenting prayers, encouragement, and sacrifices throughout my academic journey.

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ABSTRACT

This research critically analyzes the legal and regulatory frameworks governing maritime safety and seaworthiness, focusing on their effectiveness, enforcement, and the challenges they face in a rapidly evolving maritime industry. The study explores key international conventions and regulations, including SOLAS, the STCW, The Hague/Hague-Visby Rules, and the ISM Code, alongside national regulations, to assess how they collectively ensure the safety of vessels and carriers' obligation of seaworthiness. By employing a doctrinal and textual analysis of black letter law, this research examines the implementation of these frameworks across different jurisdictions, identifies enforcement challenges and assesses their impact on preventing maritime accidents. Additionally, the study considers emerging challenges, such as technological advancements, environmental compliance, and human factor issues, to determine whether existing legal frameworks remain adequate in addressing contemporary maritime risks. The findings aim to provide actionable recommendations to enhancing the regulatory landscape, ensuring safer and more sustainable global shipping practices.

Keywords: Regulatory Framework, Maritime Safety, Seaworthiness, Legal Framework .

CHAPTER ONE

GENERAL INTRODUCTION

1.1 Background to the Study

Shipping plays an indispensable role in international trade and the global economy in the 21st century, serving as the most efficient means for the transportation of goods across nations, whether coastal or landlocked. The centrality of the maritime sector is underscored by the fact that over 90% of global trade is conducted by sea[1], making the establishment of a robust legal and regulatory framework essential for ensuring maritime safety and the seaworthiness of vessels. This is why Mariners, shipowners, governments and other stakeholders in the maritime industry have been concerned for years about the safety of ships, their crews, cargo and passengers.[2] In a globalized world, the significance of maritime safety to world trade and the stability of key supply chains cannot be overemphasized given the spate of maritime accidents[3], the latest of which was the collision of *the Dali* container ship with the Francis Scott Key Bridge in Baltimore, Maryland, United States of America. The disaster brought to the fore the importance of maintenance and constant modernization of safety regulations in order to fulfill the requirements of reliability of vessel, machinery and equipment, and the competence of the crew, both critical to the statutory obligation[4] of seaworthiness. It is within this context that the interplay between maritime safety standards established under international conventions and their implementation by flag states

[1] The Law of Admiralty. 2nd Ed, Grant Gilmore & Charles L. Black, the Foundation Press, Inc, 1975, p. 1-50
[2] Proshanto K. Mukherjee and Mark Brownrigg, *Farthing on International Shipping*, 4th Ed, World Maritime University Studies in Maritime Affairs, (Springer: London, 2013) [Hereinafter "Farthing on International Shipping"] at p.223.
[3] Notably, the capsizing of the roll on-roll off ferry *Herald of Free Enterprise* off Zeebrugge, the sinkings of *the Donna Paz* in The Philippines, and *the Estonia* in the Baltic Sea.
[4] See Article 3(1)(a) – (c) of the Protocol to Amend the 1924 International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading, 23 February 1968, Cmnd. 6944, reprinted in 4 Nagendra Singh, International Maritime Conventions 3045 (3rd ed., 1983) [hereinafter The Hague/Visby Rules].

within their domestic legal frameworks has to be further explored in order to provide a lens through which to view contemporary maritime safety measures and mitigate the occurrence of future maritime disasters.

The study will critically evaluate the different implications which the implementation of the provisions of the International Conventions may have on the real meaning of seaworthiness and safety in the maritime industry and then examine the post-adoption standards for seaworthiness. This was done by investigating concept of seaworthiness under common law and the statutory obligation of the carrier to exercise due diligence to provide a seaworthy vessel before and at the beginning of each voyage[5]. The requirements of the Hague-Hague/Visby rules, MARPOL, IMDG Code and other subsequent international conventions are also analyzed, alongside rules, regulations, codes and practices in the maritime industry. We went on to explore the legal and regulatory frameworks for maritime safety and seaworthiness in Nigeria, the United States and the United Kingdom. In particular, focus was placed on the challenges that arise from conflicts between international conventions and domestic regulations, particularly in the context of private international law.

The study delves into the definition and essence of seaworthiness, exploring how variations in these definitions across jurisdictions affect compliance and safety outcomes. It further investigates the various factors influencing seaworthiness, including the vessel's condition, crew competency, and the adequacy of safety measures on board.

[5] *Papera Traders Co Ltd. v Hyundai Merchant Marine Co Ltd., The Eurasian Dream* [2002] EWHC 118; [2002] 1 Lloyd's Rep.719.

Moreover, this research assesses the impact of the International Safety Management (ISM) Code and other international regulations on domestic laws, scrutinizing the obligations imposed on carriers and the conflict of law issues that emerge when international standards are implemented within different municipal legal systems. The analysis extends to the concepts of conditions, warranties, and the scope of carriers' liability under international and domestic law.

Through a doctrinal approach, this research projects evaluates how international conventions, such as the International Convention on Safety of Life at Sea (SOLAS) 1974, the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) 1978, and the ISM Code, are adopted and enforced in various jurisdictions. The study aims to provide a comprehensive understanding of the legal complexities involved in ensuring maritime safety, emphasizing the need for harmonization between international and domestic laws to reduce conflicts and enhance global maritime security.

1.2 Statement of The Research Problem

Maritime safety and seaworthiness are important concepts in maritime law and are deeply intertwined in their legal and regulatory contexts. Maritime safety comprises ship safety; navigational safety, cargo safety, and personal and occupational safety. National regulations governing maritime safety are derived from the provisions of international conventions, with nation-states being responsibility for imposing and enforcing domestic regulatory sanctions on vessels entering their ports. Consequently, much of the law of maritime safety is regulatory in scope.[6]

[6] Farthing on International Shipping *op cit* n. 2 at p.224.

However, these national regulatory frameworks significantly impact the concept of seaworthiness in maritime law. Traditionally, under common law, a shipowner bore the strict responsibility of ensuring a seaworthy vessel, with no excuse, including ignorance of the law.[7] This requirement placed a heavy burden on shipowners to provide a vessel that was staunch, strong, well-equipped for the intended voyage, and manned by a competent crew and skilled master[8] This requirement has since been watered down. The provisions of the Hague- Visby Rules[9] operates to modify this aspect of common law doctrine of seaworthiness. As a result of the foregoing, seaworthiness is now judged by the standards and practices of national maritime industries as regulated in their laws, at least so long as those standards and practices are reasonable[10].

This has created problems in the sense that maritime safety and seaworthiness is now measured by the law of a vessel's flag or the laws or regulations in force in the countries to which the vessel may be ordered, or which may lawfully be required by the authorities exercising administrative or other functions in the vessel's ports of call[11]. The divergence in national regulatory frameworks for maritime safety and seaworthiness across jurisdictions creates a patchwork of safety requirements, leading to challenges in legal certainty and regulatory compliance.

Furthermore, emerging challenges such as cybersecurity threats, the advent of autonomous vessels, and the use of alternative fuels expose significant gaps in current safety regulations. Current legal frameworks often lack the flexibility to adapt to these modern risks. This inconsistency leads to

[7] See *McFadden v Blue Star Line* [1905] 1 KB 697.
[8] Martin Dockray, (2004) "*Cases and Material on The Carnage of Goods By Sea 3rd Edition*" Cavendish Publishing.
[9] See Art III, r 1 and Art IV thereof.
[10] See *Papera Traders Co Ltd.* Supra note 5.
[11] *Alfred C Toepfer v Tossa Marine, The Derby* [1985] 2 Lloyd's Rep 325, CA.

legal uncertainty, particularly in less developed maritime nations, where regulatory frameworks are weaker.

While there is extensive literature on maritime safety and seaworthiness, there appears to be a gap concerning how courts interpret and enforce international safety conventions within domestic legal systems. Additionally, little research exists on how these frameworks can adapt to evolving maritime technologies and environmental challenges. This research aims to bridge these gaps by analyzing judicial interpretations of safety standards and evaluating how international and domestic laws interact to shape maritime safety.

1.3 Aim of the Study

The aims and objectives of this research work are:

1.To provide a comprehensive understanding of what "seaworthiness" means and see how domestic courts in different countries define it;

2. Examining the relationship between international conventions ensuring maritime safety and flag state regulations and considering the adequacy or otherwise of constantly evolving maritime safety standards;

3. Proposing reform of the existing laws for maritime safety to facilitate harmonization of international maritime safety requirements.

1.4 Research Questions

The questions to be addressed in this research are:

1. What are the core international legal and regulatory frameworks governing maritime safety and seaworthiness?

2. How do different national jurisdictions implement and enforce international maritime safety and seaworthiness standards in an era of globalization?

3. How effective are current legal and regulatory frameworks in preventing maritime accidents and incidents linked to seaworthiness?

4. Are legal and regulatory certainty important to global efforts to implement maritime safety and seaworthiness?

5. What legal reforms are necessary to harmonize maritime safety standards globally?

1.5. Significance of the Study

This research highlights a crucial issue in maritime law: the challenge of defining the necessary level of due diligence required to meet the obligation of seaworthiness within the context of maritime safety. Despite numerous studies on the subject, there remains a lack of clarity due to the rapidly evolving nature of the shipping industry, which often outpaces regulatory frameworks. This study underscores the complex relationship between national courts and international conventions such as SOLAS, STCW, the Hague/Hague-Visby Rules, and the ISM Code, particularly in the context of domestic regulations. By identifying the gaps and inconsistencies within these frameworks, the research aims to offer insights that could drive legal reforms and enhance global trade. Moreover, this study is unique in its approach to addressing the legal question of due diligence, and it extends the conversation to encompass judicial and regulatory risk management. This is particularly important as new national safety regulations emerge, and the need for clarity and uniformity in the international legal and regulatory framework becomes increasingly urgent for all stakeholders in the maritime industry.

1.6 Scope and Limitations of the Study

The scope of this study covers key international conventions and regulations, including the International Convention for the Safety of Life at Sea (SOLAS), the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW), The Hague/Hague-Visby Rules, and the International Safety Management (ISM) Code. The research will also consider relevant national regulations and how they align with or diverge from these international standards. The study will be conducted through a doctrinal and textual analysis of black letter law, which involves a thorough examination of statutes, conventions, regulations, and case law to assess the effectiveness of these frameworks in ensuring maritime safety and seaworthiness. The research will focus on the legal principles, rules, and doctrines that govern maritime safety, without delving into empirical data or fieldwork. The study will also compare the implementation and enforcement of these frameworks across different jurisdictions, with a particular emphasis on major maritime nations.

Meanwhile, this study's fundamental limitation rests in its dependence on doctrinal and textual analysis of black letter law. While this technique provides for a deep and concentrated investigation of legal texts and concepts, it does not incorporate empirical data or real-world case studies that could provide additional insights into the practical issues of enforcing maritime safety regulations. Another weakness is the geographic scope of the research, which, while it includes major maritime jurisdictions, may not completely capture the range of regulatory procedures in less prominent or emerging maritime nations. Additionally, the study focuses on existing legal and regulatory frameworks and does not comprehensively investigate potential future developments or emergent challenges, such as the impact of new technology or environmental changes on maritime safety. Finally, the study's analysis is hampered by the availability of legal texts and case law in

the jurisdictions investigated. While every effort will be made to access extensive legal resources, there may be some limits in acquiring the most up-to-date or region-specific sources. Despite these constraints, the study tries to provide a rigorous and critical analysis of the legal frameworks that control maritime safety and seaworthiness, making recommendations for their improvement.

1.7 Research Methodology

This research project adopts a doctrinal legal research methodology, relying primarily on the analysis of statutes, international conventions, case law, and academic commentary. It critically examines how key international instruments, such as the International Convention for the Safety of Life at Sea (SOLAS) 1974, the ISM Code, COLREGs, the STCW, and the Hague/Hague-Visby Rules, are incorporated and applied in selected jurisdictions, particularly Nigeria and the United Kingdom[12].

The doctrinal approach enabled a structured interpretation of legal texts to identify gaps, inconsistencies, and enforcement challenges. A Comparative perspective is also employed to evaluate the effectiveness of national implementation practices and to explore opportunities for harmonization between international obligations and domestic maritime laws. No empirical interviews or survey are conducted; the research is entirely grounded in textual legal sources and regulatory instruments.

[12] The United Kingdom was selected as a comparative jurisdiction due to its well-developed maritime legal system, long-standing participation in international maritime conventions, and historical influence on Nigeria's legal structure. Its implementation practices offer useful benchmarks for evaluating Nigeria's domestic compliance with global maritime safety standards.

1.8 Literature Review: Legal and Regulatory Frameworks for ensuring Maritime Safety and Seaworthiness

The discourse on maritime safety and seaworthiness underscores the complexity and constant evolution of regulatory frameworks in response to technological, commercial, and environmental pressures. From the common law obligation of carriers to ensure vessels are seaworthy, to modern international conventions administered by the International Maritime Organization (IMO), the literature highlights both progress and persistent shortcomings in achieving uniform global standards.

The concept of seaworthiness has long been embedded in common law, traditionally defined as the duty of a shipowner to provide a vessel "reasonably fit" for the intended voyage[13]. This obligation was later codified in international instruments such as the Hague Rules 1924 and subsequently the Hague-Visby Rules 1968, which require carriers to exercise due diligence before and at the commencement of the voyage[14].

Parallel developments in public law focused on safety at sea more broadly. The International Convention for the Safety of Life at Sea (SOLAS 1974, as amended) remains the most significant instrument in this regard, establishing detailed rules on ship construction, navigation, fire protection, and life-saving appliances. Similarly, the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW 1978, as amended) provides global

[13] *McFadden*, supra n. 7
[14] Tetley, William. *Marine Cargo Claims*, 4th ed., Vols. 2 – 2, Les Editions Yvon Blais Inc. (Thomson/Carswell: Cowansville/Toronto, 2008) [hereinafter Tetley, *Marine Cargo Claims* (2008)].

benchmarks for seafarer competence. Together with the International Safety Management (ISM) Code (introduced through SOLAS Chapter IX in 1998), these instruments constitute the backbone of the regulatory framework for maritime safety and seaworthiness[15].

The IMO has played a pivotal role in shaping maritime safety regulations. However, as several scholars note, its reliance on state implementation limits the effectiveness of its instruments[16]. Enforcement is primarily achieved through flag state and port state control regimes. While port state control under regional arrangements such as the Paris Memorandum of Understanding (MoU) has strengthened compliance in Europe, other regions, particularly West and Central Africa under the Abuja MoU, continue to struggle with weak institutional capacity[17].

Critiques also highlight the persistent problem of "flags of convenience," where shipowners register vessels in jurisdictions with lax safety oversight[18]. This undermines uniform application of standards and allows substandard ships to continue operating. Thus, while the legal frameworks exist, enforcement remains uneven and heavily dependent on domestic political will.

Much like the fragmentation debates in international human rights law, maritime safety law suffers from inconsistent regional implementation. The European Union, for example, has adopted directives and regulations that reinforce IMO standards, often going beyond them in response to disasters such as the *Erika* (1999) and *Prestige* (2002) oil spills[19]. In contrast, many developing

[15] Mukherjee, P. K., & Mejia, M. Q. *Maritime Legislation*. WMU Publications, 2013.
[16] Treves, T. "Flag State Responsibility and the Future of Shipping Regulation." (2019). *Ocean Development & International Law*, 50(1), 1–17.
[17] Okonkwo, C. "Maritime Safety Challenges in Africa." (2021) *Journal of Maritime Law and Commerce*, 52(2), 145–167.
[18] Pamborides, G. C. *International Shipping Law: Legislation and Enforcement*, (Martinus Nijhoff: The Hague, 1999).
[19] Soyer, B., & Tettenborn, A. *Maritime Liabilities in a Global and Regional Context*, (Informa Law: London, 2018).

countries face difficulties in meeting their obligations due to limited resources and weak institutional structures[20].

This unevenness not only affects safety but also creates commercial distortions in the shipping industry. Chircop[21] argues that the resulting "patchwork" of enforcement compromises the cohesion of the international legal order, leaving gaps in liability and undermining confidence in international shipping regulation.

Recent scholarship points to emerging risks that extend traditional understandings of seaworthiness. Digitalization and cyber security, automation of vessels, and climate change are reshaping the regulatory landscape. The IMO's 2017 Guidelines on Maritime Cyber Risk Management acknowledge cyber threats as a potential cause of unseaworthiness. Similarly, compliance with MARPOL 73/78's sulphur cap regulations (effective from 2020) has introduced new dimensions of environmental safety into the seaworthiness debate[22].

However, literature suggests that the regulatory response has been reactive rather than anticipatory. Scholars such as Ozcayir[23] argue that while frameworks exist, they remain underdeveloped, particularly regarding accountability for cyber incidents or liability for greenhouse gas emissions. This raises questions about whether the legal definition of seaworthiness must evolve to reflect twenty-first-century risks.

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[20] Okonkwo, *supra* n. 21.
[21] Chircop, A. (2017). *International Maritime Law.* Routledge.
[22] Mejia, M. Q. (2020). "Maritime Safety in the Age of Digitalization." *WMU Journal of Maritime Affairs*, 19(3), 345–362.
[23] Ozcayir, O., *Port State Control*, (Informa Law: 2020).

The effectiveness of the current frameworks is debated in the literature. Simmons'[24] work on treaty compliance, though focused on human rights, is instructive in highlighting the influence of domestic politics and economic incentives on adherence to international rules. In the maritime context, compliance is often shaped by port state inspections, market pressures from cargo interests, and the requirements of insurance clubs such as the Protection and Indemnity (P&I) Associations.

Yet, problems persist. The reliance on self-regulation through the ISM Code has been criticized for enabling a "tick-box culture," where compliance becomes procedural rather than substantive[25]. Moreover, the limited accountability of non-state actors, such as classification societies and private maritime security providers, represents a critical gap in the literature and in practice.

Several gaps are evident in the literature. First, there is insufficient recognition of the contributions and challenges faced by states in the global south in shaping and implementing safety regulations. Second, accountability mechanisms for non-state actors remain weak despite their central role in ensuring seaworthiness. Third, the frameworks struggle to address emerging risks associated with technology and climate change.

Future research must explore how independent enforcement mechanisms, beyond reliance on flag states, can be developed to strengthen global compliance. There is also scope to re-examine the

[24] Simmons, B. *Mobilizing for Human Rights: International Law in Domestic Politics*. Cambridge University Press, 2009.
[25] Anderson, D. "The ISM Code: A Practical Guide to Implementation." (2015) *Lloyd's Maritime and Commercial Law Quarterly*, 1, 45–63.

legal notion of seaworthiness to include cyber resilience, environmental sustainability, and climate adaptation.

1.9 Conclusion

From the foregoing, it is clear that maritime safety and seaworthiness are not static concepts but evolving obligations shaped by law, practice, and the realities of international trade. Considerable progress has been made through international conventions and regulatory instruments, yet persistent gaps in enforcement, uneven implementation, and emerging risks highlight the continuing fragility of the system.

For the present writer, the central issue lies not merely in the existence of international frameworks, but in their effectiveness when translated into national practice. In many jurisdictions—particularly developing maritime nations—the practical challenges of compliance reveal the tension between global aspirations and local realities. Equally pressing is the lack of clearly defined accountability where failures of seaworthiness occur, often leaving stakeholders exposed to uncertainty.

The need for reform is therefore urgent. A forward-looking approach must balance uniform international standards with the realities of diverse regional capacities. It must also address new frontiers of risk, including cyber threats, autonomous shipping, and climate-driven safety concerns. By critically engaging with these challenges, this study seeks to show how legal and regulatory frameworks can be strengthened to remain fit for purpose in protecting life, property, and the marine environment in a rapidly evolving maritime industry.

CHAPTER TWO

LEGAL AND REGULATORY FRAMEWORKS FOR MARITIME SAFETY AND SEAWORTHIINESS.

The usage of a legal term in its context does not always appear plainly. Ambiguity and inconsistency will undoubtedly occur when words are used in certain form that goes beyond its ordinary usage. In view of this, the study will be looking into certain concepts that are central to this understanding of this research project as shown below.

2.1 The Concept of Seaworthiness and its Role in Maritime Safety

Seaworthiness, a fundamental concept in maritime law, is often defined as the state of a vessel, including its equipment, and crew, that ensures the safe loading, carriage, care, and discharge of cargo during a voyage. Professor William Tetley offers a comprehensive definition, stating that a seaworthy vessel is one that is "...*in such a condition, with such equipment, and manned by such a master and crew, that normally the cargo will be loaded, carried, cared for and discharged properly and safely on the contemplated voyage*".[26] This concept extends beyond the physical condition of the ship itself. It also embodies the degree of fitness that a reasonably careful and prudent owner would demand at the start of a voyage, considering all potential circumstances.[27] It

[26] W. Tetley, Marine Cargo Claims 3rd ed. 1988 (Montreal: Yvon Blais, 1988) at 370 [hereinafter Tetley MCC] See also *FC Bradley & Sons Ltd v Federal Steam Navigation Co* (1926) 24 LI L rep 446 at p.454, where Scrutton LJ gave a fitting definition of seaworthiness to be that: "The ship must have that degree of fitness which an ordinary careful and prudent owner would require his vessel to have at the commencement of her voyage having regard to all the probable circumstances of it. To that extent the shipowner . . . undertakes absolutely that she is fit, and ignorance is no excuse. If the defect existed, the question to be put is, would a prudent owner have required that it should be made good before sending his ship to sea had he known of it? If he would, the ship was not seaworthy . . .. ".

[27] Lord Blackburn in *Steel v State Line Steamship Co* (1877) 3 App Cas 72 at p 86.

also means that the vessel that is ready to undergo voyage should be fit in every way both to receive cargo and to encounter the ordinary peril of the sea[28].

However, the application of this seemingly straightforward definition can be complex in practice. The determination of seaworthiness is not a static assessment but rather a dynamic one that depends on various factors, including the intended voyage, the type of cargo, and the prevailing weather conditions[29]. Furthermore, the concept of seaworthiness is closely linked to the duty of due diligence, particularly under international conventions like the Hague-Visby Rules[30]. Some scholars and practitioners argue that the focus on "due diligence" has, in some instances, diluted the original strict liability standard associated with seaworthiness, creating opportunities for less scrupulous operators to exploit ambiguities in the law.

While the concept of seaworthiness is often treated as a distinct legal standard, particularly in carriage of goods by sea, it remains fundamentally connected to broader concerns of maritime safety. A seaworthy vessel is one that meets legal, structural, technical, and operational standards necessary for safe navigation. Consequently, ensuring seaworthiness serves as a legal mechanism through which international and domestic laws promote maritime safety. In this regard, seaworthiness is not only a contractual obligation but also a key component in achieving safe and secure maritime operations.

2.2 Overview of Key International Frameworks

[28] Field J in *Kopitoff v Wilson* (1876) 1 QBD 377 at p 380.

[29] Wu, J., Meng, X., Zhang, P., & Hou, Z., "*Seaworthiness Management of Bulk Carriers during the Transportation Process from the Perspective of Bauxite Performance*" (2023). *Journal of Marine Science and Engineering, 11*(2), 303. https://doi.org/10.3390/jmse11020303 accessed May 26, 2025.

[30] Girvin, Stephen Darryl, "*The Obligation of Seaworthiness: Shipowner and Charterer"* (December 26, 2017). NUS - Centre for Maritime Law Working Paper 17/11, NUS Law Working Paper No. 2017/019, Available at SSRN: https://ssrn.com/abstract=3093178 accessed May 17, 2025.

This section provides an overview of the core international legal frameworks that form the foundation for maritime safety and seaworthiness. It highlights key instruments such as the Safety of Life at Sea (SOLAS) Convention, the Hague – Visby Rules, the Marine Pollution (MARPOL)

Convention, the Standards of Training, Certification and Watchkeeping for Seafarers (STCW), and the International Safety Management (ISM) Code. Each subheading briefly explains the origin, structure, objectives, and relevance of these frameworks to global and national regulatory practices, setting the stage for deeper evaluation in subsequent chapters.

2.2.1 International Convention for the Safety of Life at Sea (SOLAS) 1974

The International Convention for the Safety of Life at Sea (SOLAS)[31] primarily governs maritime safety by establishing minimum safety standards for ship construction, equipment, and operation. The current version of SOLAS is the 1974 version, known as SOLAS 1974, which came into force on 25 May 1980. As of November 2018, SOLAS 1974 had 164 contracting states, which flag about 99% of merchant ships around the world in terms of gross tonnage. SOLAS in its successive forms is generally regarded as the most important of all international treaties concerning the safety of merchant ships. As of March 2016, SOLAS 1974 had 162 contracting States, which flag about 99% of merchant ships around the world in terms of gross tonnage. As of 2015, the non-parties to SOLAS 1974 include Bolivia, Lebanon and Sri Lanka, all considered flag of convenience states.

SOLAS 1974 requires flag states to ensure that ships flagged by them comply with the minimum safety standards in the construction, equipment and operation of merchant ships. The treaty

[31] International Convention for the Safety of Life at Sea (SOLAS), 1974" (Imo.org2016) <https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-(SOLAS),-1974.aspx> accessed December 15, 2024.

includes articles setting out general obligations, etc., followed by an annex divided into twelve chapters, two new chapters were added in 2016 and 2017. Of these, chapter five (often called 'SOLAS V') is the only one that applies to all vessels on the sea, including private yachts and small craft on local trips as well as to commercial vessels on international passages. Many countries have turned these international requirements into national laws so that anybody on the sea who is in breach of SOLAS V requirements may find themselves subject to legal proceedings.

2.2.2 The Hague/Hague-Visby Rules

The Hague[32] and Hague – Visby[33] Rules provide important international standards for carriage of goods by sea law. and require carriers to make sure their ships are safe. The Hague Rules 1924 and the Hague–Visby Rules, which were adopted in 1968[34] but changed in 1979[35], are international agreements that set rules for shipping goods by sea. The Rules provide a uniform legal regime for bills of lading and they lay down minimum obligations for seaworthiness, care of cargo, and liability for shipowners.

While the Hague and Hague – Visby Rules primarily address cargo claims, they indirectly promote maritime safety by compelling carriers to exercise due diligence in making vessels seaworthy at

[32] International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading, August 25, 1924, 120 L.N.T.S. 155 (1924) [hereinafter Hague Rules].
[33] The Hague/Visby Rules refer to the Hague Rules as amended by two protocols. The first protocol, the Protocol to Amend the International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading, (commonly known as the "Visby Protocol 1968").
[34] The first protocol, the Protocol to Amend the International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading, (commonly known as the "Visby Protocol 1968"), was adopted at Brussels on February 23, 1968 and entered into force on June 23, 1977.
[35] This refers to the second protocol, the Protocol Amending the International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading (August 25, 1924), as Amended by the Protocol of February 23, 1968 (commonly known as the "SDR Visby Protocol 1979"), was adopted at Brussels on December 21, 1979 and entered into force on February 14, 1984.

the beginning of every voyage. Nevertheless, the Rules have been said to offer more liberal exemptions to carriers for damage or loss to goods[36].

The most relevant articles contained in the Hague/Visby Rules for the purpose of defining seaworthiness, are those concerning the responsibilities of the carrier, which are set out in Article 3, rules 1 and 2 and Article 4 which establishes the possibility of the carrier avoiding liability in certain circumstances.

With the amendment of the Hague Rules and the advent of the Hague/Visby Rules, the ship does not need to be seaworthy at all, there is no obligation of seaworthiness absolute or otherwise[37], this is evidenced in Article 3 as follows:

"Article 3

1. The carrier shall be bound before and at the beginning of the voyage to exercise due diligence to

(a) Make the ship seaworthy.

(b) Properly man, equip and supply the ship.

(c) Make the holds, refrigerating and cool chambers, and ail other parts on the ships in which goods are carried, fit and safe for their reception, carriage and preservation.

[36] Mensah.T.A. '*Law making and Implementation in International Shipping: Which Laws do We Obey?*' (10th Cadwallader Memorial Lecture, London Shipping Law Centre, IMO Headquarters, London, 1 October 2008) at p.7.
[37] Tetley MCC, supra note 26 at p.371.

2. Subject to the provisions of Article IV, the carrier shall properly and carefully load, handle, stow, carry, care for, and discharge the goods carried."[38] [Emphasis added].

Due to the uncertainty and the extensive interpretation of the term "due diligence" it has become one of the most contentious rules applied by the courts. In *Grain Growers Export Co. v. Canada Steamship Lines Ltd*.,[39] due diligence was defined as:

> "not merely a praiseworthy or sincere, though unsuccessful, effort, but such an intelligent and efficient attempt as shall make if [seaworthy] so, as far as diligence can secure it. "

Due diligence is also defined by W. Tetley as "*a genuine, competent and reasonable effort of the carrier to fulfill the obligations, set out in subparagraphs (a), (b) and (c) of Article 3(1) of the Hague/Visby Rules*".[40] The wording of Article 3 clearly establishes that the only obligation is to exercise due diligence before and at the beginning of the voyage. It is worth mentioning that in light of Article 11[41] of the Rules, "carrier" includes the owner or the charterer who enters into a contract of carriage with a shipper. By virtue of Article 3, the carrier has a primary obligation not only to make the ship seaworthy, but to properly man and equip the ship and aIso to make the vessel's carrying cargo compartments suitable to carry the intended cargo. In addition to this obligation, the carrier has aIso the responsibility of looking after the cargo that is under his custody.

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[38] Protocol to Amend the 1924 International Convention for the Unification of Certain Rules of Law Relating to Bills of Lading, 23 February 1968, Cmnd. 6944, reprinted in 4 Nagendra Singh, International Maritime Conventions 3045 (3rd ed., 1983) [hereinafter The Hague/Visby Rules] Art. 3.
[39] *Grain Growers Exports Co. v. Canada Steamship Lines Ltd*., [1918] 43 O.L.R. 330 at p. 344-345 (Ont. s.e. App. Div.).
[40] Tet1ey MCC, supra note 13 at pp. 369-370.
[41] Article 1 of the Hague Visby Rules reads as follows: *"(a) 'carrier' includes the owner or the charterer who enters into a contract of carriage with a shipper.* "[Emphasis added].

Perhaps the most important provision of the Hague/Visby rules in light of this research project is article 4, Rule 1, because it establishes the conditions to be met by the carrier in order to be able to avoid liability, even if the ship is not seaworthy before and at the beginning of the voyage.

"Article 4

1. Neither the carrier nor the ship shall be liable for loss or damage resulting from unseaworthiness unless caused by want of due diligence

   on the part of the carrier to make the ship seaworthy, and to secure that the ship is properly manned, equipped and supplied, and to make the holds, refrigerating and cool chambers and ail other parts of the ship in which goods are carried fit and safe for their reception, carriage and preservation in accordance with the provisions of paragraph 1 of article 3.

   Whenever loss or damage has resulted from unseaworthiness the burden of proving the exercise of due diligence shall he on the carrier or other person claiming exemption under this article."[42]

In the United Kingdom, the Hague – Visby Rules are implemented through the Carriage of Goods by Sea Act, 1971. Section 1 and the accompanying Schedule give the force of law to the Rules and make them applicable where a bill of lading issued in the UK or the contract of carriage expressly chooses English law. UK Courts have consistently interpreted the carrier's obligations of seaworthiness under Article III (1) as non-delegable, requiring the exercise of due diligence in hull integrity, crewing, and operational systems before and at the beginning of voyage. The U.K's implementation is further supported by a strong judicial culture of maritime jurisprudence and detailed port state control regimes.

[42] Hague/Visby Ru1es, supra note 33 Art. 4 (1).

In Nigeria, the Rules were domesticated through the Carriage of Goods by Sea Act[43]. The Act incorporates the 1924 Hague Rules, rather than the updated Hague – Visby Rules, which limits its alignment with current international shipping standards.

The significance of the Hague/Hague-Visby Rules to maritime safety lies in their insistence on a seaworthy vessel as a precondition for liability protection. By compelling carriers to take reasonable precautions, the Rules create indirect regulatory pressure to maintain technical integrity, competent crew, and safe loading conditions. Although not safety conventions per se, their influence on safe carriage and cargo protection reinforces global maritime safety norms.

2.2.3 MARPOL

The International Convention for the Prevention of Pollution from Ships (MARPOL) 1973/78, administered by the International Maritime Organization (IMO), is a foundational framework for preventing vessel-related pollution, integral to maritime safety and seaworthiness. The MARPOL Convention was adopted on 2 November 1973 at IMO. The Protocol of 1978 was adopted in response to a spate of tanker accidents in 1976-1977[44]. As the 1973 MARPOL Convention had not yet entered into force, the 1978 MARPOL Protocol absorbed the parent Convention. The combined instrument entered into force on 2 October 1983. In 1997, a Protocol was adopted to amend the Convention and a new Annex VI was added which entered into force on 19 May 2005. MARPOL has been updated by amendments through the years.[45]

[43] Cap C2, Laws of the Federation of Nigeria, 2004.
[44] Notably the spilling of more than 100,000 tonnes of crude oil into the English Channel by the *Torrey Canyon* precisely on 14 March, after striking Pollard's Rock on the extreme western end of the Seven Stones between the Cornish mainland and the Isles of Scilly following a navigational error, on 18 March 1967. It was the first major oil spill in British and European waters, causing enormous damage to marine life and the livelihoods of local people.
[45] See *The Elli and the Frixos* [2008] 2 Lloyd's Rep.119 (C.A.), which addressed the amendments to MARPOL 73/78 encapsulated in Regulations 13F, 13G & 13H – specifically the changes that took effect on 5 April, 2005 requiring fuel oil to be carried only in double – hulled vessels, subject to limited exemptions.

The Convention includes regulations aimed at preventing and minimizing pollution from ships- both accidental pollution and that from routine operations - and currently includes six technical Annexes. Special Areas with strict controls on operational discharges are included in most Annexes. Its six annexes regulate oil (Annex I), noxious liquids (Annex II), packaged harmful substances (Annex III), sewage (Annex IV), garbage (Annex V), and air emissions (Annex VI), ensuring vessels meet environmental and safety standards (IMO, 2024). Annex I's double-hull mandates and Annex VI's emission limits enhance structural integrity and operational safety, aligning with seaworthiness obligations under the Hague-Visby Rules[46]. MARPOL's requirements for pollution-prevention equipment and crew training under the STCW Convention 1978 directly support vessel fitness.[47]

The implementation of MARPOL is done through the flag state control and port state inspections, and member states are obliged to incorporate its provisions into national law. For example, in the UK, the *Merchant Shipping Act* 1995[48] enforces MARPOL through port state control (PSC) under the Paris MoU, with the Maritime and Coastguard Agency achieving high compliance[49]. Nigeria's Merchant Shipping Act 2007 domesticates MARPOL.[50] Pursuant to IMO guidelines[51], PSC

[46] *See Riverstone Meat Co. Pty Ltd v. Lancashire Shipping Co. Ltd* [1961] AC 807.
[47] Mandaraka-Sheppard, A. '*Modern Maritime Law: Volume 2 – Managing Risks and Liabilities'*. 3rd ed. London: Informa Law from Routledge, 2013.
[48] *Merchant Shipping Act*, 1995 (U.K.), s.128(1) which gives the Secretary of State power to make regulations to implement international agreements for the prevention of marine pollution, including MARPOL.
[49] National Audit Office, *'The Maritime and Coastguard Agency's Response to Growth in the UK Merchant Fleet'* (HC 131, Session 2008-2009, 11 February 2009) pp.25-26. Available at: https://www.nao.org.uk/wpontent/uploads/2009/02/0809131.pdf#:~:text=The%20United%20Kingdom%20as%20a%20member%20of,Port%20State%20Control%20regimes%20include%20the%20Tokyo. Accessed May 3, 2025.
[50] *Merchant Shipping Act*, 2007 (Nigeria), s.335(1) empowers the Minister to make regulations giving effect to international agreement relating to the prevention of pollution from ships, including MARPOL.
[51] See the 78th IMO MSC approved Circular No. 1117, which approved a detailed set of best – practice instructions for Port State Control Officers (PSCOs) on how to inspect the structural integrity of bulk carriers during port inspections.

officers are guided on how to conduct inspections on the actual structure of vessels that call upon their national waters, how to verify documents and how to conduct inspections of the actual structure of oil tankers and bulk carriers. This sensitizes port state officials of the points that should be paid attention to during inspections so that they identify weak areas in the structure of oil tankers and bulk carriers.[52]

The MARPOL convention plays a pivotal role in reducing oil spillage by promoting environment protection and enhancing seaworthiness of ocean-going vessels through strengthened operational standards.

2.2.4 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) is a convention that regulates and sets minimum qualification standards for seafarers[53]. It was adopted by the International Maritime Organization (IMO) in 1978 and significantly amended in 1995 and it establishes global minimum standards for the training, certification, and watchkeeping duties of seafarers[54]. The 1995 amendments, adopted by a Conference, represented a major revision of the Convention, in response to a recognized need to bring the Convention up to date and to respond to critics who pointed out the many vague phrases,

[52] See Resolution A.744(18) as amended, Guidelines for Enhanced Survey Procedures During Surveys of Bulk Carriers and Oil Tankers.
[53] "International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW)" (Imo.org2012) <https://www.imo.org/en/OurWork/HumanElement/Pages/STCW-Conv-LINK.aspx> accessed December 15, 2024.
[54] See Art. III of the International Convention on Standards of Training, Certification and Watch keeping for Seafarers, 1978 (1978 STCW).

such as "to the satisfaction of the Administration", which resulted in different interpretations being made[55].

The 1995 amendments entered into force on 1 February 1997. One of the major features of the revision was the division of the technical annex into regulations, divided into Chapters as before, and a new STCW Code, to which many technical regulations were transferred. Part A of the Code is mandatory while Part B is recommended.

Dividing the regulations up in this way makes administration easier and it also makes the task of revising and updating them simpler: for procedural and legal reasons there is no need to call a full conference to make changes to Codes[56].

The STCW's relevance to seaworthiness is rooted in its recognition that a vessel's fitness for the sea extends beyond its material condition to the proficiency of those who manage it. Regulation I/14 requires shipowners to ensure crews are adequately trained and certified, a duty that complements the operational seaworthiness obligations under the ISM Code's emphasis on crew competency[57]. For example, Chapter V mandates training in navigation safety and emergency procedures. These skills are critical to preventing collisions or responding to onboard incidents that could render a ship unseaworthy. The 2010 Manila Amendments further enhanced these standards by introducing requirements for security training and fatigue management, reflecting modern risks and reinforcing the link between human performance and a vessel's safe operation.

[55] Adam Weintrit, '*Marine Navigation and Safety Of Sea Transportation*' (CRC Press 2013).
[56] D. J House and Farhan Saeed, The Seamanship Examiner (Elsevier Butterworth Heinemann 2005).
[57] "Farthing on International Shipping" *supra* n. 2 at 145.

The Implementation of the STCW Convention is overseen by flag states, which issue certificates of competency to seafarers and approve training programs, while port state control verifies compliance during inspections. The IMO maintains a "White List" of compliant states, incentivizing adherence, though enforcement gaps persist, particularly in regions with limited marine education infrastructure[58]. Non- compliance, such as falsified certificates or inadequate training, has been implicated in incidents like the *MV Wakashio* grounding in 2020, where crew errors underscored the human factor's impact on seaworthiness[59]. The Convention's reliance on national administrations to uphold its standards shows both its strength as a global benchmark and its vulnerability to inconsistent application.

The STCW Convention stands as a cornerstone of maritime safety by ensuring that the human element supports rather than undermines seaworthiness, integrating seamlessly with SOLAS (which incorporates STCW via Chapter V) and the ISM Code's safety management systems. Its evolving standards address contemporary challenges, yet its effectiveness depends on robust national implementation, a theme that resonates with enforcement challenges explored in Chapter 3 of this research project. As the maritime industry adapts to automation and new technologies, the STCW framework will remain pivotal in shaping a competent workforce capable of upholding safety and seaworthiness.

2.2.5 ISM Code

[58] IMO (2022). "*STCW White List: Submission of Information by Parties to the STCW Convention. MSC Circular*." <https://wwwcdn.imo.org/localresources/en/OurWork/HumanElement/Documents/MSC.1-Circ.1164-Rev.26.pdf> accessed March 30, 2025.
[59] Panama Maritime Authority. (2020). "Safety Investigation *Report of the Grounding of MV Wakashio MV Wakashio. IMO:9337119*."Available at < https://gcaptain.com/wp-content/uploads/2023/07/Final-Investigation-Report-Wakashio-25-July-2020-1.pdf> accessed March 30, 2025.

The International Safety Management (ISM) Code establishes a comprehensive framework for the safe management and operation of vessels and the prevention of pollution[60]. At its 16th Assembly in October 1989, IMO adopted resolution A.647(16), IMO Guidelines on Management for the Safe Operation of Ships and for Pollution Prevention. It was eventually made entirely mandatory through its incorporation into Chapter IX of SOLAS by Assembly Resolution A.741(18) in 1993. The regime as it exists thus consists of the regulations in Chapter IX, which are six in number, and the Code itself which is a self-contained document. The Code consists of 13 units of legislation, which for the purposes of this research project and in the absence of any specific designation in the Convention are referred to as Sections.

The ISM Code's direct link to seaworthiness lies in its emphasis on integrating safety into every level of ship operation. Section 4 provides[61]:

> To ensure the safe operation of each ship and to provide a link between the Company and those on board, every Company, as appropriate, should designate a person or persons ashore having direct access to the highest level of management. The responsibility and authority of the designated person or persons should include monitoring the safety and pollution-prevention aspects of the operation of each ship and ensuring that adequate resources and shore-based support are applied, as required.

The outcome of the formal investigation into the *MV Herald of Free Enterprise*[62] disaster played a key role in the codification of section 4 of the ISM Code. In that investigation, the court concluded that the cause of the capsizing of the Roll on/Roll off passenger and freight carrier can be attributed to the failure of the owners to give unambiguous orders about the duties of the officers

[60] International Maritime Organization (IMO) (1993). International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM Code), Resolution A.741 (18), as amended. London: IMO.
[61] International Management Code for the Safe Operation of Ships and for Pollution Prevention (International Safety Management (ISM) Code), IMO adopted on 4 November 1993 resolution A.741(18) s 4.
[62] *MV Herald of Free Enterprise*, Report of Court No 8074 Formal Investigation September 1987.

serving on-board the vessel.[63] Learned author, Carey, argues that, "*[a]utonomous shipowners may find it easier to comply with this requirement than shipowners of manned ships. As all officers will be in the shore-control centre there is less risk of miscommunication or confusion, consequently the shipowner will have greater control of the operations of the ship*".[64]

Although the ISM Code mandates safety management systems, it lacks specific provisions addressing the operational risks of autonomous vessels and zero emission technologies into safety protocols. For example, it has been posited that the hallmark of the ISM Code is visible in the creation in section 4 of the entity known as the designated person (DP) and the specification of his/their responsibilities, which is to ensure the safe operation of each ship and provide a link between ship and shore management at the highest level [65]. There is no indication in *section 4* to suggest that the DP must be a natural person or persons. At any rate, it would seem that the DP could be a superintendent or operations manager of the Company; or the Company could engage a firm to carry out the functions and discharge the responsibilities. The suggests that existing frameworks are reactive rather than proactive, potentially undermining maritime safety in the face of innovation.

2.2.6 The International Regulations for Preventing Collisions at Sea 1972 (COLREGS)

[63] See the comments of Sheen J, MV Herald of Free Enterprise, Report of Court No. 8074 Formal Investigation September 1987, 14-15.
[64] Lucy Carey, "*All Hands Off Deck? The Legal Barriers to Autonomous Ships*" CML Working Paper Series, August, 2017. Available at: http://law.nus.edu.sg/wps/. accessed July 12, 2025.
[65] Proshanto K. Mukherjee, 'The ISM Code and the ISPS Code: A Critical Legal Analysis of Two SOLAS Regimes', *WMU Journal of Maritime Affairs*, 6.2 (2007), 147– 166, at p.152 <https://doi.org/10.1007/BF03195110>.

The international Regulations for Preventing Collisions at Sea (COLREGs), adopted in 1972 under the auspices of the International Maritime Organization (IMO), form a critical component of the global legal framework for maritime safety. Their primary goal is to prevent collisions between vessels operating on the high seas and navigable waters connected to the sea.

COLREGs consist of 41 rules divided into five parts; General, steering and Sailing Rules, Lights and Shapes, Sound and Light Signals, and Exemptions. These rules codify navigational conduct, particularly under Rules 5 to 19, which outline the duties of vessels in conditions of visibility

ranging from clear to restricted, and assign obligations for maintaining proper look out, safe speed, and collision avoidance procedures.

In relation to the concept of seaworthiness, COLREGs intersect with the standard of due diligence required of shipowners and operators under the carriage regimes such as the Hague and Hague – Visby Rules. A vessel that fails to comply with the navigational rules stipulated in COLREGs may be found unseaworthy – not merely due to technical defect, but as a result of operational deficiencies. For example, the failure to maintain a proper look out under Rule 5 or to operate radar equipment effectively may render the ship unseaworthy in terms of its navigational management.

This principle was underscored in the UK case of The Eurasian Dream[66], where the High Court held that failure of a vessel's officers to act in accordance with COLREGs contributed to a finding of unseaworthiness due to insufficient navigational training. Similarly, in *The Fulton*[67], the court

[66] [2002] 1 Lloyds Rep 719
[67] [1857] 6 E&B 419, 119 ER 477

recognized the breach of collision regulations could result in liability, even where vessel equipment was not defective. These decisions have helped develop the understanding that seaworthiness must encompass not only physical integrity but also navigational discipline.

Nigerian statutory framework, while less developed in terms of reported cases specifically applying COLREGs, recognizes the binding nature of international maritime conventions that Nigeria has ratified and domesticated. As Nigeria is a signatory to the COLREGs, they form part of its enforceable maritime framework. Sections 338 – 344 of the *Merchant Shipping Act* 2007 provide for liability in collision cases. In practical terms, non-compliance with COLREGs, such as the failure to take adequate care to avoid the Risk of Collision under Rule 7 may support a claim of navigational unseaworthiness in the Nigerian context[68], especially when considered alongside the ISM Code.

The incorporation of COLREGs into national laws by the flag states reinforces their binding nature and provides a legal basis for domestic courts to assess liability and compliance. Nevertheless, enforcement remains inconsistent across jurisdictions, particularly in developing maritime states where port state control mechanisms may be less robust. This inconsistency has led to growing calls for regional port state control regimes, such as the Abuja MoU, to integrate compliance with COLREGs into inspection frameworks, especially in congested and high-risk waters like the Gulf of Guinea.

[68] See Nigerian Maritime Administration and Safety Agency (NIMASA) 'Marine Safety Investigation Report on The Collision of *MSC CORUNA* with *MFT OLOKUN XII* Along Lagos Channel on 07th November, 2022' at p. 19 available at:https://msiu.gov.mt/wp-content/uploads/2024/01/Safety-Investigation-Report-MSC-CORUNA-and-MFT-OLOKUN-XII-Final-Edition-1-2-2-1.pdf accessed on May 29, 2025.

Ultimately, the COLREGs function not merely as navigational guidelines but as benchmarks for professional maritime conduct. Their breach may give rise to both civil liability and an inference of unseaworthiness, with serious implications for insurance, flag state responsibility, and carrier obligations. As such, the COLREGs continue to play a central role in shaping the contours of seaworthiness in both international and domestic maritime law.

2.3 Regional Approaches to Maritime Safety – The Abuja Memorandum of Understanding (MoU).

In West and Central Africa, the basic regulatory instrument for ensuring maritime safety and seaworthiness is the Abuja Memorandum of Understanding (MoU)[69], which has the objective of harmonizing Port State Control and Flag State Implementation in the region. The Abuja MoU was signed in Abuja, Nigeria, on 22 October 1999, under the supervision of the International Maritime Organization pursuant to IMO Resolution A.682(17) of 1991. The MoU currently has Twenty-Two (22) African States[70], who have agreed, amongst others, to develop and implement a common mechanism for respective port state control activities. The main aim of the MoU is to advance a

[69] Abuja MoU (2025): *Abuja Memorandum of Understanding | Official Website* www.abujamou.org., Available at:<https://www.abujamou.org/index.php?pid=sgytd4df74fyhggw4y> accessed 12 February, 2025.
[70] *Ibid.* Angola, Benin, Cape Verde, Cameroon, Congo, Congo DRC, Côte d'Ivoire, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea-Bissau, Guinea Conakry, Liberia, Mauritania, Namibia, Nigeria, Senegal, Sierra Leone, South Africa, Sao Tome & Principe, and Togo.

scheme to harmonise port state joint inspection control process for the entire region. The idea is to reduce, and subsequent eradication of substandard ship, to prevent marine waste, and enhancement of work and living conditions of seafarers aboard ships[71].

Encompassing twenty-two-member states, including Nigeria, Ghana, and Senegal, the Abuja MoU aims to eliminate substandard shipping by harmonizing port state control (PSC) inspections in line with international conventions such as SOLAS, STCW, and the Load Line Convention. This regional initiative addresses the unique challenges of a region marked by heavy maritime traffic, piracy risks, and varying levels of national capacity, complementing global standards with localized enforcement mechanisms.

The Abuja MoU's contribution to seaworthiness lies in its rigorous PSC regime, which ensures that vessels calling at member state ports meet the structural, operational, and crew competency standards mandated by IMO conventions. Under Section 2 of the MoU, member states commit to inspecting at least 15% of foreign ships annually, targeting those with deficiencies in hull integrity, equipment functionality, or crew qualifications—which are all criteria directly tied to seaworthiness as defined under the Hague-Visby Rules and reinforced by the ISM Code[72]. Inspections prioritize compliance with SOLAS for safety equipment, the STCW Convention for crew training, and the IMDG Code for dangerous goods handling, with findings centralized in the Abuja MoU Information System (AMIS) database to track substandard vessels. Ships failing to meet these standards face detention or bans, bolstering regional safety by preventing unseaworthy vessels from operating.

[71] Neumann, T. ed., 2013. Marine Navigation and Safety of Sea Transportation: STCW, Maritime Education and Training (MET), Human Resources and Crew Manning, Maritime Policy, Logistics and Economic Matters.
[72] "Farthing on International Shipping" *supra* n. 2 at 178.

However, with the Abuja MoU, challenges persist. These include limited funding, disparities in member state capacity, and reliance on external technical assistance from the IMO, as evidenced by training programs like the 2024 *Maritime Labour Convention* Course[73]. Also, there is the inability to discover new trends due to a lack of statistical data and consequently it is difficult to check at the moment the impact of the work of the MoU under MARPOL 73/78.232[74]. Importantly, the management of waste at port within the maritime environment and marine safety involves proper coordination and harmonisation. Thus, scholars have advocated that port state control (PSC) rules must be significantly promoted in every country to ensure adequate compliance with global standards on safety at sea[75]. The PSC regime's initiatives enhance measures to prevent substandard ships from operating within the region. Available records show a reduction in ship detentions due to improved compliance procedures, facilitating business in the region while ensuring no substandard ships operate[76]. The reverse is the case in the region with inadequate implementation of PSC: the consequence of ineffective implementation of port state control scheme is the concentration of substandard ships in the region as ship owners observe the areas as a conducive area to operate which often leads to waste dumping to marine environment[77]. As a

[73] IMO (2024). *"Press Release: Successful Conclusion of MLC Training Course for Abuja MoU Members. London: IMO."* Available at:< https://abujamou.org/en/%F0%9F%8C%8D-successful-conclusion-of-the-regional-training-course-on-the-maritime-labour-convention-2006-for-port-state-control-officers-%F0%9F%8C%8D%F0%9F%9A%A2/> accessed March 30, 2025.
[74] Kasoulides, G., 1990. Paris Memorandum of Understanding: a regional regime of enforcement. *Int'l J. Estuarine & Coastal L.*, *5*, p.180.
[75] Rakestraw, A., 2012. '*Open oceans and marine debris: solutions for the ineffective enforcement of MARPOL Annex V*'. Hastings Int'l & Comp. L. Rev., 35, p.383.
[76] Cariou, P., Mejia Jr, M.Q. and Wolff, F.C., 2007. '*An econometric analysis of deficiencies noted in port state control inspections. Maritime Policy & Management*', 34(3), pp.243-258.
[77] Bang, H.S. and Jang, D.J., 2012. '*Recent developments in regional memorandums of understanding on port state control. Ocean Development & International Law'*, 43(2), pp.170-187.

result, ships capitalize on the lack of proper harmonization procedures and weak enforcement procedures[78].

2.4 National Legal and Regulatory Frameworks

International conventions like SOLAS, the Load Line Convention and the IMDG Code establish a global blueprint for maritime safety and seaworthiness, yet their effectiveness depend on the national legal and regulatory frameworks adopted by individual states. This section explores how selected jurisdictions adapt these universal standards into domestic law, shedding light on legislative and institutional structures that enforce seaworthiness and the distinct challenges of harmonizing national interests with international commitments. Through a comparative analysis of developed and developing maritime nations, the researcher highlights specific legislations and regulations used to ensure tangible safety outcomes in individual national maritime sectors.

2.4.1 The United Kingdom

The United Kingdom's maritime safety and seaworthiness framework is predominantly governed by the Merchant Shipping Act 1995[79], a comprehensive statute that consolidates prior legislation and embeds international obligations into domestic law. Through regulations like the Merchant Shipping (Safety of Navigation) Regulations 2020[80], the UK incorporates SOLAS standards, using adaptive provisions to show IMO updates—like the 2024 fire safety rules under MSC. 457(101)—

[78] Usoro, M.E. and General, S., 2014. '*Port state control: a tool for sustainable management of maritime safety and marine environment*'. In Proceedings of Maritime Women: Global Leadership International Conference (Vol. 1).
[79] Merchant Shipping Act 1995 (U.K.) 1995, c.21.
[80] Merchant Shipping (Safety of Navigation) Regulations 2020, SI 2020/0673; revoking Merchant Shipping (Safety of Navigation) Regulations 2002 (S.I. 2002/1473).

ensuring vessels remain seaworthy without the need to constantly rewrite the law.[81]. Seaworthiness gets pinned down in the Carriage of Goods by Sea Act, 1971, requiring shipowners to exercise due diligence, while the Marine Insurance Act 1906 makes it a deal breaker for insurance, thus making safety not optional[82].

The UK's maritime regime are largely effective as the SOLAS standards sync up fast with flexible updates, and seaworthiness rules under the 1971 Act make sure shipowners do not shirk their responsibilities[83]. Nonetheless, the Brexit made gaping holes because due to the lack of EU back up regulations, autonomous ships and cyber risks become more legally opaque, causing smaller boats under relaxed rules to slip through[84]. The regulations are strong for classic ships, but they are playing catch up with the new tech and small-fry risks – leaving seaworthiness a bit shaky where it counts[85].

2.4.2 The United States

The United State built its maritime safety and seaworthiness upon statutes such as the Merchant Marine Act of 1920 and Title 46 of the Code of Federal Regulations, augmented by the Oil Pollution Act of 1990, which collectively integrate international obligations into national law[86]. Regulations such as 46 CFR Parts 2 and 199 implements SOLAS requirements, including the 2024 fire safety amendments under Resolution MSC.457(101), while 33 CFR Part 155, pursuant to the

[81] *See* Amendments to IMO Instruments: upcoming and recent entry into force/effective dates, https://www.imo.org/en/About/Conventions/Pages/Amendments-to-IMO-instruments.aspx > accessed March 3, 2025

[82] Carriage of Goods by Sea Act 1971 (c.19), s.3; Marine Insurance Act 1906 (c. 41), s. 39.

[83] Ibid, COGSA 1971, s. 3.

[84] IMO Res MSC. 457(101) (adopted 14 June 2019, entered into force 1 January 2024), amending SOLAS Ch II-2 (FSS Code); see also ABSeagle (@ABSeagle), International Maritime Organisation (IMO) Sub-Committee on Ship Systems and Equipment (SSE) 11th Session, held February 24 – 28, 2025, X (March 3, 2025, 6:10PM), https://abseagle.info/SSE11.
posts, IMO SSE 11th Session, February 2025.

[85] MSA 1995, s.94.

[86] Merchant Marine Act of 1920, 46 USC § 50101; Oil Pollution Act of 1990, 33 USC § 2701 et seq.

Oil Pollution Act, imposes stringent spill prevention and vessel design standards; these are codified through the Federal Register, eschewing the automatic updates prevalent in other jurisdictions[87]. Seaworthiness in the United States is delineated by statutory provisions such as 46 USC § 10908 and the Carriage of Goods by Sea Act 1936, reinforced by the Oil Pollution Act's mandates for spill-resistant vessels, such as double-hull requirements, and shaped by judicial interpretations, notably *The Pennsylvania Rule,* which imposes a heightened burden of proof in collision cases[88].

The United States' regulatory framework enforces maritime safety with rigor, incorporating SOLAS into the CFR and imposing liability through the Merchant Marine Act, COGSA, and the Oil Pollution Act's penalties, thereby upholding stringent standards[89]. Nevertheless, challenges persist and is represented by the deliberate codification process delays alignment with international amendments, specific regulations for autonomous vessels and cybersecurity remain undeveloped, and exemptions for smaller domestic vessels undermine the framework's comprehensiveness, even within the ambit of the Oil Pollution Act[90]. While effective for traditional maritime operations, the framework exhibits vulnerabilities to emerging technological risks and regulatory inertia, thus presenting deficiencies more pronounced than in some comparator jurisdictions and necessitating reform[91].

2.4.3 Nigeria

[87] 46 CFR §. 2.01-1 (2024); reflecting IMO Res MSC.457 (101) (adopted 14 June 2019, entered into force 1 January, 2024), amending the SOLAS Ch II-2 (FSS Code).
[88] 46 USC § 10908; Carriage of Goods by Sea Act 1936, 46 USC § 30701, s. 3; *The Pennsylvania* 86 US 125 (1873).
[89] 46 CFR § 199.05 (2024); Merchant Marine Act of 1920, 46 USC § 30104; 33 CFR § 155.1010 (2024).
[90] 46 CFR § 2.01-7 (exemptions for small craft); IMO SSE 11th Session discussions, X posts, February, 2025.
[91] 46 USC § 10908—broad but silent on technological advances.

The cornerstone of Nigeria's maritime legal regime is the Merchant Shipping Act (MSA), 2007 which domesticates key international conventions and provides a comprehensive framework for regulating seaworthiness and safety. Of particular interest and specific relevance to the obligation of seaworthiness are the provisions of Part III, Part IX, Part X, Part XII and Part XVII of the Merchant Shipping Act, 2007.

Under Part III, the Act is mandated to set procedure and ensure the valid registration of vessels and the licensing of same. These requirements meet the documentary seaworthiness of all ships with Nigerian nationality. The Act also ensures that vessels of other countries have valid documentation of registration as well as proper licensing to access routes and the goods the ship is carrying which all satisfies the documentary seaworthiness of the vessel to avoid delay or non-delivery of goods by sea.[92]

Parts IX and X turns the focus of the act to the human welfare and competence of crew members seaworthiness of a ship. It enjoins the ACT to oversee the labor issues surrounding the employment of seamen covered particularly from Sections 91 to 175 of the Merchant Shipping Act, and the welfare of these seamen, health status while on board and away on shore, the accommodation of the members of crew while on board the vessel as well as the schedules. These sections give efficacy to the particular function of the NIMASA over employment and welfare of labor matters regarding seafarers and ship? owners provided for under Section 22 of the Act.[93]

[92] *Baraka v. MacAndrew* (1863) 18 C B NS 759.
[93] *Barrette v. Out ton* [1815] 4 Camp 333

Part XII domesticated the International Convention of the Safety of Life at Sea. It covers the provisions of Section 216 to 249 of the Merchant Shipping Act. Under Section 216, the MSA mandates the appointment of a Surveyor of Ships by the Minister of Transport to inspect vessel and issue certificates of seaworthiness, ensuring compliance with standards akin to those in SOLAS for construction, equipment, and navigation. Section 219(4) further requires annual surveys for ships registered in Nigeria and ships sailing in Nigeria coastal waters, reinforcing the obligation of shipowners to maintain seaworthiness throughout the operational life of a vessel. The Act also regulates safety through provisions on collision prevention in sections 267 – 275, aligning with COLREGSs and establishes liability for non-compliance and emphasizing the legal duty to ensure a vessel's fitness for its planned voyage.

Finally, Part XVII of the Merchant Shipping Act, comprising from Sections 280 to 288 of the Act, domesticated the structural framework of the Hague/Visby and Hamburg Rules. *Section 280* creates liability for an unseaworthy ship as well as the officer liable personally for not meeting the minimum standard of seaworthiness. *Section 281* highlighted seaworthiness as implied obligation irrespective of the nature of voyage - whether time, voyage or bare boat charter - and empower the ACT to enforce such regulation. Furthermore, as a measure to ensure seaworthiness of a ship, the ACT is empowered under *Sections 283* and *285* to detain Nigerian and foreign ships which upon complaints fails the evaluation of seaworthiness, with the shipowner or person responsible for the vessel satisfying the cost of evaluation. Also, members of crew, seamen can raise alert about the unseaworthiness of a ship to the Nigerian Maritime Administration and Safety Agency (NIMASA) which can be investigated by the institution.[94] It should be noted that, the penalty, sanctions and

[94] NIMASA Act, 2007, s. 22(2)(a) & (b).

punitive measures in Merchant Shipping Act, 2007 is independent of the personal claim of the party affected by the unseaworthiness of the ship.

Complementing the MSA, the Nigerian Maritime Administration and Safety Act (NIMASA Act) 2007[95] repealed the Nigerian Shipping Policy Act and the Nigerian Maritime Labor Act as well as scrapped out the National Maritime Authority and established the Nigerian Maritime Administration and Safety Agency (NIMASA) as the primary regulatory body tasked with enforcing maritime safety and seaworthiness standards. NIMASA primarily manages all forms of administration of maritime activities including labor, ship ownership, administration and operation on both the Nigerian territorial waters and inland waterways. Her aims are to the promote maritime safety and security for merchants, ship- owners, seafarers, business interest holders, explorers, as well as the protection of the marine environment, maritime labor and the establishment of an enforcement agency to ensure the implementation of these provisions as captured in the preamble of the NIMASA Act.

Section 22 (1) of the NIMASA Act lists the mandate for the NIMASA particularly enumerated in *Section 22 (1) (c)* that NIMASA would handle the certification of seafarers as well as *Section 22 (1) (g)* which deals with setting up the mode and procedure of ensuring that seafarers and owners take all measures of vessel security for their respective vessel. Proper and adequate certification of seafarers goes to the competence seaworthiness of the vessel as it also touches on the Human assurance. Likewise, having to put all security measures in place on board the vessel satisfies the physical and equipment seaworthiness of the vessel. *Section 22 (1) (j)* also mandates this institution

[95] Cap N127 LFN, 2004.

to provide directions for vessels as to the certification, employment and welfare of maritime labors. This is aimed at ensuring that the schedule of the vessel is such that, all persons employed are duly certified, and have access times and hours of rest as required by the *Maritime Labor Convention, 2006* so that, lack of adequate would not arise as a peril on voyage. The NIMASA is also saddled with the responsibility of ensuring that all vessels involved in any of the forms of internal sabotage covered under *the Nigerian Cabot age Act, 2003* comply with the international standards and rules regarding seaworthiness and other obligations in the carriage of goods by sea. The NIMASA is also by *section 22 (1) (q)* is required to provide for the procedure of implementing all international conventions, charters, codes and resolutions concerning shipping by sea, safety of the vessel, marine labors and security that the country has ratified and has fully come into force in Nigeria It should be noted that the failure of seafarers and/or ship-owners to comply with the directions of the NIMASA under the said Act would activate the generally violation and punishment section of the Act[96].

More specifically, *section 40* empowers the body to identify and detain a ship or vessel considered unsafe (in other words unseaworthy) for voyage. The shipowner and seafarers are not speared as they become liable for the operation of such a vessel when apprehended.[97]

T*he Coastal and Inland Shipping (Cabotage Act), 2003*[98] further bolsters Nigeria's framework by restricting domestic coastal trade to Nigerian-flagged vessels, which must meet seaworthiness standards to obtain a Certificate of License[99]. This Act aims to enhance indigenous capacity while

[96] NIMASA Act, 2007, ss. 58, 61 and 62.
[97] NIMASA Act, 2007, ss. 42 and 43.
[98] Cap C25 Laws of the Federation of Nigeria, 2004.
[99] See Section 5 of the Cabotage Act.

ensuring that only seaworthy vessels operate in Nigerian waters, though its Cabotage Vessel Financing Fund, which is meant to support shipbuilding and maintenance, remains undistributed, limiting its practical impact[100]. Other relevant legislation, such as the *Admiralty Jurisdiction Act 1991*[101], delineates the Federal High Court's authority over maritime claims, including those related to unseaworthiness, thus providing a judicial avenue for enforcement and dispute resolution.

Operationally, the Nigerian Port Authority is the Federal Government institution responsible for governing and operating the ports and harbors in Nigeria. Her operations, akin to the ACT are under the supervision of the Federal Ministry of Marine and Blue Economy[102]. Port operation and development began in Nigeria in the middle of the 19th century. Efforts have been made through the law with different dynamic provisions to develop the state Nigeria's ports. The Nigerian Ports Authority was established under the *Nigerian Ports Authority Act, 1999 (NPA Act)*[103] for the purpose of providing and operating necessary facilities in ports and maintaining, improving and regulating the use of the ports.

Though primarily concerned with the ports, certain provisions under the NPA Act, covers matters/issues that ensure the seaworthiness or safety of ships. One of such matters/issues is the ISM Code 2002/2004. The International Safety Management Code (ISM), was introduced, and

[100] A Anagor-Ewuzie "*Ship owners seek disbursement of $200m CVFF as Jamoh takes over in NIMASA*" (11 March 2020) *Business Day*, available at: <https://businessday.ng/maritime/article/ship-owners-seek-disbursement-of-200m-cvff-as-jamoh-takes-over-in-nimasa/> (last accessed 25 March, 2025)

[101] Cap A5 Laws of the Federation of Nigeria, 2004.

[102] Historically, the NPA operated under the Federal Ministry of Transportation, which oversaw a broad portfolio including aviation, rail, road, and maritime activities. However, on August 21, 2023, President Bola Ahmed Tinubu announced the creation of the Ministry of Marine and Blue Economy as a new ministerial portfolio, carved out from the former Ministry of Transportation. Biodun Busari "*See 10 new ministries Tinubu created, modified*" available at:< https://www.vanguardngr.com/2023/08/see-10-new-ministries-tinubu-created-modified/> (last accessed 25 March, 2025)

[103] Cap. 126 Laws of the Federation of Nigeria, 2004.

was incorporated into Safety of Life at Sea Convention with the aim to improve Maritime Safety by introducing a series of measures to ensure that vessels are kept up to certain standards. Such measures include maintenance and testing of the vessel and its equipment, and carrying out regular audits to make sure that the vessel is constantly in compliance with the Code. The Nigerian Ports Authority is also custodian of the ISM Codes at various ports in Nigeria. As a matter of fact, Nigerian ports all have the top most ISM clearance. Thus, vessels that have not met the minimum requirement of the ISM Code are not allowed to berth or shuttle within the port[104]. This function and power is successfully carried out in collaboration with the NIMASA, her sister agency.

2.4.4 Concluding Remarks

The comparative analysis reveals the importance of strong legal frameworks, independent institutions, and active civil societies in ensuring maritime safety. For Nigeria, leveraging lessons from the UK and USA while addressing its unique challenges can foster a more robust maritime safety regime. However, the interplay between domestic realities and international obligations remains critical to advancing maritime safety and seaworthiness objectives.

[104] See Sections 7 and 8 of the Nigerian Ports Authority Act, 1999.

CHAPTER THREE

PRACTICAL CHALLENGES IN ENFORCING SEAWORTHINESS REGULATIONS

While international and national frameworks establish robust standards for maritime safety and seaworthiness, their practical enforcement remains fraught with challenges that undermine their effectiveness. This chapter delves into the real-world obstacles that impede the consistent application of regulations such as SOLAS, the Load Line Convention, and the IMDG Code, revealing a complex interplay of technical, economic, and jurisdictional factors. By examining these barriers, alongside compliance disparities and enforcement mechanisms, it becomes evident that achieving seaworthiness is not merely a matter of legal prescription but a test of global implementation capacity.

3.1 Barriers to Effective Implementation of Maritime Safety Standards

Despite the adoption of international maritime safety conventions, Nigeria faces structural and institutional barriers that limit effective implementation. In her book, Dr. Aleka Mandaraka - Sheppard[105] argues that lack of transparency within the industry, as well as lack of consistency are to blame for the lackluster and ineffective implementation of international conventions. Mukherjee[106] also alleges that the lack of effective implementation of safety standards is attributable to the rapid proliferation of open registries, leading to the failure of flag states to discharge their responsibilities and statutory mandates under international conventions with the diligence required of them.

[105] Mandaraka-Sheppard, supra at note 47.
[106] Farthing on International Shipping, supra note 2 at p.206.

However, assume that only lack of transparency within the maritime industry and the proliferation of open registries are the only barriers to effective implementation of maritime safety standards. Such expositions overlook the role played by a conflicting interest by sister agencies and official corruption in the weak enforcement of maritime regulations in developing states. In the Nigerian context, as Ologe[107] highlights, lack of cooperation and wanton corruption, thus making the policy objective of the cabotage Act in Nigeria prostrate.

In addition, Nigeria's legislative framework is further limited by delayed domestication of treaties,[108] such as the United Nations Convention on the Law of the Sea (UNCLOS), partially incorporated in 2019, hindering adaptability to modern risks. Due to the federal structure of Nigeria, she operates the dualist principle of international law. According to Babatunde and Abdulsalam[109], "an international instrument or treaty which has been signed and ratified by the Nigerian state can only be applicable upon domestication. Therefore, while transparency and a sanitized open registry system matter in the effective implementation of maritime safety standard, attention must also be paid to the weak socio-legal, institutional and political factors at play in the maritime industry of weak, corrupt, and developing states --- especially in the global south. These barriers identified demonstrate that international conventions like SOLAS are insufficient without coordinated state – level capacity.

[107] Ologe, A. "Enforcement Framework for Maritime Regulations: Penalties and Compliance in Nigeria" (2006). *International Review of Law and Jurisprudence (IRLJ)*, 6(1), 134-138 at p.137.
[108] See s.12(1) 1999 Constitution which provides: "*No treaty between the Federation and any other country shall have the force of law to the extent to which any such treaty has been enacted into by the National Assembly*." See also *Abacha v. Fawehinmi* [2000] 6 NWLR (Pt. 660) 228 – 288, where the Supreme Court held that a treaty is not binding until and unless the National Assembly incorporates it into Nigerian law.
[109] Babatunde, E. O., & Abdulsalam, M. M. "Towards Maintaining Peacefulness of the Sea: Legal Regime Governing Maritime Safety and Security in Nigeria." (2021) *Beijing Law Review*, 12, 529 – 559 (hereinafter "Towards Maintaining Peacefulness of the Sea").https://doi.org/10.4236/blr.2021.122029.

3.2 Comparative study and Emerging Issues in the Applicable Maritime Safety and Seaworthiness Frameworks in UK and Nigeria

The effective implementation of maritime safety standards hinges on overcoming a range of systemic and operational barriers that vary across jurisdictions and vessel types, often exposing gaps between regulatory intent and practical reality. The effective implementation of maritime safety standards varies significantly across jurisdictions due to differences in legal frameworks, political structures, cultural contexts, and enforcement mechanisms. The analysis of maritime safety and seaworthiness frameworks in the United Kingdom and Nigeria is undertaken due to their significant differences in legal traditions, regulatory capacities, and implementation of international obligations.

3.2.1 The United Kingdom

The UK, as a participant in the Paris Memorandum of Understanding (MoU), adopts a **dualist approach**, requiring international maritime conventions to be incorporated into domestic law before they can have effect. This has resulted in a comprehensive legislative framework, with the Merchant Shipping Act 1995 serving as the cornerstone. Under this Act, international obligations derived from SOLAS, MARPOL, and the Maritime Labour Convention (MLC) are consolidated, ensuring that vessel construction, equipment, crew training, and operational safety are subject to detailed statutory oversight.

Scholars generally acknowledge the UK's framework as one of the most advanced globally. Section 94 of the Merchant Shipping Act 1995 imposes a **non-delegable duty** on shipowners to ensure seaworthiness, a duty reinforced by the Hague-Visby Rules and judicial precedents such as

The Muncaster Castle[110], which expanded shipowners' liability for negligent repairs. This strict standard has been praised for reducing ambiguity in the scope of seaworthiness obligations[111]. Furthermore, enforcement by the Maritime and Coastguard Agency (MCA) has been described as robust, with rigorous Port State Control (PSC) inspections under the Paris MoU contributing to consistently low detention rates[112]. The UK has also integrated emerging safety concerns, such as cyber-risk management, through secondary legislation like the Merchant Shipping (Safety of Navigation) Regulations 2020, which implement SOLAS Chapter V and IMO Resolution MSC.428(98).

Despite these strengths, critics argue that the UK's framework is not without weaknesses. First, while dualism allows selective incorporation of conventions, it can delay the domestic effect of emerging international standards, creating regulatory lag[113]. Second, although PSC under the MCA is effective, scholars note that enforcement remains **resource-intensive**, relying heavily on advanced technical capacity that may not always be sustainable in periods of austerity (Bloor & Sampson, 2009). Third, while the UK has positioned itself as a leader in **decarbonization efforts**, its regulatory framework has been criticised for lagging behind in safety rules governing alternative fuels such as LNG and hydrogen, which present novel operational risks without tailored safety provisions[114]. Additionally, the reliance on arbitration mechanisms for detention appeals—while efficient—may limit the scope of judicial scrutiny, potentially undermining transparency in regulatory enforcement.

[110] *Riverstone Meat Co Pty Ltd v. Lancashire Shipping Co Ltd* [1961] AC 807.
[111] Tetley, *Marine Cargo Claims* (2008) at p. 931.
[112] Cariou, Mejia Jr, & Wolff, supra note 76.
[113] Trevisanut, Seline. (2017). Search and Rescue Operations at Sea. 10.1017/9781316227480.018.
[114] Christodoulou-Varotsi, Iliana. (2018). Other sources of marine pollution. 10.4324/9781315709925-9.

Taken together, the UK's framework demonstrates a balance of **legal stringency and technical capacity**, making it one of the most effective models globally. Yet its success also reflects the UK's economic and institutional strength, raising questions about whether similar results could be replicated in jurisdictions with weaker enforcement structures, such as Nigeria. While the UK has made commendable advances, especially in integrating cyber-risk provisions, unresolved issues around the regulation of alternative fuels and the sustainability of resource-intensive enforcement suggest that its framework is not immune from critique.

3.2.2 Nigeria

Nigeria, as a member of the Abuja MoU, adopts a **monist system**, where ratified treaties form part of national law once domesticated. The Merchant Shipping Act 2007 serves as the principal legislation on seaworthiness, incorporating SOLAS, MARPOL, and the MLC into Nigerian law. Section 258 provides a statutory definition of seaworthiness, while Section 219 reflects the Hague-Visby Rules' standard of due diligence. Judicial interpretation, as seen in *NIMASA v. Hensmor Nigeria Ltd*[115], has further clarified the criteria for seaworthiness, affirming the authority of the Nigerian Maritime Administration and Safety Agency (NIMASA) to detain unsafe vessels under Section 261. In practice, crew reports of unseaworthiness may trigger NIMASA investigations, aligning Nigeria's procedures with the broader objectives of Port State Control (PSC) under the Abuja MoU.

[115] [2012] LPELR – 14709 (CA).

Scholars acknowledge that Nigeria's statutory framework demonstrates a clear effort to align domestic law with international maritime conventions[116]. The annual survey requirement under Section 216 of the Merchant Shipping Act mandates regular inspections of vessel construction, equipment, and crew competence, a measure designed to raise compliance standards. NIMASA, established under the NIMASA Act 2007, is tasked with ensuring maritime safety, maintaining ship registries, and administering PSC functions. The NIMASA PSC Regulations 2014 provide detailed inspection protocols, reflecting Nigeria's commitment to international obligations. Judicial decisions, such as *Fugro Subsea LLC v. Petrolog Ltd*[117], have also reinforced the primacy of admiralty jurisdiction by affirming that arbitration clauses cannot oust the Federal High Court's exclusive competence in disputes involving seaworthiness. These developments show Nigeria's intent to assert strong regulatory and judicial oversight in maritime Safety.

Despite these statutory provisions, commentators have consistently identified significant enforcement challenges[118]. NIMASA's inspections are often delayed due to lack of infrastructure, financial incapacity, and inadequate technological capacity**,** leading to higher detention rates in Paris MoU states and subsequent "region shopping" by substandard vessels. Furthermore, unlike the UK's MCA—which benefits from advanced technical resources—NIMASA struggles with shortages of skilled personnel and reliable equipment, undermining the effectiveness of PSC. In addition, Judicial bottlenecks weaken Nigeria's system: while the Federal High Court has

[116] Bamigboye, Oluwaseyi Mike, Arbitration Law and Practice: Does National Court Involvement Undermine the Arbitration Processes? (February 29, 2015). The Lord Justice Journal, Vol.6, Essays in Honour of Chief Mrs Folake Solanke SAN, Journal of the Law Students' Society, University of Ibadan, Available at SSRN: https://ssrn.com/abstract=2858812 or http://dx.doi.org/10.2139/ssrn.2858812

[117] [2021] LPELR—53133 (CA).

[118] Paul Chika Ochulor, '*Abuja MOU as a facilitator for the implementation of IMO instruments in the West and Central African region*', being a dissertation submitted to the World Maritime University in partial fulfillment of the requirements for the award of the degree of Master of Science in Maritime Affairs (Maritime Law Policy) (2023) at p.49.

exclusive jurisdiction, proceedings are often protracted, costly, and subject to procedural delays. Appeals against detention orders rely on general constitutional and statutory mechanisms, such as the rules of court and Section 46 of the 1999 Constitution, rather than specialized maritime

arbitration, leaving shipowners with fewer streamlined remedies. Critics argue that these institutional and procedural weaknesses not only discourage investment but also perpetuate the problem of substandard shipping in Nigerian waters[119].

Overall, Nigeria's framework demonstrates **strong statutory alignment with international conventions**, but its practical effectiveness is constrained by systemic weaknesses. The legislative framework is ambitious, but gaps in enforcement, resource limitations, and judicial inefficiencies undermine its full potential. Compared to the UK's system, Nigeria's enforcement remains **reactive rather than preventive**, with regulatory actions often triggered only after significant safety risks have materialized. This contrast highlights the broader challenge for developing maritime states: while the formal legal structures may mirror international standards, the absence of robust institutional and technical capacity creates a wide gap between law and practice. Bridging this gap is essential if Nigeria is to fully meet its obligations under the global maritime safety regime.

3.2.3 Concluding remarks

The comparative analysis reveals the importance of strong legal frameworks, independent

[119] Ikenga Oraegbunam, "Problems of Litigation in Settlement of Maritime Disputes for Nigeria Today: The Preference for Arbitration" (2013) *Nnamdi Azikiwe University Journal of International Law and Jurisprudence* 34 – 35.

institutions, and active maritime safety administration in effectively implementing maritime safety standards. The UK's framework benefits from systematic legislation and robust enforcement, positioning it as a global leader in maritime safety. The MCA's proactive policies, supported by judicial clarity and advanced infrastructure, contrast with NIMASA's reactive approach, hampered by resource constraints and limited judicial precedent on seaworthiness disputes. The *Fugro Subsea* decision strengthens judicial oversight of safety-related disputes in Nigeria but underscores the absence of streamlined arbitration, unlike the UK's model. Both jurisdictions face challenges in addressing emerging risks, such as alternative fuel safety and cyber-security, where global standards remain nascent. However, the UK's integration of IMO guidelines and regional initiatives, like the EU's *FuelEU* Maritime[120], outpaces Nigeria's slower adoption, underscoring the need for capacity-building and regulatory harmonization to strengthen Nigeria's maritime safety and seaworthiness framework.

For Nigeria, leveraging lessons from the UK while addressing her unique challenges can foster a more robust maritime safety and seaworthiness regime. However, the interplay between domestic realities and international obligations remain critical to advancing maritime safety and seaworthiness.

3.3 The Role of Flag States and Port State Control in Enforcement

[120] The EU's *FuelEU* Maritime program requires the use of low-carbon fuels, although many places outside the EU don't have such rules, which leads to different safety standards. See European Commission. (2023). *'FuelEU Maritime Initiative: Proposal for Regulation.'* Brussels: European Commission. Available at:< https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13952-Decarbonising-the-shipping-sector-template-for-standard-monitoring-plans-Article-8-4-FuelEU-Maritime-Regulation-_en> accessed April 19, 2025.

The regulation of maritime safety reflects a delicate balance between the flag state's sovereign obligation to ensure the seaworthiness of its vessel and the port state's residual authority to verify compliance when those vessels enter its port.

While the enforcement of international conventions such as SOLAS and the STCW rests largely on the dual roles of flag states and port state control (PSC), most western academic and policy debates assume that institutional capacity and political will are the panacea to the problem of ineffective discharge of safety obligations. Mukherjee[121] argues that it is not realistic to circumscribe shipping operations into a national or even regional context. Rather, he states that it is important that, at each level, the appropriate responsibilities should be properly fulfilled in commercial and regulatory terms to enforce the international safety standards.

This assumption, however, fails to consider the realities of developing maritime administrations where lack of resources, outdated legislation and bureaucratic inefficiency hampers enforcement. For example, many Abuja MoU member states, including Nigeria, grapple with limited resources, including but not limited to outdated tools and undertrained staff, which weakens the process of enforcement of international conventions.[122] As Mukherjee observes, "shipping nationalism" and the dependence of many flag states on foreign ship registration often lead to regulatory laxity, leading to the proliferation of substandard ships under their flags. In an attempt to remedy the problem, port state control mechanisms such at the Paris MoU and Tokyo MoU have been designed to empower port states to inspect and detain ships that violate international safety standards.

[121] Farthing on International Shipping, *supra* note 2 at p.222.
[122] Paul Chika Ochulor, *supra* n.117 at p.49.

Yet, as Mukherjee [123] argues, PSC remains a reactive and non-binding instrument *para droit*, largely driven by the priorities and technical superiority of developed maritime states. As a result, developing countries like Nigeria remain a dumping ground for western standards rather than active participants in the global maritime safety discourse. This imbalance underscores the need for a context – sensitive harmonization that strengthens the capacity of flag states in the Global south instead of merely tightening surveillance by those in the North.

3.4 The Impact of Technological Advancements on Seaworthiness Compliance

Topic sentence –Technological advancement has greatly changed the way shipowners and regulators ensure seaworthiness, making compliance more complex but also improving safety and efficiency at sea.

One major concern with the rise of new technologies is how existing safety regulations like those in SOLAS can still apply to ships that operate without human crew. For instance, while Regulation 14 of Chapter V of the International Convention for the Safety of Life at Sea (SOLAS) provides that every ship must properly and adequately be manned, the advent of autonomous ships has raised serious legal gaps. In its widely publicized position paper on unmanned vessels, the Comite Maritime International (CMI)[124] posited that in as much as the requirement of manning adequacy in Regulation 14 does not prohibit unmanned operability, the regulation's aim is fashion out a way by which relevant maritime administrations can satisfy themselves of the safety requirements of the human crew rather than to determine the particular mode of operation of a vessel. While there

[123] "Farthing on International Shipping" *supra* n. 2 at p. 187.

[124] CMI IWG. CMI International Working Group Position Paper on Unmanned Ships and the International Regulatory Framework, 2018 ("Hereinafter Unmanned Ships and the International Regulatory Framework"), <https://comitemaritime.org/wp-content/uploads/2018/05/CMI-Position-Paper-on-Unmanned-Ships.pdf>, (accessed on 10 October 2025)

is merit in the argument because of the initial reticence of maritime administrations to approve of manning requirements for unmanned vessels in the absence of targeted and codified regulations for particular operations, it assumes that maritime administrations of underdeveloped maritime nations, especially in the global south, have the critical infrastructure, institutional capacity and technical capacity to adapt the provisions of Regulation 14 to evaluate such advanced technology. The position paper, like many of its western-themed publications, overlooks Africa's regulatory framework. In the Nigerian context, as Igwe[125] highlights, NIMASA has yet to issue binding directives incorporating technological seaworthiness or cyber awareness into its enforcement framework. The implications of the current debate on technology's impact on seaworthiness compliance is that there is no consideration in the current discourse about the limited participation of the global south countries in the shift towards technological seaworthiness. Failure to do that risks engendering unequal compliance capacity to meet up with evolving safety standards, thereby deepening the regulatory gap in global maritime safety.

3.5 Maritime Accidents and Seaworthiness Failures

Maritime accidents caused by seaworthiness deficiencies underscore the critical need for robust legal and regulatory frameworks to ensure vessel safety, particularly in Nigeria, where enforcement gaps exacerbate risks compared to the UK's stringent oversight.

Major maritime accidents reveal the persistent failure of operators and regulators to meet seaworthiness obligation often due to weak enforcement, poor training, or regulatory evasion.

3.5.1 First Case Study 1

[125] Icho Seimokomoh Igwe, "The Role of Shipping Industry in the Maritime Regulatory Process: The Case for Nigeria" (2019)28 *International Journal of Engineering and Computing*, 20063 (Hereinafter "The Role of Shipping Industry in the Maritime Regulatory Process: The Case for Nigeria").

The *M/*V Marine Star – Engine Failure and Lack of Maintenance

Background:

The MV *Marine Star*, a coastal cargo vessel operating between Lagos and Port Harcourt, suffered an engine room fire in 2021 that led to a complete blackout. The vessel was adrift for over 36 hours before NIMASA-coordinated assistance arrived. Crew members reported that the ship had experienced frequent malfunctions in the months leading up to the incident, but the owners delayed repairs due to cost concerns.

Seaworthiness Failure:

Investigations revealed poor maintenance logs, outdated safety equipment, and no record of recent safety drills. The engine's cooling system was clogged, likely due to lack of regular cleaning, a breach of the duty to maintain seaworthy machinery.

Human Impact:

Two junior engineers suffered serious burns. One later testified that he had earlier reported the engine's overheating risk, but the chief engineer allegedly told him "*the vessel must keep sailing – complaints can wait*"

Legal Commentary:

This case reflects a breach of the duty of due diligence to make a ship seaworthy[126] under Article III Rule 1 of the Hague-Visby Rules. The vessel's operators arguably failed to maintain and repair the ship properly, exposing crew and cargo to unnecessary risk.

3.5.2 First Case Study 2

***MV Solace* – Failure of Navigation Equipment and Officer Fatigue**

[126] Tetley, *Marine Cargo Claims* at p.931

Background:

In 2020, the *MV Solace,* a bulk carrier registered in Liberia but operated by a Nigerian Shipping firm, ran aground off the coast of Bonny Island due to navigational error in poor visibility. AIS AIS and radar systems were functional but partially obstructed by outdated software.

Seaworthiness Failure:

Post-accident review found that the second officer was working back-to-back shifts due to short crewing. He missed a critical course correction, partly due to fatigue and partly due to over – reliance on a malfunctioning ECDIS system. The bridge team had not received adequate training on manual backup procedures.

Human Impact:

No fatalities occurred, but the psychological toll on the junior officers, who feared they would be blamed, was significant. The captain later wrote in his statement: "*I had the vessel, but not the rested men to run her safety*." According to the rules of safe navigation, in an event of a stormy weather and low visibility, the crew must take a suitable safety speed. These provisions were not respected by the crew of *M/V Solace.*

Legal Commentary:

Under the ISM Code[127], failure to adequately train personnel and ensure safe manning standards constitutes a breach of seaworthiness obligations. This incident highlights the overlap between crew management and technical seaworthiness[128].

[127] ISM Code, Part A, para. 6.2 & 7.

[128] Julia Anastasiou, "*Crew Operations Management*", in I.D. Visvikis and P.M. Panayides (eds), *Shipping Operations Management* (Springer International Publishing: 2017) p.74.

3.5.3 First Case Study 3

The *MV Prosperity* --- Overloading and Poor Weather Planning

Background:

In 2019, the *MV Prosperity*, a Nigerian-flagged general cargo vessel, capsized in the Gulf of Guinea during a routine voyage from Takoradi to Calabar. The incident occurred after the vessel entered rough weather while significantly overloaded.

Seaworthiness Failure: Despite weather warning issued by the Ghana Meteorological Agency, the shipowner insisted the voyage proceed to avoid demurrage charges. The cargo exceeded allowable weight by 14%, and containers were poorly insured.

Human Impact:

Six of the thirteen crew members died. Survivors clung to the drifting wreckage until rescued by a nearby fishing trawler. One crew member recalled: "*We knew she was not stable when we left port – we just hoped to survive it*."

Legal Commentary:

This case illustrates a flagrant violation of the seaworthiness duty codified under the SOLAS Chapter II – 1[129] and the Merchant Shipping Act of Nigeria. The failure to heed weather forecasts and secure cargo properly undermines the vessel's structural and operational readiness.

[129] SOLAS 1974, Chapter II-1, Regulation 5.

CHAPTER FOUR

EVALUATING THE EFFECTIVENESS OF MARITIME SAFETY REGULATIONS

This section argues that despite global conventions' theoretical comprehensiveness, their regional effectiveness remains questionable, especially in jurisdictions with enforcement constraints. To see how well maritime safety and seaworthiness frameworks function, you need to look at how well the international, regional, and national levels work together to make sure ships are safe and seaworthy. The SOLAS and STCW conventions and Nigeria's Merchant Shipping Act all lay forth a robust framework, at least in theory. This part looks at whether they really do what they say they will do, using their strengths and weaknesses as examples, and also how things work in Nigeria, where the stakes are high because of our bustling Gulf of Guinea waters.

4.1 Effectiveness of Existing International, Regional, and National Frameworks

While international maritime safety frameworks appear comprehensive on paper, their real impact is often limited at the national level because of poor implementation and peculiar challenges faced by different maritime administrations. While the IMO's frameworks are comprehensive in scope, their impact at the national level is often constrained by weak enforcement structures, limited institutional capacity, and contextual mismatches between global standards and local realities.

In the Nigerian context, for instance, many of the international conventions have been domesticated through the Merchant Shipping Act and related subsidiary legislation, yet practical enforcement remains weak. The gap between ratification and implementation often arises from insufficient technical expertise, funding challenges, and outdated institutional mechanisms within

agencies such as NIMASA[130]. By contrast, in the UK, the Maritime and Coastguard Agency (MCA) has developed a strong culture of safety compliance, underpinned by robust monitoring systems and a professionalised maritime workforce.

Therefore, while international frameworks have succeeded in establishing a minimum global safety baseline, their regional and national implementation remains uneven, often undermining the very purpose of the conventions. This shows that effectiveness is not merely a matter of having laws in place but of ensuring they are fully operationalised in contextually appropriate ways.

4.2 Absence of Comprehensive Cyber-Seaworthiness Standards

The rapid integration of digital technologies in ship operations has created a new dimension of seaworthiness — cyber-seaworthiness — which traditional regulations like SOLAS did not originally contemplate. Despite growing recognition of cyber risks in maritime operations, there is still no comprehensive international standard governing how ships should ensure cyber safety as part of their seaworthiness obligations.

This regulatory vacuum has serious implications. Most shipowners and flag administrations interpret cybersecurity as a technical or IT concern rather than a core safety issue. However, as recent incidents of GPS spoofing and ransomware attacks have shown, cyber vulnerabilities can easily compromise navigation, propulsion, and communication systems — the very heart of

[130] Towards Maintaining Peacefulness of the Sea, *Supra,* note 109 at p. 536.

seaworthiness[131]. Although the IMO's 2021 Guidelines on Maritime Cyber Risk Management attempted to address this gap, they remain advisory and lack binding force[132].

For developing nations like Nigeria, the problem is even more acute. Limited awareness, inadequate infrastructure, and low digital literacy levels within maritime administrations make it difficult to integrate cybersecurity into national seaworthiness standards[133]. This underscores the urgent need for binding international rules that reflect the realities of both technologically advanced and developing maritime states.

4.2.1 Decarbonisation: New Fuels, New Risks

The global push towards decarbonisation in line with the IMO's greenhouse gas reduction strategy has introduced new technical and legal challenges for seaworthiness compliance. The shift from conventional marine fuels to alternatives such as LNG, methanol, and ammonia presents new safety risks in handling, storage, and propulsion systems.

Although the IMO has adopted measures under MARPOL and SOLAS to promote safe use of alternative fuels, these regulations are still evolving and remain fragmented. For instance, while the IGF Code[134] provides a framework for ships using gases or low-flashpoint fuels, it does not

[131] Breached Company, "Pirates in the Digital Seas: The Global Maritime Security Crisis" https://breached.company/pirates-in-the-digital-seas-the-global-maritime-cybersecurity-crisis/#:~:text=MarineMax:%20The%20Retail%20Maritime%20Target,Personally%20identifiable%20information%20(PII) Accessed October 21, 2025.
[132] International Maritime Organization, *Guidelines on Maritime Cyber Risk Management* (MSC-FAL.1/Circ. 3, 5 July 2017, updated 2021).
[133]Chupkemi, D.C.; Mersinas, K. "Challenges in Maritime Cybersecurity Training and Compliance" (2024) 12 *Journal of Maritime Science and Engineering*, 1844 at p.4. https://doi.org/10.3390/jmse12101844 Accessed October 4, 2025.
[134] The International Code of Safety for Ships Using Gases or Other Low – Flashpoint Fuels (IGF Code) Available at https://www.imo.org/en/ourwork/safety/pages/igf-code.aspx. Accessed October 2, 2025.

yet cover the full range of emerging fuel technologies. Consequently, flag states and shipowners are left to interpret safety standards on a case-by-case basis, often without clear guidance.

For Nigeria, which is positioning itself as a regional maritime hub, these developments carry both opportunity and risk. Without adequate local capacity to inspect and certify vessels using new fuels, the risk of safety lapses increases. Thus, the decarbonisation agenda, though commendable, must be pursued alongside a proportional strengthening of regulatory oversight and technical training, especially in developing maritime nations.

4.2.2 Uneven Enforcement: A Global Divide

Another major challenge in ensuring maritime safety and seaworthiness is the persistent global divide in enforcement. While advanced maritime nations like the UK, Norway, and Singapore maintain high standards through rigorous port state control regimes, many developing countries still struggle with inconsistent inspections, poor record-keeping, and corruption.

The IMO's voluntary audit scheme has helped highlight these weaknesses, but compliance remains largely dependent on political will and administrative capacity. In Nigeria, for instance, although NIMASA has adopted several IMO conventions, its enforcement mechanisms are often reactive rather than preventive[135]. Port State Control reports under the Abuja MOU have repeatedly identified gaps in vessel inspections, documentation, and crew welfare standards.

[135] Lawal, A. M 2014. "Perspective In Environmental and Health Hazards In Sea Port Operations" In Adeyanju J. A and Ojekunle J (Eds). *Perspective in Seaport and Shipping Developments in Nigeria*, (Lambert Academic Publishing: Lagos 2014) p.86.

This disparity in enforcement not only undermines global safety objectives but also creates an uneven playing field for shipowners. While vessels from developed nations bear the cost of compliance, substandard ships from poorly regulated regions continue to operate with minimal oversight, putting lives and cargo at risk. Bridging this divide is therefore central to achieving uniform maritime safety globally.

4.2.3 Implications and the Imperative for Reform

The cumulative effect of these challenges — weak implementation, lack of cyber standards, and uneven enforcement — points to an urgent need for systemic reform. Maritime safety cannot be effectively achieved through fragmented national actions. Rather, it requires a harmonised and forward-looking legal framework that integrates both traditional and emerging aspects of seaworthiness.

For countries like Nigeria, reform must go beyond legislative domestication. It should involve institutional restructuring, technological investment, and capacity building for maritime personnel. Furthermore, reform should reflect inclusivity, ensuring that developing countries are not mere followers of standards set by technologically advanced states but active participants in shaping global maritime governance.

Ultimately, the imperative for reform lies in aligning legal frameworks with technological realities and ensuring that safety remains at the centre of all maritime innovation.

4.3 The Role of Classification Societies and Insurance in Enforcing Seaworthiness

Classification societies and marine insurers play a crucial role in bridging the gap between regulation and practice. By certifying ships' compliance with safety standards and assessing their

technical integrity, classification societies effectively set operational benchmarks that complement public regulation.

However, their influence has also attracted criticism. Since classification societies are private entities, their assessments sometimes vary in quality and objectivity, depending on commercial relationships with shipowners. The Erika and Prestige oil spill incidents in Europe exposed serious flaws in private classification oversight, leading to tighter international scrutiny[136].

In Nigeria, classification societies have a growing but still limited presence, and marine insurance remains underdeveloped. This weakens the broader enforcement framework, as insurers and underwriters serve as key gatekeepers of compliance. Strengthening collaboration between regulatory bodies, classification societies, and insurers would therefore enhance the overall seaworthiness assurance process and promote accountability.

4.4 Emerging Trends: Cybersecurity and Autonomous Vessels

Emerging technologies such as autonomous shipping and integrated cyber systems are reshaping traditional understandings of maritime safety and seaworthiness. While these innovations promise efficiency and reduced human error, they also challenge long-held legal assumptions about responsibility, control, and due diligence.

One key issue is how to determine liability in cases of accidents involving autonomous or remotely operated ships. Traditional doctrines of seaworthiness, as reflected in Regulation 14 of SOLAS Chapter V, are premised on human crews and masters. However, autonomous vessels operate on

[136] Harilaos N. Psaraftis, *'Maritime Safety in the Post-Prestige Era'*, (2005) National Technical University of Athens,.pp 3 – 4. Psaraftis observes that "*the Erika accident in 1999 has spurred three major regulatory packages by the EU… the Erika I package…calls upon a greater control of the activities of classification societies and a stepped up port state control system*," illustrating PSC's enhanced role following flag state shortcomings

algorithms and artificial intelligence, raising questions about who bears responsibility when a system fails.

The CMI International Working Group on Unmanned Ships has noted that maritime administrations may be reluctant to approve unmanned vessels, particularly in developing nations, because existing safety verification systems are designed around human-operated ships[137]. This hesitation is even more pronounced in countries like Nigeria, where infrastructural and technical limitations make the shift toward autonomous shipping a distant reality.

4.5 The Need for Harmonization and Reform of Existing Regulations

Given the fragmented nature of global maritime safety regulation, harmonization has become essential. Many conventions overlap, creating confusion and duplication of effort among maritime administrations. Moreover, rapid technological advancement has outpaced existing legal instruments, making them inadequate to address modern safety concerns.

Harmonization would ensure consistency, predictability, and mutual recognition of safety standards across jurisdictions. For Nigeria and other developing maritime states, harmonization also presents an opportunity to align domestic regulations with international best practices while considering local realities. Reform efforts should therefore focus on integrating international conventions into a coherent national framework supported by adequate enforcement capacity and inter-agency cooperation.

[137] Unmanned Ships and the International Regulatory Framework, *Supra,* Note 123 at p.10.

CHAPTER FIVE

SUMMARY, RECOMMENDATIONS AND CONCLUSION

5.1 Summary of Key Findings and Overall Contribution of the Study

This research critically examined the legal and regulatory frameworks for ensuring maritime safety and seaworthiness, with particular focus on international, regional, and national regimes. It explored the effectiveness of conventions such as the **International Convention for the Safety of Life at Sea (SOLAS) 1974**, the **Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978**, and the **International Safety Management (ISM) Code**, alongside domestic laws such as the **Merchant Shipping Act 1995 (UK)** and the **Merchant Shipping Act 2007 (Nigeria)**.

The study also evaluated how these frameworks operate in practice, highlighting their strengths, weaknesses, and the emerging challenges posed by technological advancement, decarbonisation, and cyber risks. By comparing the United Kingdom and Nigeria, the research revealed the wide gap between developed and developing maritime administrations in terms of implementation, compliance, and institutional capacity.

Overall, this study contributes to the growing literature on maritime regulation by showing that while the international legal framework for maritime safety is comprehensive, its success largely depends on domestic enforcement, institutional readiness, and adaptation to modern realities.

5.1.1 Findings

A. Effectiveness of Legal and Regulatory Frameworks

The study found that international conventions such as SOLAS, the STCW, and the ISM Code have greatly improved global maritime safety standards. They provide a uniform structure for vessel construction, equipment standards, and crew competence. However, their effectiveness at the national level varies. In the UK, strong institutional capacity and an efficient enforcement agency — the **Maritime and Coastguard Agency (MCA)** — have ensured high compliance rates. In contrast, Nigeria's enforcement through **NIMASA** remains constrained by weak infrastructure, limited technical manpower, and bureaucratic challenges.

It was also found that the traditional concept of seaworthiness has evolved beyond physical fitness of the vessel to include elements such as technological reliability, environmental compliance, and cybersecurity preparedness. However, developing nations like Nigeria still struggle to integrate these modern aspects into their domestic legal and operational frameworks.

B. Strengths and Weaknesses of Institutional and Enforcement Mechanisms

Institutions such as the IMO, MCA, and NIMASA play crucial roles in promoting maritime safety, but the level of efficiency differs significantly. The MCA operates within a structured port state control regime under the **Paris MoU**, ensuring strict inspections and accountability. On the other hand, NIMASA, as part of the **Abuja MoU**, faces persistent enforcement challenges arising from inadequate funding and political interference.

The research also found that dispute resolution mechanisms in Nigeria, although available through the **Federal High Court** and **Admiralty Jurisdiction Act**, are often slow and costly, discouraging

compliance. The UK's access to specialized maritime arbitration provides a faster and more technical approach to resolving disputes related to seaworthiness.

C. Technological Advancements and New Safety Risks

The study established that technology is reshaping the meaning of seaworthiness. The rise of **autonomous vessels**, **digital navigation systems**, and **new fuel technologies** introduces new layers of safety obligations. While the UK has started updating its laws to accommodate these trends, Nigeria is still at a formative stage.

There is currently no comprehensive international standard on **cyber-seaworthiness**, and this regulatory gap poses serious risks, especially for nations with limited digital capacity. Moreover, the global drive toward **decarbonisation** introduces operational and safety concerns related to alternative fuels, which are not yet fully addressed in existing frameworks.

5.2 RECOMMENDATIONS

1. **Strengthening Domestic Enforcement:**

   Nigeria should invest in the capacity of NIMASA through training, digitalization, and adequate funding to enable effective implementation of international safety conventions.

2. **Harmonization of Legal Frameworks:**

   There is a need for closer alignment between Nigeria's maritime laws and global standards under SOLAS, ISM, and STCW to reduce fragmentation and enhance uniformity.

3. **Technological Readiness:**

   Maritime administrations must begin developing cyber-risk and automation guidelines to address the legal implications of autonomous vessels and digital navigation.

4. **Infrastructure Development:**

   Nigeria and other developing maritime nations should improve port facilities, inspection tools, and technical laboratories for vessel survey and certification.

5. **Regional Collaboration:**

   The Abuja MoU should be strengthened to promote peer review, data sharing, and joint enforcement exercises across West and Central Africa.

6. **Legal Reform:**

   The Merchant Shipping Act 2007 should be amended to expressly cover technological seaworthiness, cyber safety, and environmental compliance obligations.

7. **Judicial and Institutional Reform:**

   Specialized maritime courts or tribunals should be considered in Nigeria to handle seaworthiness disputes more efficiently and reduce backlog in the Federal High Court.

8. **Public-Private Partnerships:**

   The government should engage private stakeholders, classification societies, and insurance companies in compliance monitoring and capacity building.

9. **Sustainable Safety Practices:**

   Both developed and developing maritime nations must balance economic growth with environmental responsibility by adopting cleaner fuels and safer ship designs.

5.3 CONCLUSION

The study concludes that while the international legal regime on maritime safety and seaworthiness — through SOLAS, the ISM Code, and related conventions — provides a solid foundation, its success depends on national will and institutional effectiveness.

The UK demonstrates that consistent implementation, technical competence, and accountability can translate international obligations into real safety outcomes. Nigeria, however, still faces structural limitations that hinder effective enforcement, such as weak institutional synergy, inadequate resources, and outdated regulatory mechanisms.

The research also shows that emerging technological trends, including autonomous shipping and digital navigation, are redefining traditional understandings of seaworthiness. This evolution calls for proactive adaptation by maritime administrations, especially in developing nations.

In conclusion, the global maritime safety system remains only as strong as its weakest link. For countries like Nigeria, achieving full compliance will require not only legal reform but also institutional commitment, technical capacity, and regional cooperation. The future of seaworthiness and maritime safety therefore lies in the ability of nations to harmonize their laws, modernize their systems, and embrace innovation while protecting life, property, and the marine environment.

BIBLIOGRAPHY

Books

Adam Weintrit, '*Marine Navigation and Safety Of Sea Transportation*' (CRC Press 2013).

Chircop, A. (2017). *International Maritime Law.* Routledge.

Martin Dockray, (2004) "*Cases and Material on The Carnage of Goods By Sea 3rd Edition*" Cavendish Publishing.

Mukherjee, P. K., & Mejia, M. Q. *Maritime Legislation*. WMU Publications, 2013.

Ozcayir, O. (2020). *Port State Control*. Informa Law.

Pamborides, G. C. *International Shipping Law: Legislation and Enforcement*. Martinus Nijhoff, 1999.

Proshanto K. Mukherjee and Mark Brownrigg, *Farthing on International Shipping,* 4th Ed, World Maritime University Studies in Maritime Affairs, (Springer: London, 2013) [Hereinafter "Farthing on International Shipping″] at p.223.

Simmons, B. *Mobilizing for Human Rights: International Law in Domestic Politics*. Cambridge University Press, 2009.

Soyer, B., & Tettenborn, A. *Maritime Liabilities in a Global and Regional Context*. Informa Law, 2016.

Tetley, W. (2008). *Marine Cargo Claims,* 4th ed., International Shipping Publications

Tetley, W. *Marine Cargo Claims*. (2008). 4th ed. Thomson Carswell

The Law of Admiralty. 2nd Ed, Grant Gilmore & Charles L. Black, the Foundation Press, Inc, 1975, p. 1-50

Journals

Rakestraw, A., 2012. 'Open oceans and marine debris: solutions for the ineffective enforcement of MARPOL Annex V'. Hastings Int'l & Comp. L. Rev., 35, p.383.

Icho Seimokomoh Igwe, "The Role of Shipping Industry in the Maritime Regulatory Process: The Case for Nigeria" (2019)28 *International Journal of Engineering and Computing*, 20063 (Hereinafter "The Role of Shipping Industry in the Maritime Regulatory Process: The Case for Nigeria").

Kasoulides, G., 1990. Paris Memorandum of Understanding: a regional regime of enforcement. *Int'l J. Estuarine & Coastal L.*, *5*, p.180.

Mejia, M. Q. (2020). "Maritime Safety in the Age of Digitalization." *WMU Journal of Maritime Affairs*, 19(3), 345–362.

Okonkwo, C. "Maritime Safety Challenges in Africa." (2021) *Journal of Maritime Law and Commerce*, 52(2), 145–167.

Internet Sources

(Imo.org2012) <https://www.imo.org/en/OurWork/HumanElement/Pages/STCW-Conv-LINK.aspx> accessed (SOLAS),-1974.aspx> accessed December 15, 2024.

"International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW)"<https://www.imo.org/en/About/Conventions/Pages/International-Convention-for-the-Safety-of-Life-at-Sea-

A Anagor-Ewuzie "*Ship owners seek disbursement of $200m CVFF as Jamoh takes over in NIMASA*" (11 March 2020) *Business Day*, available at: <https://businessday.ng/maritime/article/ship-owners-seek-disbursement-of-200m-cvff-as-jamoh-takes-over-in-nimasa/> (last accessed 25 March, 2025)

Abuja MoU (2025): *Abuja Memorandum of Understanding | Official Website* www.abujamou.org., Available at:<https://www.abujamou.org/index.php?pid=sgytd4df74fyhggw4y> accessed 12 February, 2025.

Babatunde, E. O., & Abdulsalam, M. M. "Towards Maintaining Peacefulness of the Sea: Legal Regime Governing Maritime Safety and Security in Nigeria." (2021) *Beijing Law Review*, 12, 529 – 559 (hereinafter "Towards Maintaining Peacefulness of the Sea").https://doi.org/10.4236/blr.2021.122029.

Bamigboye, Oluwaseyi Mike, Arbitration Law and Practice: Does National Court Involvement Undermine the Arbitration Processes? (February 29, 2015). The Lord Justice Journal, Vol.6, Essays in Honour of Chief Mrs Folake Solanke SAN, Journal of the Law Students' Society, University of Ibadan, Available at SSRN: https://ssrn.com/abstract=2858812 or http://dx.doi.org/10.2139/ssrn.2858812

Breached Company, "Pirates in the Digital Seas: The Global Maritime Security Crisis" https://breached.company/pirates-in-the-digital-seas-the-global-maritime-cybersecurity-crisis/#:~:text=MarineMax:%20The%20Retail%20Maritime%20Target,Personally%20identifiable%20information%20(PII) Accessed October 21, 2025.

Chupkemi, D.C.; Mersinas, K. "Challenges in Maritime Cybersecurity Training and Compliance" (2024) 12 *Journal of Maritime Science and Engineering*, 1844 at p.4. https://doi.org/10.3390/jmse12101844 Accessed October 4, 2025.

CMI IWG. CMI International Working Group Position Paper on Unmanned Ships and the International Regulatory Framework, 2018 ("Hereinafter Unmanned Ships and the International Regulatory Framework"), <https://comitemaritime.org/wp-content/uploads/2018/05/CMI-Position-Paper-on-Unmanned-Ships.pdf>, (accessed on 10 October 2025) December 15, 2024.

Girvin, Stephen Darryl, "*The Obligation of Seaworthiness: Shipowner and Charterer"* (December 26, 2017). NUS - Centre for Maritime Law Working Paper 17/11, NUS Law Working Paper No. 2017/019, Available at SSRN: https://ssrn.com/abstract=3093178 accessed May 17, 2025.

Historically, the NPA operated under the Federal Ministry of Transportation, which oversaw a broad portfolio including aviation, rail, road, and maritime activities. However, on August 21, 2023, President Bola Ahmed Tinubu announced the creation of the Ministry of Marine and Blue Economy as a new ministerial portfolio, carved out from the former Ministry of Transportation. Biodun Busari "*See 10 new ministries Tinubu created, modified*" available at:< https://www.vanguardngr.com/2023/08/see-10-new-ministries-tinubu-created-modified/> (last accessed 25 March, 2025)

IMO (2022). "*STCW White List: Submission of Information by Parties to the STCW Convention. MSC Circular*." <https://wwwcdn.imo.org/localresources/en/OurWork/HumanElement/Documents/MSC.1-Circ.1164-Rev.26.pdf> accessed March 30, 2025.

IMO (2024). *"Press Release: Successful Conclusion of MLC Training Course for Abuja MoU Members. London: IMO."* Available at:< https://abujamou.org/en/%F0%9F%8C%8D-successful-conclusion-of-the-regional-training-course-on-the-maritime-labour-convention-2006-for-port-state-control-officers-%F0%9F%8C%8D%F0%9F%9A%A2/> accessed March 30, 2025.

IMO Res MSC. 457(101) (adopted 14 June 2019, entered into force 1 January 2024), amending SOLAS Ch II-2 (FSS Code); see also ABSeagle (@ABSeagle), International Maritime Organisation (IMO) Sub-Committee on Ship Systems and Equipment (SSE) 11th Session, held February 24 – 28, 2025, X (March 3, 2025, 6:10PM), https://abseagle.info/SSE11.

International Convention for the Safety of Life at Sea (SOLAS), 1974" (Imo.org2016)

Lucy Carey, "*All Hands Off Deck? The Legal Barriers to Autonomous Ships*" CML Working Paper Series, August, 2017. Available at: http://law.nus.edu.sg/wps/. accessed July 12, 2025.

Merchant Shipping Act, 1995 (U.K.), s.128(1) which gives the Secretary of State power to make regulations to implement international agreements for the prevention of marine pollution, including MARPOL.

National Audit Office, *'The Maritime and Coastguard Agency's Response to Growth in the UK Merchant Fleet'* (HC 131, Session 2008-2009, 11 February 2009) pp.25-26. Available at: https://www.nao.org.uk/wpontent/uploads/2009/02/0809131.pdf#:~:text=The%20United%20Kingdom%20as%20a%20member%20of,Port%20State%20Control%20regimes%20include%20the%20Tokyo. Accessed May 3, 2025.

Panama Maritime Authority. (2020). "Safety Investigation *Report of the Grounding of MV Wakashio MV Wakashio. IMO:9337119*."Available at < https://gcaptain.com/wp-content/uploads/2023/07/Final-Investigation-Report-Wakashio-25-July-2020-1.pdf> accessed March 30, 2025.

Proshanto K. Mukherjee, 'The ISM Code and the ISPS Code: A Critical Legal Analysis of Two SOLAS Regimes', *WMU Journal of Maritime Affairs*, 6.2 (2007), 147– 166, at p.152 <https://doi.org/10.1007/BF03195110>.

Amendments to IMO Instruments: upcoming and recent entry into force/effective dates, https://www.imo.org/en/About/Conventions/Pages/Amendments-to-IMO-instruments.aspx > accessed March 3, 2025

Nigerian Maritime Administration and Safety Agency (NIMASA) 'Marine Safety Investigation Report on The Collision of *MSC CORUNA* with *MFT OLOKUN XII* Along Lagos Channel on 07th November, 2022' at p. 19 available at:https://msiu.gov.mt/wp-content/uploads/2024/01/Safety-Investigation-Report-MSC-CORUNA-and-MFT-OLOKUN-XII-Final-Edition-1-2-2-1.pdf accessed on May 29, 2025.

The EU's *FuelEU* Maritime program requires the use of low-carbon fuels, although many places outside the EU don't have such rules, which leads to different safety standards. See European Commission. (2023). *'FuelEU Maritime Initiative: Proposal for Regulation.'* Brussels: European Commission. Available at:< https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13952-Decarbonising-the-shipping-sector-template-for-standard-monitoring-plans-Article-8-4-FuelEU-Maritime-Regulation-_en> accessed April 19, 2025.

The International Code of Safety for Ships Using Gases or Other Low – Flashpoint Fuels (IGF Code) Available at https://www.imo.org/en/ourwork/safety/pages/igf-code.aspx. Accessed October 2, 2025.

Wu, J., Meng, X., Zhang, P., & Hou, Z., "*Seaworthiness Management of Bulk Carriers during the Transportation Process from the Perspective of Bauxite Performance*" (2023). *Journal of Marine Science and Engineering*, *11*(2), 303. https://doi.org/10.3390/jmse11020303 accessed May 26, 2025.