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A study of the follow-up on recommendations of casualty investigation reports: case study of Liberia

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A STUDY OF THE FOLLOW-UP ON RECOMMENDATIONS OF CASUALTY INVESTIGATION REPORTS

Case Study of Liberia

By

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Liberia

A dissertation submitted to the World Maritime University in partial fulfillment of the requirements for the award of the degree of

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Declaration

I certify that all the material in this dissertation that is not my own work has been identified and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views and are not necessarily endorsed by the University.

(Signature): 

(Date): **20th September 2022**

Supervised by: **Asst. Prof. Dr. Anish Arvind Hebbar**

Supervisor's affiliation.....

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Abstract

Title of Dissertation: **A Study of the Follow-up on Recommendations of Casualty Investigation Reports: Case Study of Liberia**

Degree: **Master of Science**

The dissertation is a study of the follow-up on the implementation of maritime casualty investigation report recommendations by Liberia under its flag state obligation. The research assessed the application of the Casualty Investigation Code by the Liberia Maritime Authority by analyzing the 2008 VIMSAS report on Liberia and investigation reports extracted from the IMO GISIS database, to meet minimum standards.

There are still accidents occurring on ships flagged by Liberia resulting in injuries and very serious injuries as the result of loss or abandonment of ships, collisions, fire on board, and man overboard among others. Therefore, the implementation of the recommendations of the reports by all stakeholders, including maritime administration, shipping companies, and the IMO, has become essential for the safety of ships and the protection of the marine environment. Liberia's maritime sector is key in this process as it is the second largest shipping registry in the world. This necessitated the study to determine Liberia's level of implementation of recommendations from accident reports.

The findings were concluded through responses from questionnaires, telephone conversations, emails, and text messages designed and targeted for participants from the Liberia Maritime Authority, Liberian International Shipping Corporation Registry, and shipping companies. Recommendations from the research suggested internal structural and policy adjustments for sections responsible for accident investigation and implementation, to improve safety in line with the Code and prepare for future IMO Member States Audit Scheme.

KEYWORDS: Casualty investigation, Maritime accidents, Implementation, Liberia, Report.

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List of Abbreviations

BMA	Bureau of Maritime Affairs
CIC	Casualty Investigation Code
EMCIP	European Marine Casualty Information Platform
EMSA	European Maritime Safety Agency
EU	European Union
FOC	Flag of Convenience
III Code	IMO Instrument Implementation Code
ILO	International Labour Organization
IMCO	Intergovernmental Maritime Consultative Organization
IMO	International Maritime organization
IMSAS	IMO Member State Audit Scheme
LiMA	Liberia Maritime Authority
LISCR	Liberian International Shipping and Corporate Registry
LL	International Convention on Load Lines
MAIB	Marine Accident Investigation Board
MARPOL	International Convention for the Prevention of Pollution from Ships
MIIU	Maritime Intelligence and Investigation Unit
MLC	Maritime Labour Convention
REC	Research Ethics Committee
SMC	Safety Management Certificate
SOLAS	International Convention for the Safety of Life at Sea
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
UK	United Kingdom
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
USA	United States of America
VIMSAS	Voluntary IMO Member State Audit Scheme
WMU	World Maritime University

Chapter 1 Introduction

1.1 Background

When a large maritime catastrophe happens, many investigations are launched, including judicial (civil and/or criminal) inquiries, the shipping company's internal investigation, and the flag state administration inquiry (Roberts & Carter, 2018). The administrative investigation recommendations and follow-up will be the subject of this research. Maritime accidents are a major danger to maritime safety and the protection of the marine environment. To put it another way, maritime safety is about preventing accidents (Saatçıoğlu et al., 2017).

The majority of maritime safety treaties, such as the International Conventions for the Safety of Life at Sea (SOLAS), Standards of Training, Certification, and Watchkeeping (STCW) for Seafarers, and others, are aimed at preventing accidents. However, the International Convention for the Prevention of Pollution from Ships (MARPOL) is primarily concerned with operational issues. Several authors have acknowledged that maritime disaster investigations strive to uncover the causes of the fatalities, evaluate whether existing legislation needs to be amended, and prevent recurrences by increasing maritime safety as well as marine environmental protection. The purpose of investigations is usually based on the International Maritime Organization (IMO) standards (Weintrit & Neumann, 2017).

Accident lessons are the most useful source of knowledge for improving conventions as well as safety (Smith & Hooper, 2016). Accident investigation is at the heart of maritime safety in this regard. Major maritime incidents sparked the majority of maritime safety agreements. For example, after the TITANIC disaster, the first SOLAS Convention was drafted. Each country has the sovereign right to establish rules, structures, and methods for investigating marine accidents based on the instruments of the IMO. However, because ships travel all over the world, international cooperation is critical in this industry (Emecen Kara, 2016). IMO is a key international platform for maritime safety and environmental protection, as well as maritime

accident investigations, as a specialized agency of the United Nations and an intergovernmental organization (Saatçıoğlu et al., 2017). To harmonize and facilitate maritime accident investigations in different nations, certain IMO conventions or regulations such as SOLAS, the III Code, and the Casualty Investigation Code amongst others, provide guidelines and suggestions on the subject (Krmek et al., 2022).

The International Maritime Organization initially started to function in 1948 as there was an international conference held in Geneva that was known as the Inter-Governmental Maritime Consultative Organization for dealing with all the matters related to shipping procedures and operations (Krüger & Hamburg, 2016). IMO has been serving the sector through the development of various global instruments that mainly include conventions and protocols such as the international controls as well as the global legislative provisions, along with resolutions as binding and non-binding methods to help member states to achieve minimum requirements regarding lifesaving and also to protect the marine atmosphere (AbuElenin, 2016). In addition to that, it is important to mention that IMO is a regulatory body of 175-member countries that have sanctioned international instruments with mutually high standards with member countries maintaining sovereignty (Transparency International Secretariat, 2018).

Article 94 of UNCLOS grants flag state administration the responsibility to exercise jurisdiction and administrative control as well as technical and social matters on ships flying its flags (Lyndah Ozobu, 2015). Therefore, and under this provision, Liberia is obliged to register ships to fly its flag, maintain law over ship operators, and for research discussion, cause accident investigation on all its ships in international waters (Gianni, 2008).

Hence, distinct countries have different legal frameworks, administrative structures, and techniques for investigating maritime accidents (Roberts & Carter, 2018). Maritime catastrophes have occurred on ships flying Liberia's flag over the years, which include ship collisions, and damage to the environment due to the damage of ships, among others, resulting in serious injuries and loss of life (Weintrit & Neumann,

2017). The study's goal is to analyze accident report recommendations of ships flying Liberia's flag and the extent of implementation by all stakeholders from 2016 to 2020 to enhance safety and improve regulations.

1.2 Problem Statement

The IMO has taken a reactive strategy over the years, enacting new regulations in reaction to a serious incident that drew attention at an international level (Krmek et al., 2022). On the contrary, the organization has only begun lately to opt for a proactive strategy, anticipating and addressing crucial demands before a disaster (Abuelenin, 2017). As a result, the audit plan was developed as a voluntary system in 2006 called the "Voluntary IMO Member State Audit Scheme" (VIMSAS). The plan was made mandatory and coined the "IMO Member State Audit Scheme" (IMSAS) in January 2016, to promote the effective use of IMO instruments and assist Member States in improving their performance (Saatçıoğlu et al., 2017; Roberts & Carter, 2018). Liberia was also audited to ensure compliance with the requirements outlined in the various IMO instruments (Weintrit & Neumann, 2017).

The audit was conducted following the IMO's Audit Plan for the Member States. Among other things, the audit team discovered that marine casualty and incident investigations are conducted without ensuing the Casualty Investigation Code and Standards that have not been implemented in national legislation. The development and implementation of monitoring and control programs for practices connected to the investigation of maritime accidents provided within the Code are required for proper enforcement of the Casualty Investigation Code (Oltedal & Lützhöft, 2018).

Investigations regarding vessel casualties include various incidents that also involve a lot of reasons, such as collision, explosion, fire, heavy damage due to the weather, contact, hull defects, and cracking (Roberts & Carter, 2018). Casualty investigations also involve observing the possible failure of law violations on the personnel, ship owners, and ship operators' part that resulted in personnel activities against certificates, licenses, and seafarer or competency documentation (Baalisampang et al., 2018; Roberts & Carter, 2018). Incidents may also be related to other serious issues

such as failure to perform proper duty, injury, deaths, the grievance of the crew, or acts of misconduct or fraud (Baştuğ et al., 2020). There might be interactions between such incidents that include the explosion on the shipboard causing injury to the seafarer or incorrect navigation resulting in the collision or grounding of the vessel. Other accidents may or may not be related to the issues that include stowaways, desertion, tariffs, treaties, embargoes, and so on (Taylan, 2016).

Thus, there is a need to study the follow-up on the recommendations regarding maritime causalities and how their implementation can impact safety and improve various safety regulations.

1.3 Aims and Objectives

The primary aim of this study is to conduct a follow-up on the recommendations of Liberia's casualty investigation reports and analyze the level of oversight and implementation to enhance safety on ships flying the Liberian flag. To achieve this goal, the objective set for the study is as follows:

- To determine the level of implementation of the casualty investigation code using the Maritime Administration of Liberia as a case study.

1.4 Research Questions

To achieve the aim and objective of the research, the focus is placed on the following research questions:

1. What are the obligations of IMO Member States with regard to casualty investigation?
2. What is the follow-up of the recommendations of the Casualty Investigation Code by the maritime administration in Liberia?
3. What is the status of implementation of the recommendations of the maritime casualty investigation reports by the various parties including shipping companies?

1.5 Significance of the Study

This was the first topic picked since it is critical in maritime safety to learn from accidents through investigation. Following a period of study at World Maritime University (WMU), it would be reasonable to research this topic, integrating fresh information and experience to provide recommendations and seek further improvements for maritime accident investigation on ships flying the flag of Liberia. It has the potential to strengthen the internal structure of the Liberia Maritime Authority (LiMA) involved in accident investigations as well as provide detailed certification standards for its investigators.

The research contributed to the body of existing literature by exploring the Casualty Investigation Code (CIC) implementation in Liberia which is vital for all the stakeholders in the maritime industry including those in the commercial, service, and transportation, fishing, and recreational sectors. Individual safety and security, coastal marine environment conservation, as well as the vessels that employ national maritime spaces, would all gain from the improvement of accident investigation processes by Liberia as a flag, coastal, and port state.

1.6 Research Methodology

Research methodology answers questions through the application of principles through unique methods. However, the focus of this segment is to explain the basics of the research method, finalize data gathering, collect data, analyze data, interpret the data, and provide the conclusion.

This research adopts a qualitative approach as stated by Patton (1990), cited in Kang et al. (2021), to bring together the varying recommendations from the casualty investigation reports relative to Liberia as it flag state obligations and analyzes the degree of casualty to see whether it conforms to the stated recommendations. In addition, a follow-up with the Maritime Administration to authenticate if said recommendations correlate with the type of casualties and how well the recommendations have been implemented to provide maritime safety and environmental protection. This section is exclusively discussed in chapter 3.

1.7 Scope of the Study

This dissertation consists of a total of five chapters. In this chapter, the research problem is discussed, aims and objectives are defined, along with the explanation of research significance. The second chapter is a review of literature where related theoretical backgrounds are discussed. The third chapter of this dissertation is the methodology section, where the author has discussed the research techniques employed to conduct this research. The fourth chapter is the second last chapter that presents the results and findings obtained by this research. Lastly, the conclusion is the last chapter of this study where all the results are summarized and recommendations are provided.

Chapter 2 Literature Review

2.1 Introduction

Over 80% of the world's trade happens on the sea, where the environment is very risky and fragile and results in serious losses that necessitate the importance of accident investigation. Extensive research has penned the concept of accident investigation as the enabler that prevents future accidents from happening. One of the agendas of the maritime industry is to maintain a safe ocean void of accidents, for which they have pushed to provide regulatory instruments to reduce or eliminate the occurrence of accidents.

The International Maritime Organization has traditionally been reactive in dealing with situations that the shipping industry has faced. This has led to the establishment of several instruments such as conventions, treaties, regulations, codes, and guidelines to handle the challenges through member states to maintain maritime safety and enhance environmental protection. Therefore, the discussion of maritime casualty or incident investigation is focused on in this chapter, analyzing how flag states are to manage this phenomenon by applying the various IMO instruments.

2.2 The Origin of Accident Investigation

Maritime accidents have occurred since ancient times when safety issues were not at the heart of consideration, but rather people viewed accidents as the will of the gods (Baalisampang et al., 2018). Even though there is no exact documentation on the first accident to ever happen, Lazenby (2003) attributed the first maritime accidents to the Punic War between the Romans and the Carthaginians. It became visible at the end of the 18th century when raw materials and manufactured products were transported from the United Kingdom (UK) to other parts of the world by ships (Baalisampang et al., 2018).

This saw the increase of maritime traffic by the 19th century that was met with the same accident level as the UK's navy lost over 2,000 ships annually with the appearance of close to 33,000 shipwrecks around its coast. Through an inquiry

(investigation) in 1870, Samuel Plimsoll attributed the cause of the huge shipwrecks to overloading (Rendell, 2019). His criticism of shipowners' lack of concern for seafarers' safety sought the enactment of the Merchant Shipping Act and the introduction of the Plimsoll Line that gave legitimate power to the Board of Trade for inspection to reduce accidents (Giovannone et al., 2016).

The loss of the Titanic in 1912 formally established both concepts of accident and investigation that are documented in the UK and the United States of America (USA) by the British Board of Trade and the Committee on Commerce, respectively (Baalisampang et al., 2018).

Subsequently, many maritime companies transitioned to flagging their ships by Flag of Convenience (FOC) or other countries' flags using an open registry like the Liberian registry in 1948. Similar to the increase in accidents based on the maritime traffic growth during the industrial revolution, there was also an increase in the number of accidents from FOC ships in coastal states' territorial waters based on the increase in registration (Giovannone et al., 2016).

Some of the accidents, such as the Liberian flagged ships called Torrey Canyon and Amoco Cadiz, resulted in huge oil spills of approximately 119, 000 and 223,000 tons, respectively. These marine accidents caused loss of life at sea and created serious environmental pollution that warrants the Intergovernmental Maritime Consultative Organization (IMCO) now IMO to acknowledge adequate accident investigation as the path to prevention of maritime casualties (Galieriková & Materna, 2019). Thereafter, the concept of accident investigation gained more attention in the 1970s as numerous resolutions included the conduct of investigations into casualties, exchange of information for investigations into marine casualties and personal and material resource needs of administrations for the investigation of casualties and contravention of conventions was promulgated through an international effort led by IMCO (IMO, 2018).

2.3 Obligation for Accident Investigation in International Instruments

The International Maritime Organization (IMO), established in 1948 by a convention adopted by the United Nations (UN), was the first specialized body focused on maritime issues (IMO, 2021). Since coming into existence in 1958, the IMO, which now has 175 member states and three associate members, has advanced to assume the top position in the world for maritime regulation, involving the biggest shipping nations (Fedi, 2021).

The danger of maritime transport cannot be under-emphasized as billions of tons of the world's commodities and merchandise are moved between countries by sea (AbuElenin, 2016). In view of this, the maritime sector has suffered significant losses as a result of this process, which makes accident investigation extremely important and crucial for it to fulfil its goal, which cannot happen without regulation, particularly in light of the global nature of these maritime activities, including shipping (Fedi, 2021).

Trends, however, have indicated that the IMO's approach to developing its strategies has largely been reactive and hardly proactive (AbuElenin, 2016). Evidence of the famous International Convention for the Safety of Life at Sea (SOLAS), which was adopted in 1914 in reaction to the Titanic disaster, and updated in 1974 and numerous times subsequently to establish new, harsher safety regulations on board (IMO, 2019a).

Furthermore, major accidents from 1970 to 2000, including the well-known Torrey Canyon, Amoco Cadiz, Exxon Valdez, Aegean Sea, Sea Empress, Erika, and Prestige, led the IMO to establish essential regulatory tools, which are mainly referred to as the International Convention for the Prevention of Pollution from Ships (MARPOL), amended by Protocols in 1978 and 1997 (Sáez Álvarez, 2021).

Subsequently, to promote interstate cooperation and establish a standard methodology for maritime accident investigations (AbuElenin, 2016), the member States of IMO consequently concentrated their attention on the investigation of maritime casualties and occurrences by adopting the Code for the Investigation of Marine Casualties and

Incidents in November 1997 (Schröder-Hinrichs et al., 2012). The sections below briefly discuss the international instruments relevant to maritime casualty investigation which include UNCLOS, SOLAS, MARPOL, LL and MLC 2006. All of these measures are geared toward realizing the IMO's motto, "Safe, secure, and efficient shipping on clean oceans," which emphasizes both environmental preservation and ship safety and security (Fedi, 2021).

2.3.1 United Nations Convention on Law of the Sea (UNCLOS)

The 1982 adoption of the United Nations Convention on the Law of the Sea (UNCLOS) established it as the main legal foundation for all maritime subjects involving flag, port, and coastal States (IMO, 2019b). It establishes regulations governing all uses of the oceans and their resources and establishes a complete regime of law and order throughout the world's oceans and seas (Sharma, 1995). It incorporates established guidelines for ocean usage into a single document while also introducing new legal frameworks and addressing fresh issues. The Convention also lays the groundwork for future advancements in particular spheres of maritime law (IMO, 2019a).

Article 2 of UNCLOS states that coastal states have the right to exercise their sovereign right to investigate the cause of any maritime casualty occurring within their territorial seas that might pose a risk to life or the environment, involve the coastal State's search and rescue authorities, or otherwise affect the coastal State (AbuElenin, 2016). However, the bulk of the investigation into the marine accident is attributed to flag states which supervise ships flying their flags and serve as the lead (Farid & Elashkar, 2020).

According to Article 94 of the UNCLOS, the flag State is required to assist the other state in the inquiry of any maritime casualty (IMO, 2018). Subsequently, Article 94, paragraph 7 of UNCLOS states that:

> *"Each State shall cause an inquiry to be held by or before a suitably qualified person or persons into every marine casualty or incident of navigation on the high seas involving a ship flying its flag and causing loss of life or serious*

injury to nationals of another State or serious damage to ships or installations of another State or the marine environment."

Article 97, paragraph 1, 2, and 3 of (UNCLOS) placed penal jurisdiction in matters of a collision or any other incident of navigation in the authority of the flag State and shows that maritime accidents are to be investigated for improvement to avoid or prevent an accident (IMO, 2018). Therefore, this methodology can be seen in other IMO regulations as the body aims to improve safety on board ships (Farid & Elashkar, 2020).

2.3.2 Safety of Life at Sea (SOLAS)

The famous International Convention for the Safety of Life at Sea (SOLAS), which was adopted in 1914 in reaction to the Titanic disaster, was updated in 1974 and subsequently to establish new, harsher safety regulations on board ships (Fedi, 2021). The first version was adopted in 1914, in response to the Titanic disaster, the second in 1929; the third in 1948; and the fourth in 1960 (IMO, 2019a). The tacit acceptance mechanism, which was first included in the 1974 edition, states that unless an agreed-upon number of parties submit objections to a change before it enters into force on a specific date, it will not take effect (Fedi, 2020), and is referred to as SOLAS, 1974, as amended (IMO, 2019a).

The SOLAS Convention has been regarded as the most important of all international treaties that relate to the safety of ships. Accordingly, for an accident investigation, SOLAS 74 as amended Reg 1/21 states that every administration is responsible for investigating any incident involving one of its ships in line with the current regulations and submitting to the IMO a report of said investigation. Additionally, and more importantly to this research, the Casualty Investigation Code (CIC) was finalized as part of the SOLAS convention as a mandatory instrument to conduct maritime investigation. However, a brief discussion of the significance of the CIC is in section 2.4.2.

2.3.3 International Convention for the Prevention of Pollution from Ships (MARPOL)

IMO formed the Marine Environmental Protection Committee (MEPC) in 1973 and, to lessen the environmental effects of maritime accidents, adopted the well-known International Convention for the Prevention of Pollution from Ships (MARPOL) and its Protocol in 1978 (Fedi, 2021).

According to MARPOL (73/78) article 8, a report must be filed as soon as feasible after an incident, in compliance with these requirements to the fullest extent possible, and then in line with the processes necessary during and after the investigation. In accordance with these protocols, events involving dangerous substances must be reported to the IMO and any other state that may be impacted (IMO, 2011).

Article 12 of MARPOL (73/78) specifies that each administration is responsible for investigating an accident involving any of its ships that is subject to the regulations, particularly if the accident has caused a significant negative impact on the marine environment (IMO, 2011).

2.3.4 International Convention on Load Lines (LL)

It has long been understood that a ship's safety is significantly impacted by restrictions on the maximum draught to which she can be laden (Farid & Elashkar, 2020). These restrictions are provided in the form of freeboards, which, along with external weathertight and waterproof integrity, represent the Convention's primary goal (IMO, 2020). To uphold this level of safety, the IMO adopted the Load Lines convention in 1966, which calls for calculating the freeboard of ships using damage stability calculations and subdivisions (IMO, 2020; AbuElenin, 2016).

The International Load Lines conventions, 1966 Article 23, Paragraph 2 also provide similar responsibility in the above-mentioned conventions (SOLAS, MARPOL) and state that “Each Contracting Government undertakes to supply the Organization with the pertinent information concerning the findings of such investigations. No reports or recommendations of the Organization based upon such information shall disclose the

identity or nationality of the ships concerned or in any manner fix or imply responsibility upon any ship or person".

2.3.5 Maritime Labour Convention, 2006

The MLC 2006 was created as an international legal framework and pillar for four of the IMO's major conventions, serving as a regulatory framework for high-quality shipping by the IMO and involved the combination of the three IMO instruments such as SOLAS, MARPOL, and STCW (ILO, 2013).

According to Regulation 5.1.6 of MLC, 2006, paragraph 1, and 2 mentioned that investigation must be conduct into any serious maritime casualty accident or incident with the full cooperation of member States and thereafter make the report public (ILO, 2013).

This indicates that responsible authorities must see that their seafarers' illnesses, injuries, and accidents are properly reported and that thorough statistics on these illnesses, injuries, and accidents are recorded, examined, and published (Farid & Elashkar, 2020).

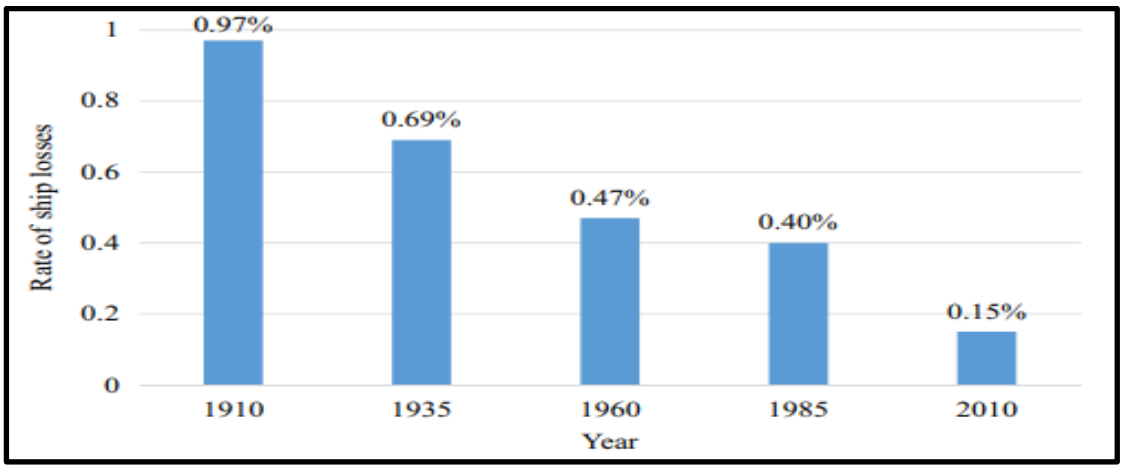
2.4 Benefits of Accident Investigation

The tradition of past findings from accident investigations as the cause of default from the ships was shifted in 1987 when the UK-flagged Herald of Free Enterprise sank in the English waters, resulting in the deaths of about 38 crew members and 150 passengers (Baalisampang et al., 2018). The investigation credibly revealed the cause of an accident for the first time as the result of human errors and hardware and organizational problems (Galieriková & Materna, 2019). For the first time, an institution dedicated to maritime accident investigation called the Marine Accident Investigation Branch (MAIB) was established in the UK in 1989 and subsequently copied by other countries such as Canada, Australia, France, and the USA (Giovannone et al., 2016). Similarly, the findings from the accident investigation report of Exxon Valdez, an oil tanker administered by the US, established that human error caused by fatigue contributed to the accident (Galieriková & Materna, 2019).

The shift from hardware to human and organizational factors has become eminent as more accident investigation authorities aim at the use of a common approach for investigation. Maritime accident investigation has evolved and caused the maritime industry to set up a common approach to dealing with safety issues (Fedi, 2021). Başţuğ et al. (2020) argued that the large extent of these processes to improve human error and organizational issues have been derived from the International Civil Aviation Organization (ICOA) by the IMO to establish resolutions which provide codes such as the International Safety Management Code (ISM Code) Resolution A.741 (18) and the Casualty Investigation Code (CIC), MSC.255(84).

Notwithstanding, one cannot overlook the decrease in marine accidents because of reports from marine casualty investigations as seen in figure 1.

Figure 1: Total ship percentage



(Baalisampang et al., 2018)

2.4.1 International Safety Management Code (ISM Code)

The International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM Code), which establishes an international standard for the management and operation of ships' safety and the prevention of pollution, addresses the duties of those in charge (human element) of managing and operating ships (Batalden & Sydnes, 2013). The implementation of the ISM Code ought to assist and promote the growth of a safety culture in shipping and the development of elements

such as commitment, values, and beliefs (Baştuğ et al., 2020; Bhattacharya, 2012). The Code specifies safety management goals and mandates that the company create a safety management system (SMS) that should meet the following functional specifications (Batalden & Sydnes, 2013):

a. Policy for safety and the protection of the environment;
b. Guidelines and practices to guarantee ship safety and environmental protection by pertinent international and flag State laws;
c. Established levels of responsibility and channels of communication between shoreside and onboard staff;
d. Mechanisms for reporting accidents and violations of this Code's provisions;
e. Emergency response and planning processes; and
f. Internal audit and management review procedures.

This means there must be documentation on board the ship which outlines the procedures and policies listed above (Pantouvakis & Karakasnaki, 2018). The company must show the administration or recognized organization assessing verification with the Code that the policies and procedures are being implemented practically, to gain the Document of Compliance (DOC) and Safety Management Certificate (SMC) (Mbong & Bygvraa, 2021).

2.4.2 Casualty Investigation Code (CIC)

The Casualty Investigation Code (CIC), adopted in 2008, comprises the conglomeration since 1968 to include resolutions A.173(ES.IV) on Participation in Official Inquiries into Maritime Casualties, adopted in November 1968; resolution A.322(IX) on Conduct of Investigations into Casualties, adopted in November 1975; resolution A.440(XI) on Exchange of Information for Investigations into Marine Casualties and resolution A.442(XI) on Personnel and Material Resource Needs of Administrations for the Investigation of Casualties and the Contravention of Conventions, both adopted in November 1979; and resolution A.637(16) on Co-operation in Maritime Casualty Investigations, adopted in 1989 (IMO, 2018).

The CIC mandated that administrations investigate any accident involving one of its ships whenever they believed that doing so might help them decide whether or not to change the current regulations, especially when it came to marine accidents involving the total loss of the ship, a fatality, or significant environmental damage (Uğurlu et al., 2013).

The Code also urges the flag State of a ship involved to investigate other maritime fatalities and events if it is thought likely that the findings would yield information useful in averting similar mishaps in the future (IMO, 2018).

Investigations should start as soon as possible after an incident because they tend to be less conclusive than those that are completed right away. After all, the quality of evidence, especially that which depends on the precision of human memory, can rapidly deteriorate with time (Farid & Elashkar, 2020).

Any safety investigation's scope can be broken down into five categories: people, environment, equipment, processes and procedures, organization and external effects, and safety investigations involving marine casualties or incidents (Chen, 2019). Thus, they should be viewed as a way to pinpoint not only the accident-related events but also safety flaws in the whole operation's management, from policy to implementation, as well as in regulation, survey, and inspection (Fedi, 2021). To satisfy these fundamental requirements, safety investigations should be sufficiently thorough (Farid & Elashkar, 2020).

2.4.2.1 Guidelines on the Competence of Investigators. Res A. 1075 (28)

The main objective of Resolution Msc.255(84) is to offer helpful guidance for the methodical inquiries of marine casualties and accidents to enable the creation of effective analysis and preventive action. However, the outcome of a successful investigation is dependent on the expertise of the people conducting the casualty investigation after an incident occurs (IMO, 2018).

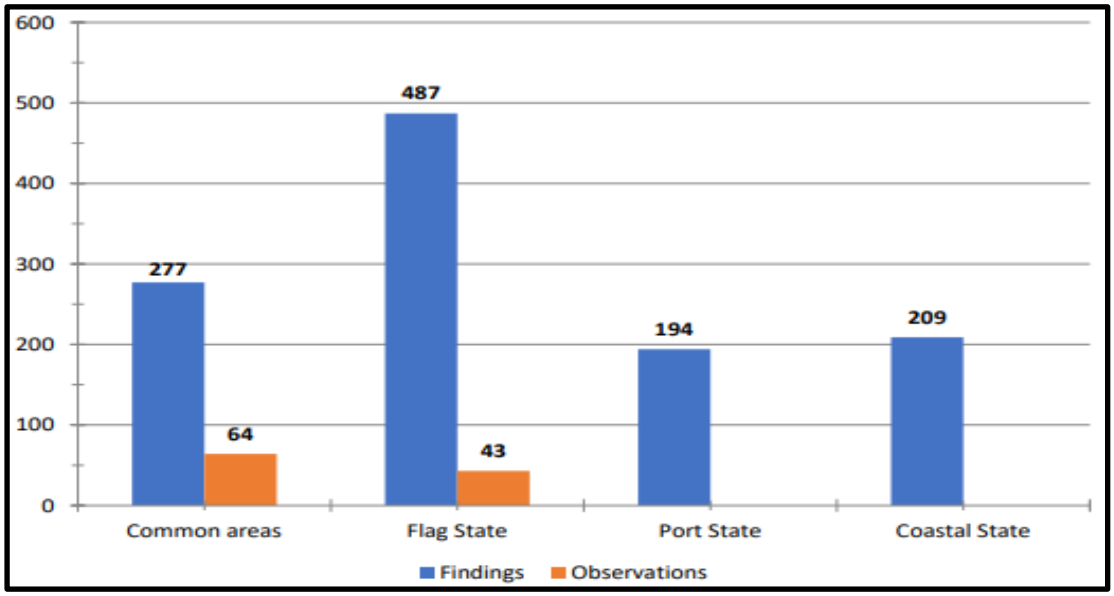
Accordingly, MSC 255 (84) section 3, paragraphs 1, 2, and 3 detailed the guidelines on the qualifications and pieces of training of investigators to include having

knowledge in evidence collection, interviewing, and conducting analysis, personal safety during maritime casualty investigation.

2.5 Follow-up of accident investigations in the IMO

In July 2021, the Sub-Committee on Implementation of IMO Instruments (III) completed updates on key instruments, one of which was the 2021 non-exhaustive list of obligations under instruments relevant to the IMO Instruments Implementation Code (III Code). Under this instrument, the Sub-Committee analyzed 4 of 68 audits from the IMO Member State Audit Scheme (IMSAS), which had 1,167 findings, 107 observations, and 5,239 root causes mostly concentrated on flag States and common areas. Figure 2 indicates flag States with more shortcomings among the four parts of the III Code (IMO, 2021b).

Figure 2: Number of findings and observations according to parts of the III Code



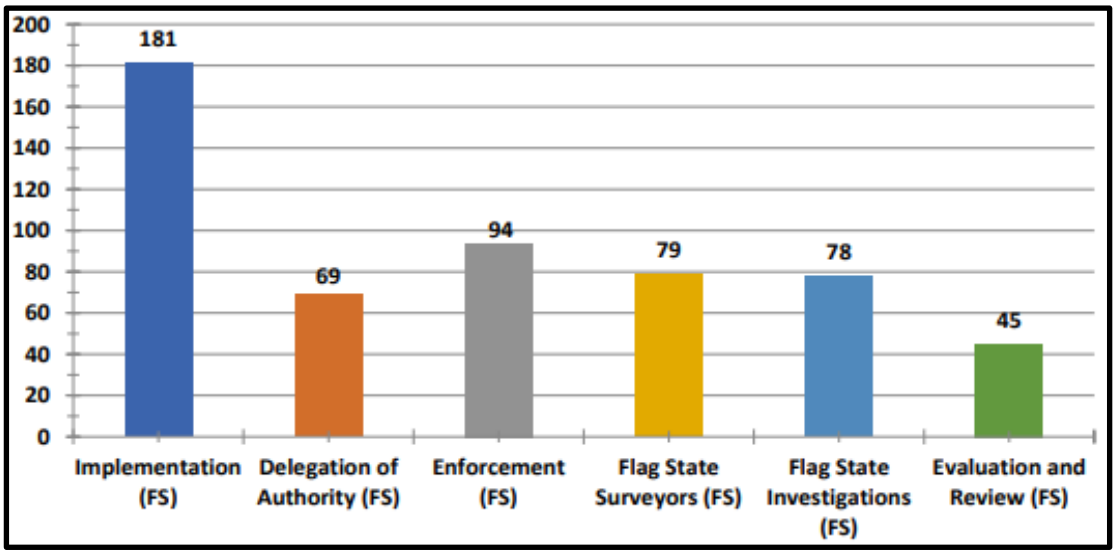
(Sub-Committee report, 2021)

The categories of flag States, common findings, and observations were found in implementation, enforcement, flag State surveyors, and flag State investigations. Amongst these, lack of effective implementation of national provisions; lack of policies; lack of awareness, understanding, or interpretation of the requirements; lack of established written procedures; lack of management system; insufficient human and

financial resources; lack of technical capability (trained personnel, hardware/equipment); and insufficient capacity to promulgate national legislation and keep it updated (Sub-Committee report, 2021).

The below chart in Figure 3 shows the six categories under the flag State and their findings which are most recurrent.

Figure 3: Number of findings and observations under part 2 of the III Code - Flag States



(Sub-Committee report, 2021)

For marine casualty investigation and reporting, the Sub-Committee review states in paragraph 30 that the most frequent findings about investigations conducted by flag States concern the investigations' independence and impartiality, the decision to open an investigation, the investigators' authority to board a ship, and begin an investigation, reporting to the IMO, making reports available to the public, and other requirements of the Casualty Investigation Code (IMO, 2021b).

2.6 State Practices in Accident Investigation

The sinking of the Herald of Free Enterprise in 1987 saw the establishment of MAIB in the UK in 1989. MAIB is an independent unit in the UK's Department of Transport that conducts investigations into marine accidents involving UK vessels worldwide

and all vessels in UK territorial waters. Annually, the unit receives between 1500 and 1800 accident reports and performs the following (Gov. UK, 2019):

- carrying out investigations to determine the causes of accidents at sea
- Releasing reports that detail the steps they have taken as well as recommendations for enhancing maritime safety.
- Increasing awareness of how marine accidents happen
- Enhancing domestic and international cooperation in marine accident investigations

In addition to various regulations regarding accident reporting and investigation at the IMO, MAIB is guided by national regulations directly relating to accident reporting and investigation. These regulations are the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012, the Merchant Shipping (Accident Reporting and Investigation) (Amendment) Regulations 2013, and the Merchant Shipping (Accident Reporting and Investigation) (Amendment) Regulations 2018 (Batalden & Sydnes, 2013).

MAIB is comprised of 35 members, including 12 inspectors, and has an established website that is frequently updated with maritime casualty investigation reports. Reports present on the website are also current on the IMO database (Gov. UK, 2019).

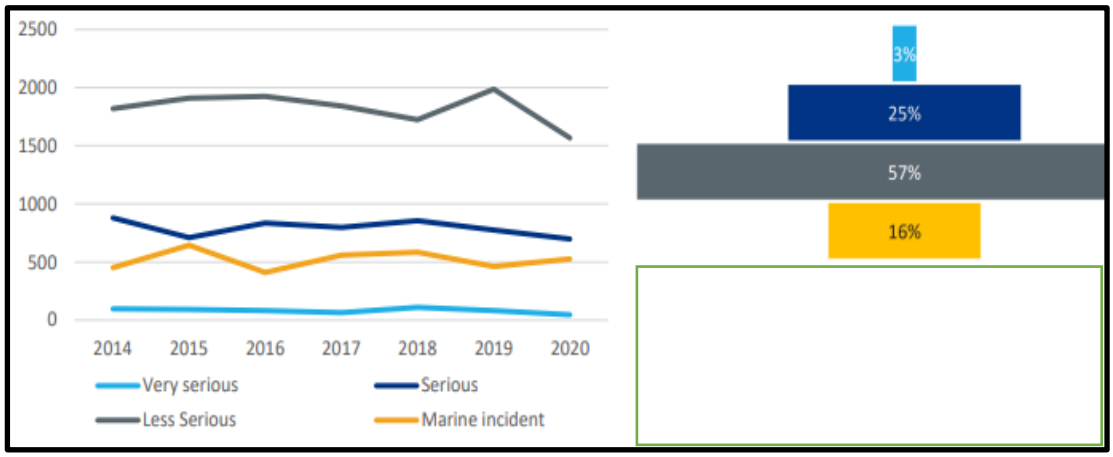
The European Union (EU) has its own maritime regulatory body called the European Maritime Safety Agency (EMSA). On 17 June 2010, the EU Commission adopted Directive 2009/18/EC, the law governing the investigation of accidents for the EU Member States in the maritime transport sector, and contained the following (EMSA, 2022):

- The establishment of independent, impartial and permanent accident investigation bodies by the Member States, except for landlocked countries.
- Conduct investigation on ship flag any one of EU Member flags
- Investigation of an accident relative to the type (serious or very serious)
- Publish investigation reports within twelve months from the date of the casualty

- Notify the marine casualties and incidents commission via the European Marine Casualty Information Platform (EMCIP)

Additionally, EMSA contains current and detailed information on the accident investigation report. For instance, in 2020, the number of very serious casualties continued to decrease. It was reduced by 58% in comparison with the year 2018. A general decrease in occurrences was noted between 2020 and 2019 (16%) (EMSA Annual Review, 2021).

Figure 4: Number of marine casualties and incidents per the severity of the occurrence



(EMSA Annual Review, 2021)

2.7 Liberia National Framework for Casualty Investigation

Liberia is a West African country that is bordered on the west by the Atlantic Ocean and three countries, including Sierra Leone on the west, Guinea on the north, and Ivory Coast on the east. Below is Figure 5, which shows the location of Liberia (Britannica, 2019).

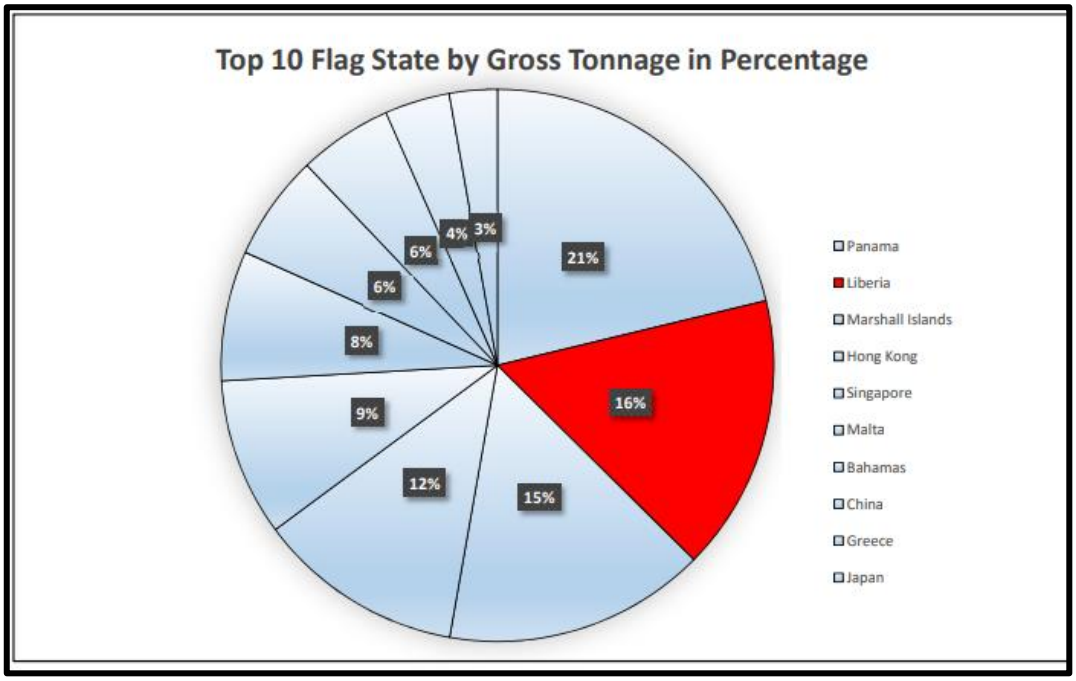
Figure 5: Map of Liberia

(Mbewa, 2019)

The establishment of the Bureau of Maritime Affairs (BMA), now Liberian Maritime Authority (LiMA) was heavily supported by the United States of America in 1948 and has been a major player at IMO since 1949 (Labrut, 2019). Subsequently, LiMA has been tasked with managing all maritime programs, both international and domestic, after the passage of the Liberian Maritime Authority Act of 2010 (Kanneh, 2018).

The activities of LiMA has been governed by the Liberia Maritime Law (Liberia Maritime Authority, 2018), which includes enforcing maritime treaties like SOLAS, MARPOL, the Standards for Training, Certification, and Watch-keeping for Seafarers (STCW), and MLC 2006 through its national framework of legislation and regulation to include The Liberia Maritime Authority Act of 2010 and The Liberia Maritime Regulation Title 21, as well as implementing the Casualty Investigation Code after an incident occurs (Kanneh, 2018). Liberia currently maintains the position of the world's second-largest ship registry, which makes it important to follow up on how its casualty investigation report recommendations are implemented (Labrut, 2019). Table 5 indicates the rankings of the top 10 flag states in gross tonnage by percentage.

Figure 6: Top 10 Flag State



(Lloyd's List Intelligence, 2019)

2.7.1 The Liberia Maritime Authority

The Liberia Marine Authority is the specialized division of the Liberian government in charge of overseeing, coordinating, and regulating the nation's maritime industry through an Act of the National Legislature in 2010 (RLM-107). The Liberia Maritime Program was initially managed by the Bureau of Maritime Affairs, which was founded in 1948 (Kanneh, 2018). Accordingly, the Liberia Maritime Authority Act, (2010, p3) section 4 stated that the Liberia Maritime Authority was established to:

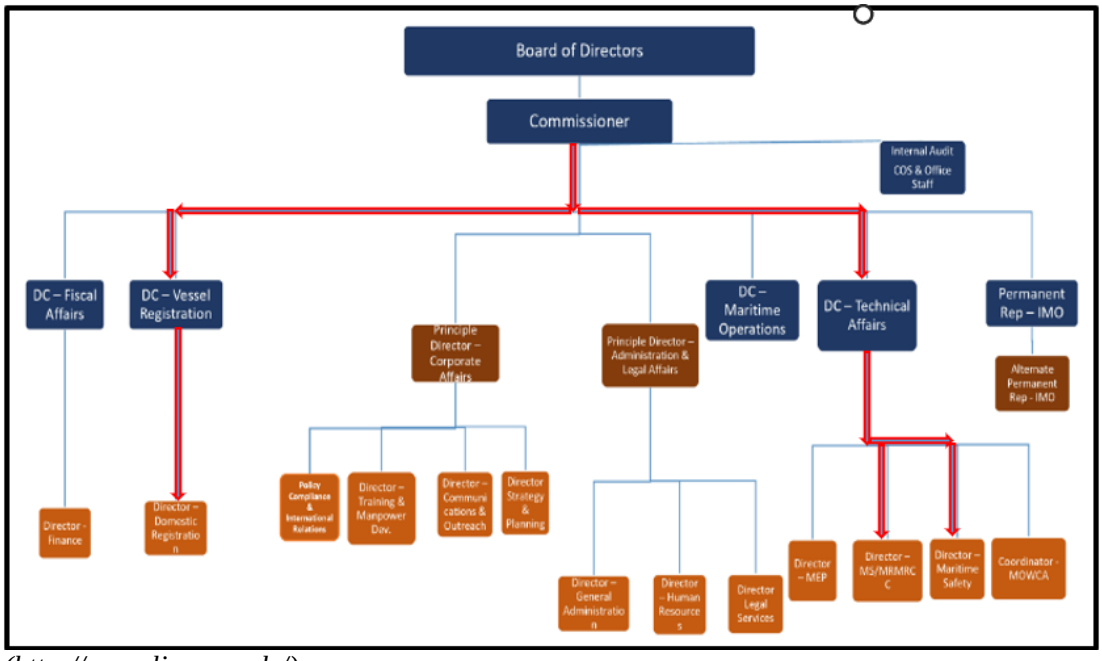
> *"1. Administer, secure, promote, regulate, enforce, design, and execute policies, strategies, laws, and regulations, plans and programs relating, directly and indirectly to the functioning, growth, and development of the maritime sector and national maritime awareness;*
>
> *3. Introduce and promote the enactment of national legislation in the exercise of the rights and discharge of the responsibilities of the Republic of Liberia under the United Nations Convention on the Law of the Sea of 1982 and any other maritime-related international conventions, agreements, and instruments".*

In furtherance of its objectives, the Liberia Maritime Authority performs one of the following functions in Section 5 of the Liberia Maritime Act (Liberia Maritime Authority Act, 2010):

> *"4. Regulates, controls, and administers all regulatory matters related to the standards for merchant shipping, and all foreign and domestic water-borne commercial and noncommercial activities as provided for under the Liberia Maritime Law or any other related law in keeping with Section 4(2) herein above, and consistent with prevailing Liberian laws, so as to avoid duplication of or conflict with the functions of other Government Agencies".*

This further supports the enforcement of international treaties and regulations in conformity with a national standard by the Authority. Below is Figure 2, which shows the organizational chart of the Liberia Maritime Authority.

Figure 7: Organizational Structure of LiMA indicating investigation sections



(http://www.lima.gov.lr/)

The organizational structure shows that the Deputy Commissioner (DC) for Technical Affairs coordinates safety and inspection activities of ships under the Liberian Registry. However, Section 13 of the Liberia Maritime Law (2002), allows for some functions such as safety and inspection to be administered by a representative of the

Liberian Government, who shall be chosen and appointed by the Government of the Republic of Liberia to assist the Commissioner in the efficient administration of the provision.

The Liberia Maritime Authority's Department of Maritime Security is in charge of handling all of the Authority's matters pertaining to maritime security (Kanneh, 2018). The Department comprises the Maritime Intelligence and Investigation Unit (MIIU) and the Security Operatives Unit (Labrut, 2019). The Authority's primary strategic resource for opposing, looking into, and, if required, prosecuting maritime-related crimes, offenses, and infractions is the Maritime Security Department (Liberia Maritime Authority, 2018).

2.7.2 The Liberian International Shipping and Corporate Registry (LISCR)

The Liberian Registry was established in 1948 and has been operating from the United States. The Registry regulations are structured after the United States of America (USA) governing system, which is also embedded into Liberian law (Liberian Registry, 2016a). Therefore, the Registry serves the interests of the Liberians primarily from the U.S. and it is operated by international maritime experts who based on the close relationship between the USA and Liberia have enabled the Registry to compete in the global market alongside important industry entities (Portugal et al., 2018).

The Liberian Registry comprises 5,000+ vessels aggregating over 200 million gross tons, representing 14 percent of the world’s ocean-going fleet. It is responsible for the registration, regulatory enforcement, and safety of ocean-going ships on behalf of LiMA (Liberian Registry, 2018).

The Marine Investigations Department of the Liberian Registry handles inquiries into maritime incidents, violations of the Liberian Maritime Law, and other related issues. When an incident such as marine casualty, accident, personal injury, or loss of life occurs, the captain of the ship immediately informs the Commissioner or a Deputy Commissioner of Maritime Affairs through a form, and thereafter LISCR immediately conducts the investigation and forwards a report to LiMA for approval (Liberian Registry, 2016b).

2.7.3 Liberian Maritime Regulations on Marine Casualties (RLM-108)

The Maritime Regulation (MR) provides that the owner or the master of a Liberian vessel involved in a marine casualty shall immediately report to the Commissioner or a Deputy Commissioner as soon as possible through means using telephone or other electronic communication and thereafter submit a formal report signed by the senior available personnel or the ship's representative to the Commissioner or a Deputy Commissioner of the Liberian Maritime Authority considering that the intensity of the accident is within the following (Maritime Regulations, 2020 p38):

a. Over $100,000 in actual physical damage to property;
b. Material degradation that reduces a vessel's efficiency or seaworthiness;
c. Stranding or grounding
d. Correction of the unsafe condition of occupational accidents on board;
e. Loss of life; and
f. Injury causing any person to remain incapacitated for a period over 72 hours

Upon receipt of the complaint from the ship master on a marine casualty, the authorities at LiMA are obligated to conduct an immediate investigation to determine the cause or circumstances leading to the said incident for corrective measures. Moreover, it is the duty of the ship owners or designated person in charge of the Liberian vessels to cooperate with the investigation and in addition, To allow the Commissioner, Deputy Commissioner, or their appointees to board and investigate vessels and their accoutrements and to produce witnesses in their employ and pertinent books, papers, documents, and other records in their possession. (Labrut, 2019).

After preliminary and formal investigations by LiMA or its designated personnel, the findings or reports are submitted to IMO and sometimes to the public based on the substance or nature of the report and approval from the LiMA's official (Maritime Regulations, 2020).

2.8 Findings of the VIMSAS Audit of Liberia

In 2007, the Liberia Maritime Authority through LISCR participated in the Voluntary IMO Member State Audit Scheme (VIMSAS) with a focus on flag State obligations.

VIMSAS created the ability for the IMO Member States at the time to appreciate their standing with various mandatory IMO instruments that they have ratified (VIMSAS, 2008).

According to VIMSAS (2008) findings, the Department of Investigation report indicated that the Administration does not have Liberian trained inspectors to assist in casualty investigations but relies on inspectors worldwide. There was no evidence that the inspectors used had expertise in interviewing techniques or evaluation of the effects of human errors.

2.9 Conclusion

Marine casualty investigation has transformed the maritime industry by reducing accidents and providing preventive measures that are of a minimum standard to be implemented by the IMO Member States. The impact of investigation has had improvement in human errors and organizational issues through the adoption of commonly practiced regulations such as the ISM and CIC Codes that support safety culture and the establishment of an independent institution for marine casualty investigation.

Despite the level of reduction in accidents globally, flag States still have shortcomings in the implementation and enforcement of IMO Instruments. The recent updates from the IMO on the review and analysis of IMSAS reports demonstrate the level of gaps in national programs in compliance with IMO regulations, especially those responsible for marine accident investigation.

Liberia has ratified all the essential maritime instruments that deal with marine casualty or incident investigation, including UNCLOS and IMO instruments such as SOLAS, MARPOL, LL, and MLC 2006 Conventions.

The Liberian Maritime Regulation lays out the necessary procedures required for LiMA and ship owners to follow when an accident happens to a Liberian vessel. This, to a certain extent, has significantly impacted the level of change involving casualty

investigation reports, but the gap remains in the implementation and enforcement as mentioned by the Sub-Committee.

Chapter 3 Methodology

3.1 Introduction

The purpose of the methodology is to present a systematic process by which the information can be collected. It is such a process or technique that is utilized for identification, evaluation, selection, and any other process that is linked with the topic.

This chapter will include research design, research philosophy, research approach, data collection methods, and other processes that are associated with the extraction of data. Also, this chapter will determine ethical considerations, which are presented as one of the crucial parts of the research and entire study. The mixed-method that uses primary as well as secondary means for the collection of data is used for finding out the core objectives linked with the entire research of "A Study of the Follow-up on Recommendations of the Casualty Investigation Reports: Case Study of Liberia".

3.2 Research Design

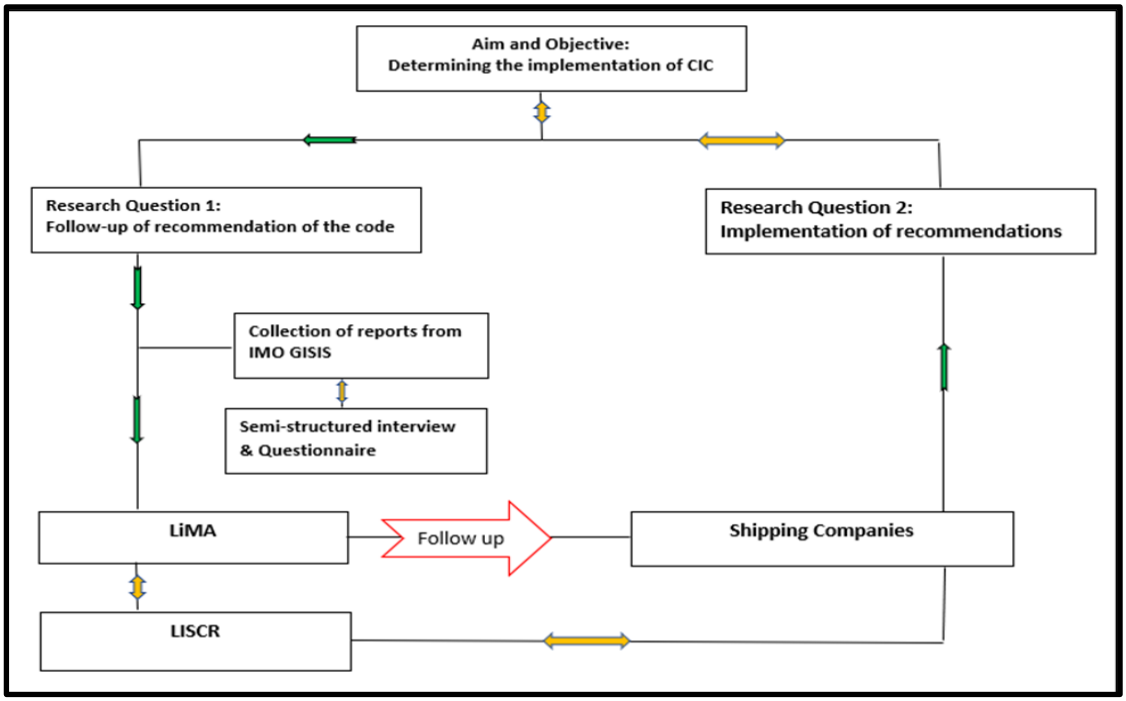
Al-Ababneh (2020), highlighted the research design as a plan that aims to identify various ways that function to find out the answers to all the related research questions. There are different significant aspects of research design as well, which include its association with research strategies and research methods for the analysis of information. As explained in the study by Nayak and Singh (2015), it is intended to provide a suitable framework for the entire research study. The selection of a research design is a choice to be made since it finds out how relevant data has to be obtained related to the study.

The research considered qualitative research designs. As explained by Newman and Gough (2019), qualitative research design includes a detailed understanding of social phenomena. The research design uses the effectiveness of the research to highlight each element and detail of the method that supports the study in association with the variables in the theoretical texts. The main aim of the research design is to assist the researcher to determine the level at which the maritime administration in Liberia

follow-up on the implementation of recommendations from the casualty investigation reports.

Therefore, this design method assisted the researcher to gather data from the focused stakeholders such as LiMA, LISCR, and shipping companies involved in marine casualty investigation. Another reason for the selection of this research design is that it helps in the collection of in-depth information linked to the topic (Kiger & Varpio, 2020). Below is an indication of the conceptual framework that describes the process of the study in Figure 3.

Figure 8: Conceptual framework for the Study



3.3 Research philosophy

Holden and Lynch (2004) have explained that research philosophy can be segmented into four broad categories, including interpretivism research philosophy, positivism research philosophy, pragmatism research philosophy, and realism research philosophy. Various factors are considered and kept in mind before the selection of the most suitable research philosophy that fits the study. Of the research philosophies

mentioned, the most commonly used are the positivism and interpretivism philosophies.

As commented in the study of Al-Ababneh (2020), positivism research philosophy is designated to collect quantitative data while qualitative data is adopted through interpretivism philosophy. Both of these frameworks can be used for underlying assumptions that are identical. On one hand, positivism tends to assume that they are independent and are used and studied. It is related to the phenomenon of staying continuously among the subjects. On the other hand, interpretivism determines the inherent value of providing social phenomena that are created by groups of observers.

Associating it with the current study, the research philosophy selected is interpretivism. The foremost reason for the selection of this philosophy is that over 30 casualty investigation report recommendations are analyzed to answer the research questions demanded by the study. With the help of this research philosophy, factual knowledge was collected. This was done with the assistance of observations made. Along with this, statistical analysis was done with all the collected data. Furthermore, the next part tends to discuss the research approach that has been used for this study (Al-Ababneh, 2020).

3.4 Method of Selecting Participants

The researcher, in June 2022, submitted invitations to participants using emails through the World Maritime University (WMU) platform to participate in both semi-structured interviews and questionnaires as seen in the appendix (3,4 and 5). The participants were carefully selected rather than randomly because the study looked at stakeholders in the decision-making process of monitoring and implementing recommendations from the reports of marine casualty investigations and their experience in the subject matter being researched. Therefore, the research activities were carried out between June and August 2022 based on consent from the ethics committee at WMU.

The relationship between the researcher and the participant is purely open and mutual. The clear intent of the research study was provided by the researcher to the

participants. However, due to the level of sensitivity of the study, some of the participants did not immediately reply, but rather had to be reminded several times.

3.5 Data collection

As per the study of Pandey and Pandey (2015), data collection is declared as a crucial component of the entire study as it explores sources that can present information and gathers it for the study. The foremost aim of data collection is to find out information that is present in a systematic manner and measure it to ensure the accuracy of the data. As the data collected aims at providing content for the data analysis, the information collected should be of the highest quality. There are two main types of data collection methods that include primary data collection and secondary data collection (Nayak & Singh, 2015). Choosing the relevant type of data collection entirely depends on the sort of information that is required for the accomplishment of aims and objectives related to the study. The primary means of data collection also demands the attention as well as time that is required for filling out the surveys by the respondents. The data is more authentic and up to date. The secondary data collection method is also related to the second-hand data that is not up to date which can be conducted for another research study.

For satisfying the research questions associated with the current study, both the means of data collection have been selected; primary as well as secondary data collection methods have been selected. The sources from which are used for the collection of secondary data involve data collected from IMO GISIS, which comprises over 30 accident investigation reports from different shipping companies.

All these vessels are administered under the flag state of Liberia with the report submitted by the Liberia Maritime Authority. The reports' recommendations are categorized by stakeholders, including the Liberia Maritime Authority, shipping companies, and IMO, to easily analyze the recommendation implementation process. It is highly important for secondary data that all the resources that have been selected for this purpose must be reliable and authentic, as it will provide reliability and authenticity to the entire study. The primary data was collected from Semi-Structured

interviews and questionnaires that were done by the researcher (Pandey & Pandey, 2015). The points of focus for the collection of the primary data are LiMA, LISCR, and the shipping companies.

Semi-Structured interviews allow for the objective comparison of candidates while also providing an opportunity to spontaneously explore topics relevant to that particular candidate.

3.6 Data Analysis

As Abu-Alhaija (2019) mentioned, data analysis is an essential part of the methodology because, in the absolute absence of this, it will be extremely challenging to achieve meaningful and purposeful findings linked to the aim, objective, and research questions of the study. Therefore, it is highly crucial to use suitable techniques and tools that should be used for gathering and analyzing data. The researcher used Google Docs tools for the current study and conducted a thematic analysis of the data that was valid and reliable and divided into different segments.

As associated with the qualitative pattern, the researcher uses the analysis of such techniques that are utilized in secondary qualitative data. It is also used in thematic analysis, which is the core purpose of the study and binds all the pieces of texts together. The researchers also examined the information that is associated with various themes over the thematic analysis, which also determines a productive solution to the objectives of the research (Kiger & Varpio, 2020).

3.7 Ethics and Clearance

In June 2022, relevant documents required for the collection of data through the Semi-structured interviews and questionnaires as seen in the attached appendixes (3,4,5) were approved by the Research and Ethics Committee (REC) of WMU. This approval means that participants will have to sign the consent and confidentiality form before participating in an interview with the researcher.

Additionally, the identities of the participants will be kept secret throughout the research period for confidentiality and integrity. To achieve this, the participants will

be named P1, P2, and P3 depending on the numbers. After the study period, all materials collected will be completely deleted.

3.8 Conclusion

Considering the case studies and key theories related to the relevant sources, all the information seems to be in support of validity as well as reliability for the main key elements that were mentioned. The secondary data collection method has been used, and the study uses qualitative methods for finding out the contextual data along with all the variables. The entire chapter is designed to discuss the main characteristics related to methodology. There is a lot of information that has still not been used and covered where the main details can be related to exploring the knowledge that can be used for the future.

Chapter 4 Results and Discussion

4.1 Introduction

This chapter begins with a review of the participant's demographics and thereafter, proceeds with the analysis of the data gathered from their responses. Subsequently, the chapter discusses the correlation of the data with the concepts in chapter 2 to establish the findings of the research. The responses from all the participants from LiMA, LISCR, and shipping companies are critically evaluated against the Casualty Investigation Code and the Liberia Maritime Act of 2010 to determine the level of implementation of recommendations from the maritime accident reports.

Therefore, the conceptual areas covered will include, an overview of participants, examining LiMA authority in the conduct of an investigation, publication of investigation reports, procedures for the implementation of investigation reports, the current human capacity to conduct maritime investigations, the credibility of accident investigation reports, an example of report implementation, and follow-ups process at LiMA.

This chapter also reveals the systemic gaps in the follow-up of the safety recommendations of the accident investigation reports that were identified during the process of the research study and provides further recommendations to improve Liberia's maritime accident investigation programs so as to enhance the safety onboard ships flying the Liberian flag.

4.2 Overview of Participants

This section considered basic information on the details and processes of participants. A total of three sets of questionnaires were developed, targeting participants from LiMA, LISCR, and shipping companies.

After numerous engagements through telephone calls, emails, and text messaging, participants from LISCR and Shipping companies fully responded to issues surrounding accident investigations covering the Liberia program. There were also

participants from LiMA that immensely contributed to the research questionnaires, which inclusively provided desirable data to effectively analyze the study under consideration. The experiences of the personnel within these institutions are incredible, especially during my interaction with them. However, the data analysis will center on responses from LiMA because it is the lead maritime entity that is responsible for the oversight of Liberia's maritime program. Comprehensive responses were received from participants working at LiMA from three departments most relevant to this research, including the department of security/ investigation, the department of safety inspection, and the department of general administration, referred to as P1, P2, P3, and P4 respectively.

Taken together, the numerous personal communications with key authorities in LISCR and LiMA and the comprehensive written response to the survey questionnaire supplemented with follow-up discussions with the survey respondents served to satisfactorily examine the research questions for this study.

4.3 Data Analysis and Discussion

This section examines the responses and provides the results that determined the level of follow-up on recommendations from casualty investigation reports within the Liberia Maritime Sector. Additionally, the findings will clarify follow-up of recommendations of the Casualty Investigation Code by the maritime administration in Liberia and the implementation of the recommendations of the maritime casualty investigation reports by the various parties, including LiMA, LISCR, and shipping companies.

4.3.1 Examining the authority of LiMA to conduct casualty investigation

The study analysed the responses from the questionnaire as the participants' perceptions or knowledge of how they think of the concept of casualty investigation within LiMA. As mentioned in chapter 2, Section 5 paragraph 4 of the Liberia Maritime Authority Act, 2010, LiMA shall manage Liberia's maritime programs to avoid duplication of function.

All participants (P1, P2, and P3) mentioned that accident reports are instituted by LiMA through the offices of the Deputy Commissioner for Vessel Registration and Technical Services and the Deputy Commissioner for Technical Affairs. The former is responsible for accidents domestically, while the latter is responsible for accidents internationally. Additionally, responding to how responsibilities are assigned to conduct investigations when an accident occurs, P2 stated that for an accident that occurs locally, the Deputy Commissioner for Domestic Vessel Registration and Safety appoints investigators from the Department of Safety Inspection to conduct the investigation, while P1 mentioned that the Deputy Commissioner notifies the Department of Intelligence and Investigations to work with some investigators to conduct the investigation.

As stated in the maritime act of 2010, paragraph 2, LiMA is established to avoid duplication of functions. However, P4 in a telephone conversation mentioned that LISCR received notice for investigation from the commissioner before conducting an accident investigation, while maintaining that their investigations are only for international vessels flying the Liberian flag. Additionally, P4 revealed that the timeframe of investigation is between 12 to 15 months. Considering both commissioners functioned under the umbrella of LiMA, their roles relating to accident investigation are to be synchronized to create a focal point relative to maritime accidents, both national and international.

4.3.2 Publication of final investigation reports

As per the issue of publication of the final investigation report to the public concerning ships flying the flag of Liberia, P1 mentioned that this aspect is not fully complied with and that their department is not engaged in international investigation. However, P2 stated that reports are only made available to the public if the administration of LiMA deems it necessary through GISIS, while P3 agreed that the reports are published to the public which they described as the maritime public, comprising of ship operators, captains, port, coastal or flag states. Moreover, P1 and P3 maintained that this process is evolving at LiMA.

The various responses above indicate that the publication of accident reports by LiMA has not fully represented the required standard stipulated in the casualty investigation code. Paragraph 14.3 of the Code provides that investigating states shall make available final investigation reports to the public and the shipping industry. The Code further added that investigating states shall also assist in providing necessary avenues for the public and shipping to access information concerning an investigation report.

There should be an established directory or platform by LiMA for the publication of accident investigation reports that the public can easily access. The published reports on IMO GISIS can only be assessed by authorized maritime personnel rather than an ordinary individual.

Some credible maritime institutions such as the Marine Accident Investigation Branch (MAIB) and the National Transportation Safety Board (NTSB), publish their reports on their online platform for public consumption (MAIB, 2022; NTSB, 2022; Transparency International Secretariat, 2018). Unlike MAIB and NTSB, LiMA is yet to publish reports from maritime accident investigations on its online platform.

4.3.3 Mechanisms or procedures for the implementation of investigation reports

As mentioned in chapter 2, safety is enhanced based on the implementation of recommendations from investigation reports (Fedi, 2021). All participants believe that the concept of maritime casualty investigation in LiMA is not rooted or strong. P1 and P3 seem to agree that there are no established mechanisms or procedures yet, P3 stated that the owners and operators of ships are responsible for implementing the reports after copies of the final reports are received. The response from P1 that they have no comment regarding the implementation of investigation reports only raises more questions about the implementation procedures at LiMA.

The response from P3 further supports the other participants that there are insufficient mechanisms in place for the implementation of investigation reports. The maritime authority in the UK has a detailed outline for the implementation of the reports to enhance safety, including establishing the cause of the accidents by conducting

investigations, publishing the report; laying out steps required to implement the recommendation, providing awareness of how maritime accidents occur; and supporting both domestic and international cooperation in maritime accident investigations (Batalden & Sydnes, 2013).

Liberia is limited based on the responses, as there are no independent institutions dedicated to accident investigation and safety. Even with the current establishment of the various departments that are responsible to institute procedures for the implementation of investigation reports, it seems that there is not sufficient awareness for personnel to take initiative.

4.3.4 The resource capacity of the department of investigation

According to the Code, maritime accident investigations should be conducted by suitably qualified investigators. Responding to the availability of the needed resources to conduct an investigation, P1 and P2 agreed that the human resources required to conduct an investigation internationally and locally are competent, while P3 responded that the capacity of the local investigators is not adequate. Notwithstanding, the participants believed that the major challenge faced in the department is logistics. However, they decline to state the one challenge faced by the institution during a maritime investigation.

The guidelines for the qualification of investigators as mentioned in MSC 255 (84) section 3, paragraphs 1, 2, and 3 include having knowledge of evidence collection, interviewing, conducting analysis, and personal safety during maritime casualty investigation. In the case of MAIB, in the UK, they have a total of 35 members, including 12 inspectors that are specialized in potential shipping disciplines (Gov. UK, 2019).

Responses from LiMA could not give the accurate strength and qualification of investigators. Moreover, for the international registry, P4 stated that most of the investigators are contracted. This is also in line with the Casualty Investigation Code that supports the concept of institutions maintaining permanent investigators or hiring

them as consultants. Also, the actual number of investigators at LISCR could not be established.

4.3.5 Procedure to maintain the impartiality of accident investigation

When asked about the procedure established by LiMA to ensure that maritime accident investigations are impartial, P1 and P3 stated that the investigators are hired-foreign service personnel who are aware that investigation reports are for improvement rather than blame; they will therefore ensure independence. Paragraph 16.1.1 and 16.1.2 of the Code state that the impartiality of accident investigation derives from the appointment of investigators that have functional independence and are free of interference from any of the parties involved.

It was not clearly established by any of the participants how the vetting process for the hiring of these investigators meets the relevant standards as set forth within the code and even the 2010 Maritime Act of Liberia.

P1 revealed that there is a review process within the Investigation Department to ensure the authenticity of the report before the Commissioner endorses it. The review process is an ad-hoc setup that evaluates accident reports for approval by the commissioner when the need arises. This process is commendable but does not correspond with the standard of attainable evaluation as seen in the case of the formation of the UK's independent investigation branch (Giovannone et al., 2016). There is a need for the establishment of an independent and formal review process to assess all accident reports before approval (Farid & Elashkar, 2020).

Therefore, the procedure to authenticate the impartiality of maritime investigation should range from the establishment of an independent review panel to the appointment of investigators who should function individualistically and free of interference from both external and internal forces.

4.3.6 Implementation of the recommendations on the M.V. FPMC B102 accident

To verify the awareness of LiMA with various accident report investigations and in support of its record-keeping system, the participants were asked to provide a precise

account of the fatal accident onboard the vessel M.V. FPMC B 102 (IMO#: 9891866). The accident is one of the most recent that is published on the IMO-GISIS platform.

P1 and P3 mentioned, that they have no idea of the above-mentioned case. However, P2 appeared to have heard about it but was unaware of the outcome. This comment speaks volumes about the participation and awareness of personnel, relative to accident investigation and reporting at LiMA.

From the onset, P2 and P4 have indicated that separate commissioners are responsible for the investigation domestically and internationally. Domestic investigations fall within the scope of the mentioned departments at LiMA, while international investigations are only with the commissioner of maritime operations and LISCR. This clearly demonstrates that the lack of synchronization and the creation of a focal institution dedicated to accident investigations in all forms brings about the phenomenon experienced at LiMA.

Additionally, and responding to the data storage management system at the department of investigation, P1 indicated that investigation reports are stored in a protected database system with a code, while P2 and P3 mentioned that the reports are filled within the investigation department and via GISIS. Directive 2009/18/CE (Article 17) of EMSA laid out the platform called the European Marine Casualty Information Platform, used by the EU countries for data sharing and storage (Gov. UK, 2019). Like the EU, it is noticed that LiMA has a similar platform but it is not adequately using it. The website (www.lima.gov.lr) can be used for this purpose while at the same time providing information to the public.

4.3.7 LiMA follow-up process on the implementation of reports' recommendations

Maritime accident investigation has been essential throughout the process of ship safety evolution (Galieriková & Materna, 2019). However, the follow-ups to ensure that the recommendations are adequately implemented are also vital to the improvement of the safety of ships (IMO, 2021b). Addressing the question of LiMA follow-up process regarding the implementation of recommendations from the

maritime investigations' reports, P1 responded by saying that both the Commissioner and Director for Investigation would follow up on the implementation during stakeholder meetings. This statement is below the belt as the institution already has an established department of safety, inspection, survey, and audit dedicated to implementing and enforcing relevant national and international maritime laws and conventions, an obligation aligned with the P2 statement, that port and flag state inspectors are tasked with following up to ensure the recommendations are adequately addressed (Liberia Maritime Authority, 2019). The accuracy of P2's statement is questionable as they did not know what happened to the recommendations from the investigation report concerning the M.V. FPMC B102 vessel.

None of the participants could clearly state an established routine process for the follow-up on the implementation of recommendations from maritime investigation reports. As P1 and P4 mentioned, the process of accident investigation along with its recommendation implementation is an emerging process within their departments that will require some time and effort to be like institutions such as MAIB or NTSB.

4.4 Key Findings

After a critical analysis of the data, it is established that Liberia has made relative gains in the implementation of IMO instruments, including the Casualty Investigation Code. However, more attention is required to achieve the minimum standard of the code, especially in implementing the recommendations from the accident reports affecting the Liberian fleets. The findings cut across conceptual areas stipulated in section 4.1 of the research paper and include the following:

1. When examining LiMA's authority to conduct a maritime investigation, the research revealed that there is no establishment of an independent and unified casualty investigation committee as mandated by the casualty investigation code. As of now, both domestic and international accident investigations are conducted under the separate functions of two commissioners, which makes it challenging to track progress in the accident section. However, the timeframe for accident investigation is in line with best practice.

2. The findings show that, with the exception of the IMO-GISIS platform, the maritime authority of Liberia is not making use of, or does not have an identified platform for the publication of final investigation reports for public consumption as stated in the code and the maritime act of Liberia.
3. Other findings relative to the mechanisms or procedures for the implementation of investigation reports indicate the existence of no formal standard operating procedure or policies regarding what steps are required for the implementation of investigation reports.
4. After carefully analyzing responses from both primary and secondary sources, it is revealed that LiMA has personnel dedicated to accident investigation. However, there is no data source to access and determine the caliber of investigators in Liberia's maritime sector.
5. Findings also show that there are inadequate processes in place to maintain the impartiality of accident investigations. The clear illustration of the dependence of the accident investigation section within LiMA supports the semblance of impartiality during accident investigations.
6. The inquiry into the implementation of the recommendations on the M.V. FPMC B102 accident investigation report finding shows not much was done about the recommendations after the report was approved. Almost all the participants had either little or no knowledge about the recommendation for implementation of the above-mentioned accident report. Additionally, with the exception of the IMO-GISIS platform as mentioned above, the Liberia Maritime Authority does not have a dedicated storage system for accident information.
7. Regarding the follow-up process on the implementation of investigation reports' recommendations, the finding reveals that there is an established department at LiMA that is staffed and responsible for ensuring the recommendations are adequately addressed. However, there is a limitation concerning the established process for the follow-up on the implementation of recommendations from the safety investigation reports.

Chapter 5 Summary and Recommendations

5.1 Introduction

The most essential points of the research study are highlighted in this chapter, followed by the recommendation. The chapter further placed emphasis on the contributions made by the study and the possibility of imminent study as a result of the current research.

5.2 Summary of the research study

This research aimed to conduct a follow-up on the recommendations of Liberia's casualty investigation reports and analyze the level of oversight and implementation to enhance safety on ships flying the Liberian flag. For the aim of this research to be addressed, three critical research questions were developed to find out, the obligations of IMO Member States with regard to casualty investigation; the follow-up of the recommendations of the Casualty Investigation Code by the maritime administration in Liberia; and the status of implementation of the recommendations of the maritime casualty investigation reports by the various parties, including shipping companies.

The research discussed that the International Maritime Organization has developed conventions and regulations such as the "International Convention for the Safety of Life at Sea" and the "Casualty Investigation Code" to minimize accident rates and improve safety in the global shipping industry. Despite these strides, Member States have been slow toward creating national policies and to a larger extent implementing the provisions stated in those IMO instruments. As a result of these challenges, IMO adopted the Voluntary IMO Member State Audit Scheme in 2006, which became mandatory and named the IMO Member State Audit Scheme for the promotion and effective implementation of IMO instruments by its Member States.

The research identified that the voluntary audit conducted on Liberia in 2008 indicated that most of the shortfalls were the creation and implementation of programs and policies associated with IMO instruments. These phenomena still exist, as mentioned in the 2021 updates by the Sub-committee on Implementation of IMO Instruments

regarding the audit of 68 IMO Member States. Flag State had 5,239 of 1,167 findings among the four parts of the III Code, with shortcomings in six categories such as implementation, enforcement, flag state surveyors, flag state investigations, the delegation of authority, and evaluation and review. Among these categories, implementation and flag state investigation have findings of 181 and 78, respectively. This necessitated the study of the follow-up on the recommendations from the maritime accident investigation reports of Liberian flagship vessels and how their implementation could impact safety and improve various safety regulations.

The research data were analyzed using the qualitative method after collecting both primary and secondary sources from the IMO-GISIS platform regarding accident investigation reports on vessels flying Liberia's flag, answers from the research questionnaires, telephone conversations, emails, and text messaging. The study targeted competent individuals from three institutions that operate within the scope of Liberia's maritime sector, including the Liberia Maritime Authority, Liberian International Shipping and Corporation Registry, and Shipping Companies.

The research findings revealed that holistically, the effort applied by LiMA on the follow-up to ensure that recommendations from investigation reports are implemented is infinitesimal for the safety of the number of ships registered under Liberia's flagship program and the application of the Code.

5.3 Recommendation

The Liberia Maritime Authority has had numerous challenges concerning the implementation of IMO instruments, as mentioned in the Voluntary IMO Member State Audit Scheme report on Liberia in 2008. Therefore, the institution's shortcomings regarding the follow-ups on the implementation of recommendations from maritime accident reports are no exception. The following recommendations are appropriate for consideration by the maritime authority of Liberia to enhance safety on Liberian flagships through the implementation of recommendations from investigation reports and prepare for the next IMSAS rescheduled for 2023.

1. The development of a framework document for the establishment of an independent casualty investigation and safety body that will be dedicated to overseeing casualty-related programs;
2. Establish or develop an online platform solely for the purpose of publishing final investigation reports for public consumption and information storage;
3. Develop policies and procedures that will clearly spell out the steps required to follow up and implement accident investigation report recommendations;
4. To formally organize the accident investigation personnel database to have a policy focus on the hiring, contracting, and training development programs to fill in the gaps when necessary;
5. Promote coordination between professional personnel of LiMA and LISCR to increase the flow of information within Liberia's maritime sector.
6. Reassess the terms of reference of the departments of investigation, safety, and LISCR to avoid the duplication of functions relative to matters involving accident investigation, reporting, and implementation.

5.4 Research contribution, limitation, and future assessment

This research serves as the stepping stone for policymakers in Liberia's maritime sector to understand the importance of implementing recommendations from maritime accident reports and appreciate the proper application of the casualty investigation code. The research has revealed potential policies and programs to fill in the existing gaps within the structure of the Liberia Maritime Authority and increase safety on Liberian flagships.

The research limitation is associated with the number of participants that were contacted to respond to the inquiries arising from the research questions and the inadequate focus placed on the accident investigation of domestic vessels in Liberia. Further research is requested to involve more participants and follow-ups on the implementation of recommendations from accident investigation reports of Liberia's domestic vessels.

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Appendices

Appendix 1 WMU Research Ethics Committee Protocol

WORLD MARITIME UNIVERSITY

WMU Research Ethics Committee Protocol

Name of principal researcher:	Richard B Kamara
Name(s) of any co-researcher(s):	N/A
If applicable, for which degree is each researcher registered?	MSc. (Maritime Safety and Environmental Administration)
Name of supervisor, if any:	Professor Anish Hebbar
Title of project:	A Study of the Follow-up on Recommendations of the Casualty Investigation Reports: Case study of Liberia
Is the research funded externally?	No
If so, by which agency?	Not applicable
Where will the research be carried out?	At WMU
How will the participants be recruited?	Liberia Maritime, Liberian Registry and the Shipping Companies officials will be informed through emails
How many participants will take part?	The number will depend on their availability and willingness to be interviewed
Will they be paid?	No
If so, please supply details:	Not applicable
How will the research data be collected (by interview, by questionnaires, etc.)?	By interview and by document analysis
How will the research data be stored?	All data gathered will be stored in a separate folder in my personal laptop with a strong password.
How and when will the research data be disposed of?	Data will be disposed of upon completion of my study in November, 2022
Is a risk assessment necessary? If so, please attach	Not applicable

Signature of Researcher: Kamara Date: June 27, 2022

Signature of Supervisor: Hebbar Date: 27 June 2022

Please attach:

- A copy of the research proposal
- A copy of any risk assessment
- A copy of the consent form to be given to participants
- A copy of the information sheet to be given to participants
- A copy of any item used to recruit participants

Appendix 2 WMU Consent Form

WORLD MARITIME UNIVERSITY

Dear Participant,

Thank you for agreeing to participate in this research interview, which is carried out in connection with a Dissertation that will be written by the interviewer, in partial fulfilment of the requirements for the degree of Master of Science in Maritime Affairs at the World Maritime University in Malmo, Sweden.

The topic of the Dissertation is *A Study of the Follow-up on Recommendations of the Casualty Investigation Reports: Case study of Liberia*

The information provided by you in this interview will be used for research purposes and the results will form part of a dissertation, which will be published online and made available to the public. Your personal information will not be published. You may withdraw from the research at any time, and your personal data will be immediately deleted.

Anonymized research data will be archived on a secure virtual drive linked to a World Maritime University email address. All the data will be deleted as soon as the degree is awarded.

Your participation in the interview is highly appreciated.

Student's name: Richard B Kamara
Specialization: Maritime Safety and Environmental Administration
Email address: w1010945@wmu.se

* * *

I consent to my personal data, as outlined above, being used for this study. I understand that all personal data relating to participants is held and processed in the strictest confidence, and will be deleted at the end of the researcher's enrolment.

Name: .....

Signature: .....

Date: .....

Appendix 3 Questionnaire for the Liberia Maritime Administration

Questionnaire for Liberia Maritime Administration

This interview questionnaire is for the administration of Liberia Maritime (LiMA) to scrutinize their stance on the casualty investigation report recommendations. Please note that your identity will be anonymized by offering pseudonyms to each participant for ensuring confidentiality. In addition to that, per the ethical standards, you possess the right to withdraw anything from the interview method and the data collection procedures.

1. According to the Liberian Maritime Regulation (LRM), 9.258, the Commissioner or any Deputy Commissioner may institute a marine investigation after notification of an accident. Based on your experience dealing with casualty investigation, is it still necessary to leave it open to any Commissioner or direct it to a specific Commissioner?

2. Kindly describe how the Liberia Maritime Authority (LiMA) assigns responsibilities to conduct an investigation when an accident occurs.

3. The Casualty Investigation Code 14.4 and the LRM 9.258 supports the publication of the final investigation report for public consumption. Please explain how this process of the above-mentioned regulations is fulfilled by LiMA?

4. The purpose of a marine investigation is to improve safety according to the casualty investigation code, what mechanisms or procedures do you institute to ensure that the recommendations from the reports are implemented?

5. The department of investigations is responsible for carrying out flag State investigations as stipulated in LiMA's organogram, and accidents should be investigated by suitably qualified investigators, competent in matters relating to the casualty as required by paragraphs 38 to 41 of resolution A.996(25) of the code. Please describe the current strength and capacity of those conducting accident investigations? Please explain any challenges in this regard and the means to overcome the challenges.

6. Please describe how LiMA maintains records, databases, etc. of the number of accidents involving personal injuries, occupational accidents, and casualties to ships that have been investigated during the last four years.

7. Could you please describe the institutional procedures you have to ensure that accident investigations are impartial and objective?

8. On 12 January 2021, the accident investigation report into the matter involving the Bosun's fatal accident during a cargo hatch cover onboard the vessel M.V. FPMC B 102 with IMO number 9891866 was released. Could you briefly describe the investigation into this casualty?

Appendix 4 Questionnaire for the Liberian Registry

Questionnaire for Liberian Registry

This interview questionnaire is for the Liberian Registry (LISCR) to scrutinize their stance on the casualty investigation report recommendation. Please note that your identity will be anonymized by offering pseudonyms to each participant for ensuring confidentiality. In addition to that, per the ethical standards, you possess the right to withdraw anything from the interview method and the data collection procedures.

1. How do the Liberian Registry (LISCR) receive notification to commence an investigation when an accident occurs?

2. The Casualty Investigation Code 14.4 and the LRM 9.258 supports the publication of the final investigation report for public consumption. Please explain how this process of the above-mentioned regulations is fulfilled by the Liberian Registry?

3. The purpose of a marine investigation is to improve safety according to the casualty investigation code. What mechanisms or procedures do you institute to ensure that the recommendations from the reports are implemented?

4. The department of marine investigations is responsible for carrying out flag State investigations as stipulated on the Liberian Registry website, and accidents should be investigated by suitably qualified investigators, competent in matters relating to the casualty as required by paragraphs 38 to 41 of resolution A.996(25) of the code. Please describe the current strength and capacity of those conducting accident investigations? Please explain any challenges in this regard and the means to overcome the challenges.

5. Please describe how LISCR maintains records, databases, etc. of the number of accidents involving personal injuries, occupational accidents, and casualties to ships that have been investigated during the last four years.

6. Could you please describe the institutional procedures you have to ensure that accident investigations are impartial and objective?

7. On 12 January 2021, the accident investigation report into the matter involving the Bosun's fatal accident during a cargo hatch cover onboard the vessel M.V. FPMC B 102 with IMO number 9891866 was released. Could you briefly describe the investigation into this casualty? Also, could you describe what measures were taken to ensure that the recommendations from the report were implemented relative to the Anti-Lifting Device (ALD)?

8. Please describe the follow-up by LISCR of the recommendations of the casualty investigation reports.

Appendix 5 Questionnaire for the Shipping Companies

Liberia Flag State Marine Casualties and Incidents Reports' Recommendations (2016-2020)

Report 1. Report of Investigation Into the matter involving the Bosun's fatal accident during a cargo hatch cover closing operation while underway on December 14, 2020.

Indecator: 1= Maritime Adm., 2= IMO, 3= Shipping Co., 4= All Co., 5= Not specify**

Ref. C0013134	Activities	Recommendation(s)
Ship involved	FPMC B 102 (IMO 9891866) – Bulk Carrier	1.3. Responsible Officers shall supervise, properly communicate, effective maintenance on hatch closing devices. Review the Preventive Maintenance System on Hatch and Deck equipment. The operation procedures of Anti-Lifting Device (ALD) to be reviewed and trained. 1.1. Risk Assessment to be done properly. The incident shall be distributed to other vessels which fitted with ALDs. The materials which are found defected to be immediately renew, rectify without delay. Company shall conduct unannounced inspection at times. Recommendations may be including the following: • Revert to the original Wire Rope arrangement for Locking Hook of the Tripping Wire as in the Hatch Cover drawing. • Carry out a complete Risk Assessment of the hazards arising from the Anti-Lifting Devices on cargo hold no. 4. • Review the Preventive Maintenance System for Hatch Covers. • Review Operating Procedures and Checklists for Hatch cover Operations. • Promulgate the information on the hazards of Anti-Lifting-Devices to other vessels of the fleet.
Location	At Sea	
Incident date	2021-01-12	
Type of casualty	Very serious	
CS and Ship Manager	American Bureau of Shipping (ABS) and Formosa Plastic Marine Corp (0882415)	

Report 2. The Report of Investigation Into the matter of the falling from a height incident which led the Death of an Able Seafarer while at sea, on October 25, 2020

Indicator: 1= Maritime Adm., 2= IMO, 3= Shipping Co., 4= All Co., 5= Not specify**

Ref. C0013066	Activities	Recommendation(s)
Ship involved	Gail (IMO 9497505) – Bulk Carrier	2.3. Although the exact cause of the fall to the AB remains unknown, the Safe Working practice onboard shall be strictly implemented. Responsible Officer shall

Appendix 6 Liberia casualty investigation report's recommendation by classification

Liberia Casualty Investigation Reports' Recommendation by Classification Based on Responsibility

Legend: 1st No. = Report, 2nd No. = Category, 3rd No. = Recommendation (1.1.0) ****

Category 1 : Maritime Administration

Report : #1
Ship involved : FPMC B 102 (IMO 98918660)
Ship Type : Bulk Carrier
Ship Manager : Formosa Plastic Marine Corp (0882415)
Incident date : December 14, 2020
Location : At Sea
Type of Casualty: Very serious

1.1.0. Risk Assessment to be done properly. The incident shall be distributed to other vessels which fitted with ALDs. The materials which are found defected to be immediately renew, rectify without delay. Company shall conduct unannounced inspection at times. Recommendations may be including the following:
• Revert to the original Wire Rope arrangement for Locking Hook of the Tripping Wire as in the Hatch Cover drawing.
• Carry out a complete Risk Assessment of the hazards arising from the Anti-Lifting Devices on cargo hold no. 4.
• Review the Preventive Maintenance System for Hatch Covers.
• Review Operating Procedures and Checklists for Hatch cover Operations.
• Promulgate the information on the hazards of Anti-Lifting-Devices to other vessels of the fleet.

Report : #2
Ship involved : Gail (IMO 9497505)
Ship Type : Bulk Carrier
Ship Manager : Cosmosship Mgt. SA (1765640)
Incident date : October 25, 2020
Location : At Sea
Type of Casualty: Very serious

2.1.0. Company Safety Management System (SMS) shall consider to include "Cargo Hold Cleaning" procedures. The proper and effected Risk Assessment Risk assessment to be made. Un-announce internal Safety Audit shall be done on board.

2.1.1. Safety management system of the vessels in the fleet to be reviewed to include 'Hold Cleaning' as a single risk and single 'Permit to Work'.

2.1.2. Also, it is advisable that a thorough pre-employment medical examination to be conducted to check for any seafarers possible pre-existing health condition that may not only impede in the proper discharge of their contractual responsibilities onboard, but for safe working practices as well.