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Risk governance framework for recreational vessels' safety in Mozambique and South Africa

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RISK GOVERNANCE FRAMEWORK

FOR RECREATIONAL VESSELS' SAFETY IN MOZAMBIQUE AND SOUTH AFRICA

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

2023

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): .....Yara Temke.....

(Date): Friday, 22nd September 2023

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ABSTRACT

Title of Dissertation: **Risk Governance Framework for Recreational Vessels' Safety in Mozambique and South Africa**

Degree: **Master of Science**

This dissertation examines the deficits in the risk governance framework in recreational vessels' safety, focusing on Mozambique and South Africa, considering the competent authority's response procedures.

Mozambique and South Africa are the origin and destination for several recreational boaters who navigate in both countries' waters. As a result, the occurrence of accidents is frequent. Therefore, it is intended to examine the intricacies of obtaining maritime certification, annual surveys, and casualties and risk response.

The competent authorities from Mozambique and South Africa, INAMAR and SAMSA, respectively (and other actors), have been making efforts to mitigate the risks of recreational boating through partnerships with different stakeholders, awareness-raising campaigns, certification, and inspections. Nevertheless, accidents and unconformities still occur.

In this context, the Pre-COVER risk governance framework was employed for identifying safety governance deficits, which resulted from the combination of the risk governance framework presented by IRGC and ISO 31000:2018.

Additionally, a mixed research method was applied to collect information on target groups, as such interviews were carried out with senior managers of the maritime authority, clubs, and recognized organizations in Mozambique and South Africa.

The findings can be helpful for to understand and assess risk governance deficits and improve policies, procedures, and response efforts based on the conclusions and recommendations.

In future the Pre-COVER framework can be an excellent, practical tool for appraising risk governance deficits in different organization settings.

KEYWORDS: RISK, GOVERNANCE, FRAMEWORK, RECREATIONAL VESSELS, SAFETY

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LIST OF ABBREVIATIONS

CMTP - Comprehensive Maritime Transport Policy

COLREGs - Convention on the International Regulations for Preventing Collisions at Seas

EMSA - European Maritime Safety Agency

GDP - Gross domestic product

GT – Gross Tonnage

IMO - International Maritime Organization

INAMAR – National Maritime Institute

IRGC - International Risk Governance Council

IRGC-RGF International Risk Governance Council Risk Governance Framework

ISO - International Organization for Standardization

MSRA - Multilateral Search and Rescue Agreement

MRCC – Maritime Rescue Coordination Center

NSRI- National Sea Rescue Institute

PCLF – Coastal, Lake and Fluvial Police

PRM - Police of the Republic of Mozambique

PRE-COVER – Prevent, Cooperate, Evaluate, and Respond

SA - South African Sailing

SADC - Southern African Development Community

SADSAA – South African Deep Sea Angling Association

SAIS – South African Institute of Skippers

SAMSA – South African Maritime Safety Agency

SAR – Search and Rescue

SASCA - South African Small Craft Association

SAPS - South African Police Service

SENAMI – National Migration Services of Mozambique

SOLAS - International Convention for the Safety of Life at Sea

SWOT - Strengths, Weaknesses, Opportunities and Threats

CHAPTER 1: EXAMINING RISK GOVERNANCE FRAMEWORK FOR RECREATIONAL VESSELS SAFETY IN MOZAMBIQUE AND SOUTH AFRICA

1.1. INTRODUCTION

Recreational vessels are a category of assets employed in nautical tourism (Todorov & Milenkovski, 2023). From the perspective of Virk and Pikora (2011) and Vázquez et al. (2021), this type of tourism has become promising and consistent in the last twenty years. In Africa, it has contributed to job creation and poverty reduction, thereby raising the engagement of the Public Sector to assure the continuity and growth of the activity. In Mozambique, a movement of about 83,700 individuals from Mozambique, but mainly from South Africa, had been registered till the middle of March 2022, of which 41,705 were entering and 42,451 leaving (SENAMI, 2022). Additionally, during holidays and festive seasons, these movements increase. Throughout 2022, around 17 thousand people cross Ressano Garcia (the main border in Maputo, Mozambique's Capital) per day (Rádio Moçambique Notícias, 2022), estimating therefore, that 448,000 travelers have crossed Mozambique's borders in that year (Diário Económico, 2022).

Gaza and Maputo (Provinces in the South of Mozambique) registered in 2022 about 658 and 138 recreational navigation licenses, respectively, for inland and open sea boating for nationals and foreigners (INAMAR, 2022).

Consequently, to ensure the safety of recreational boat users and bathers, competent authorities need to be prepared to intervene and reduce the risk of casualties. Ahmeti and Vladi (2017) consider risk as a personal attitude in unpredicted situations and, therefore, present when insecurity is perceived in a given event. Consequently, given the demand for recreational activities with boats, the probability of accidents and injuries also increases (Virk and Pikora, 2011).

Hence, this paper intends to identify the governance deficits in recreational boating safety, considering the number of casualties in the study area. In South Africa, remarkably, in 2022 about 1,091 people were rescued along the coast and on inland

waters by the National Sea Rescue Institute (NSRI, 2022); additionally, severe accidents have been reported. For instance, in 2008 three tourists died in a capsizing accident in Cape Town (Reuters, 2008). In Mozambique, 138 people lost their lives, and 31 people were reported missing in about 1000 different incidents (INAMAR, 2021). Sowetanlive (2021) additionally suggests that accidents with pleasure craft worsen at peak times, especially during the festive season.

Therefore, the competent authority has to employ mechanisms to handle recreational vessel's risk, emphasizing safety provisions in decision-making; thereupon, Zhemchugova et al. (2022) highlight that risk treatment should be through processes determined by the organization in line to accomplish reasonable goals considering appropriate decisions, however, Ahmeti and Vladi (2017) state that risk should not be suppressed, but conveniently managed. On the other hand, EMSA (2022) asserts that safety aims to reduce or maintain the risk of harm to people or property damage at an acceptable level.

On the other hand, several scholars discussed the concept of governance and provided a very generalist definition, Renn (2008) states that governance constitutes the different processes carried out for decision-making by different actors with the same interests. However, more than addressing governance is needed to ensure risk treatment, it requires looking at risk governance. Additionally, Cedergren and Tehler (2014) suggest that establishing a governance framework is essential for participatory decision-making and implementing mechanisms to mitigate and manage risk while guiding the organization to be proactive and prepared to handle uncertainties. Though risk treatment needs to take into account the current dynamics and the involvement of the various stakeholders in decision-making, thus raising the concept of risk governance but considering the difficulties of conceptualizing governance, discussing risk governance becomes even more challenging, Renn (2008) highlights that risk governance is incorporating risk into decision-making through risk analysis, which involves the assessment, management and communication of risk, Cedergren and Tehler (2014) consider risk governance the different facets that public and private

actors deal with the unexpected, the concepts here presented does not do not exhaust the actions to be carried out.

Hence, some risk governance frameworks have already been presented, but equally, their actual application in organizations needs to be more precise, as parameters and activities for measuring results need to be adequately discussed.

The International Risk Governance Council (IRGC) was one of the pioneers in developing a sequential framework to manage risk, despite that the model was criticized for needing to be more exhaustively detailed. On the other hand, ISO 31000: 2018 equally developed a guideline based on three foundations principles, structure, and process, considered to be more meticulous, observing internal and external factors of the organization. However, it must be implemented within an ISO Management System (Rampini et al., 2019) and (Thekdi & Aven, 2016). Therefore, for examining the risk governance deficits in recreational vessels in Mozambique and South Africa, a framework resulting from the symbiosis of both models IRGC e ISO 31000:2018 was designed based on four principles: prevention, cooperation, evaluation, and response to risk; the framework emphasizes communication and stakeholder participation.

1.2. PROBLEM STATEMENT

Recreational vessels are associated with risks of injuries, fatal accidents, severe damages, and the loss of the boat. In Mozambique and South Africa, tourists employ these types of vessels regularly. In 2022, in Gaza Province (Mozambique) alone, around 658 navigation licenses were issued for national and foreign vessels against 394 verified in 2021. This activity resulted in one shipwreck in 2022 and eight in 2021, respectively, resulting in the loss of nine human lives (INAMAR, 2022).

However, provisions on transport strategies of both countries establish parameters and arrangements to be implemented by the competent authority for enhancing the safety and protection of life and property; nevertheless, despite the government's endeavor, the competent authority has challenges managing risk through a systematic and integrated response process.

This study seeks to identify risk governance deficits in recreational vessels' safety in Mozambique and South Africa to provide elements for the competent authority to address their mitigation.

1.3. MOTIVATION

Besides other instruments, governments from Mozambique and South Africa have settled policies to mitigate recreational vessel accidents, as mentioned in the Transport Policy (1996) and the Transport Strategy (2020). However, annually, the number of visitors that transit from one country to another has been intensifying; from 2021 to 2022, the movement of visitors increased by 31% (Diário Económico, 2022). Ensuring the safety of people and goods is the mandate of the National Maritime Institute (INAMAR) and the South African Maritime Safety Authority (SAMSA) for Mozambique and South Africa, respectively, expressed in the Organic Statute of the National Maritime Institute, Resolution n. º 9/2012 and the South African Maritime Safety Authority Act of 1998 correspondingly.

Recreational boating does not merely benefit the practitioners, it contributes expressively to local growth, Martínez Vázquez et al. (2021) argue that maritime recreational activity grants the development of local economies, in Mozambique tourism contributed 4.1% of the GDP, whereas in South Africa 3.7% (World Travel & Tourism Council, 2022) and (Department of Tourism, 2022). In this context, safeguarding the reputation of countries as safe destinations for recreation, continuity of activity, and most importantly, protecting visitors and residents are the motivations for identifying deficits in safety risk on recreational vessels and risk management through the Pre-COVER risk governance framework.

1.4. AIM

This research examines the risk governance deficits in Mozambique and South Africa recreational vessel safety.

1.5. OBJECTIVES

The objectives of the research are as follows:

- To identify the risk of recreational boating in Mozambique and South Africa;
- To describe the stakeholder participation and communication in decision-making for the mitigation of risk on recreational vessels in Mozambique and South Africa;
- To examine the risk governance deficits in the safety of recreational vessels in Mozambique and South Africa.

1.6. RESEARCH ETHICS

Data collection for a survey followed ethical and moral principles and the respect for participants' anonymity. Trochim et al. (2016) argue that the well-being and moral integrity of the participants must be maintained, and the researcher must be honest and maintain the respect and privacy of the participants.

The data was obtained with the consent of the participants upon the signature of the consent form approved by the University's Ethics Committee, respecting morality, dignity, autonomy, and authority,

Before the data collection, the objectives and purposes of the research were clarified to the participants.

For data collection, interviews and questionnaires were conducted with non-vulnerable groups, such as competent authorities in Mozambique and SAMSA in South Africa, boat owners, skippers, and recreational vessel-owning visitors.

1.7. RESEARCH QUESTIONS

The following research questions will be addressed in this study regarding the risk governance in Mozambique and South Africa:

- How are the stakeholders involved in identifying, communicating, and managing risk in Mozambique and South Africa recreational vessels?

- How are prevention, evaluation, and response of recreational vessel risk managed in Mozambique and South Africa?
- What risk governance deficits are identified in recreational vessels' safety in Mozambique and South Africa?

1.8. EXPECTED RESULTS

The research does not intend to expose, reveal, or criticize the work of Mozambique or South African authorities. Instead, it aims to identify aspects that can be addressed through collaboration between the different actors and institutions involved in ensuring the safety of recreational activities with vessels.

In the social dimension, it is expected to make Mozambique and South Africa reference tourist destinations in terms of safety for the practice of nautical recreational tourism.

Institutionally, this dissertation paper is expected to provide Maritime Administrations of both Mozambique and South Africa with the perspective regarding safety issues on recreational vessels to reduce casualties and pollution of the environment.

The research would also help reformulate domestic safety legislation and raise awareness at an international level of accidents involving recreational vessels not intended for commercial activity.

1.9. STRUCTURE OF THE DISSERTATION

To discuss and respond to the research questions, the dissertation is distinguished into five chapters addressed per their purpose.

Chapter 1, this chapter, briefly introduces the nuances of recreational vessels in Mozambique and South Africa, the risk implications of the activities, and the purpose of a risk framework. The problem, motivation, research questions, aim, and objectives are presented.

Chapter 2 covers the conceptualization surrounding safety, governance, risk, and recreational vessels. Additionally, different studies and scholars' findings about recreational vessels' risks, the IRGC and ISO 31000: 2018 implementation are

presented, and the Pre-COVER risk governance framework is designed as a symbiosis of both IRGC and ISO 31000: 2018 frameworks.

Chapter 3 considers the data collection and analysis methods applied in the research. Therefore, triangulation (qualitative and quantitative) and descriptive and comparative methods, respectively. Moreover, it explains the elaboration of interviews and questionnaires for the maritime and enforcement authorities, recognized agencies, and clubs from Mozambique and South Africa through the Pre-COVER risk governance framework.

Chapter 4 presents and discusses the data collected through questionnaires and interviews with the one presented in the literature.

Chapter 5 presents the conclusions and recommendations to respond to recreational vessel safety in the countries of analyses and further areas for research and the research limitations.

CHAPTER 2: RISK GOVERNANCE FRAMEWORK AND RECREATIONAL VESSEL'S SAFETY

2.1. INTRODUCTION TO THE CHAPTER

This chapter presents the research's study area profile, as well as the regional and bilateral agreements of Mozambique and South Africa, IMO provisions for the safety of recreational vessels, concepts related to the research topic, studies, and opinions of scholars in the field of the safety of recreational vessels, as well as the presentation of a risk governance framework for identifying recreational vessels safety gaps.

2.2. MOZAMBIQUE DEMOGRAPHIC AND MARINE RECREATIONAL PROFILE

Mozambique is located in southern Africa and has 799,380 Km2 of area 13,000km2 inland waters (Rocha et al., 2020). The country has 2,515 km of coastline and borders with South Africa, Swaziland, Tanzania, Malawi, Zambia, and Zimbabwe (CESO CI Portugal, 2011). The country has a population of 33,949,120 (Worldotomer, 2023) and accounts for a GDP per capita of US$ 541.5 (World Bank, 2023). Furthermore, the marine sector contributes to the country's GDP (Menon et al., 2021) and is the guarantor of sustenance mainly for the coastal population. On the other hand, Rocha et al. (2020) argue that the country has intense recreational activity due to the abundant land and water biodiversity that attracts many tourists, mainly from South Africa. Additionally, INAMAR (2022) highlights that the country has sensitive areas of occurrences of vessels and accidents, located mostly in the southern provinces of Maputo, Gaza, and Inhambane.

Concerning recreational vessels, the Observatory of Economic Complexity (OEC) (2023) states that in 2021 the country exported $169k in recreational vessels to countries like Zimbabwe and Malawi. However, it imported mainly from South Africa, about $2.46M in that same year. As far as the organization of recreational vessels is concerned, there are two clubs recognized in Mozambique, both located in Maputo Province Maritime and Naval Clubs, respectively, with the mandate to promote

training in recreational matters, as well as cooperation with other national and foreign clubs and provide support in search and rescue.

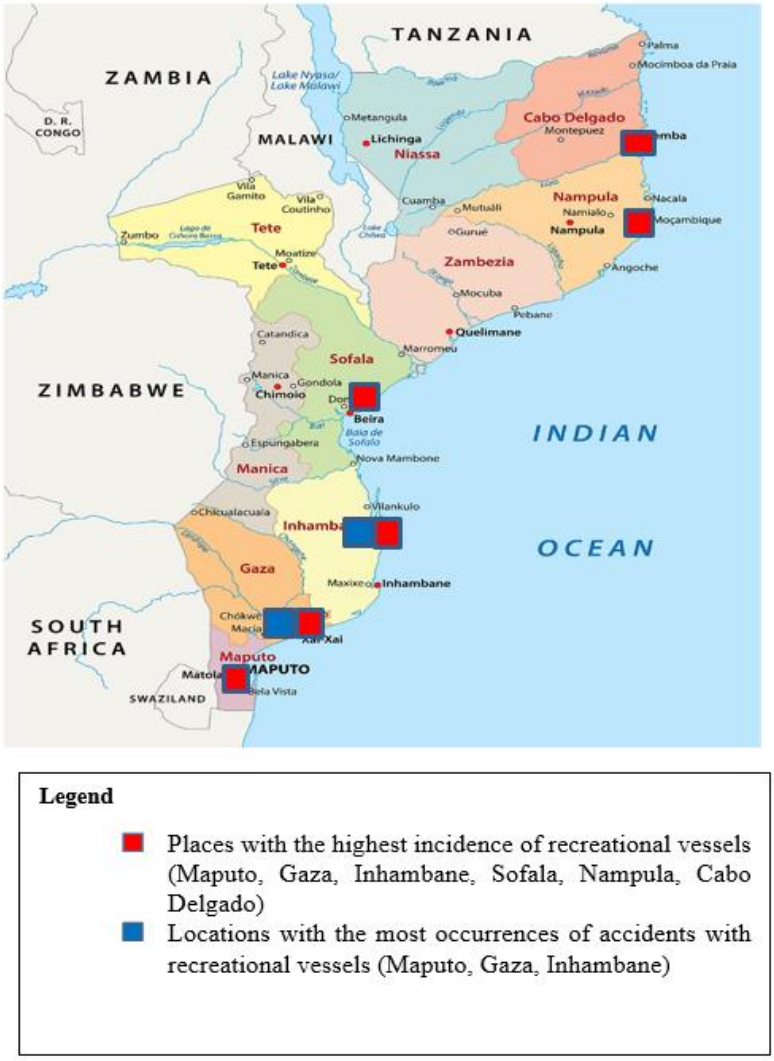
2.3. POLICY AND LEGISLATION FOR RECREATIONAL VESSELS IN MOZAMBIQUE

The government in Mozambique has designed The Transport Policy 1996, which lacks in details on the actions to be taken. However, it urges the competent authority to develop measures to safeguard human life and capacity building.

Moreover, ensuring safe navigation and enforcing legislation in Mozambique is the primary responsibility of INAMAR. Created under Decree No. 32/2004, to answer the maritime industry's technological advancement, the requirement for regional and international cooperation to strengthen maritime security to better protect property and human life at sea, as well as the effective prevention and combat of marine water pollution under national jurisdiction, as well as the promotion and encouragement of efficiency and competition through economic regulation and specific in the interest of users and service providers.

However, concerning vessel registration and activities licensing, the applicable legislation is the Regulation of Captaincies Decree-Law No. 265/72, which is obsolete considering that it dates back to colonial times and some concepts need to be revised, contributing to their difficult interpretation. Regardless, Article No. 199 covers recreational vessels and establishes the need to carry means of identification of the vessel (flag and board papers) besides specifying sanctions for the absence of property title on board. Article no. 155 refers to the need for supervision of the construction and safety conditions of recreational vessels. Article no. 165 deals with the safety conditions of the vessel and requires that the vessels be adequately maintained and carry the appropriate safety equipment according to their specifications. Article n° 166 refers to the obligation to provide mutual assistance between vessels. Article n° 167 highlights the authority's duty to assist in the event of an accident, using the necessary and available means.

Figure 1. *Places with More Recreational Boating and Accidents in Mozambique*



Legend

- Places with the highest incidence of recreational vessels (Maputo, Gaza, Inhambane, Sofala, Nampula, Cabo Delgado)
- Locations with the most occurrences of accidents with recreational vessels (Maputo, Gaza, Inhambane)

Note. Adapted from https://www.worldatlas.com/maps/mozambique.

Table 1. *SWOT Analysis for Recreational Boating in Mozambique*

Strengths	**Weaknesses**
➢ Inviting climate for the practice of recreational activities characterized by calm and hot water all year round ➢ Vast area for the practice of recreational activity and abundance of interior waters ➢ Range of stakeholders in the maritime domain	➢ Analogic registration of vessels ➢ Lack of material resources ➢ Obsolete Maritime Legislation ➢ Lack of skipper training centers
Opportunities	**Threats**
➢ Design of a more robust search and rescue and inspection service due to the existing good relationship between national and foreign actors ➢ Enhance the role of recreational vessels activity in the country given the conditions of practicability throughout the year due to the tropical climate and the intense demand for recreational activity in the country	➢ The vast area of jurisdiction can be an obstacle to awareness-raising actions and search and rescue operations

Note. Created by Author

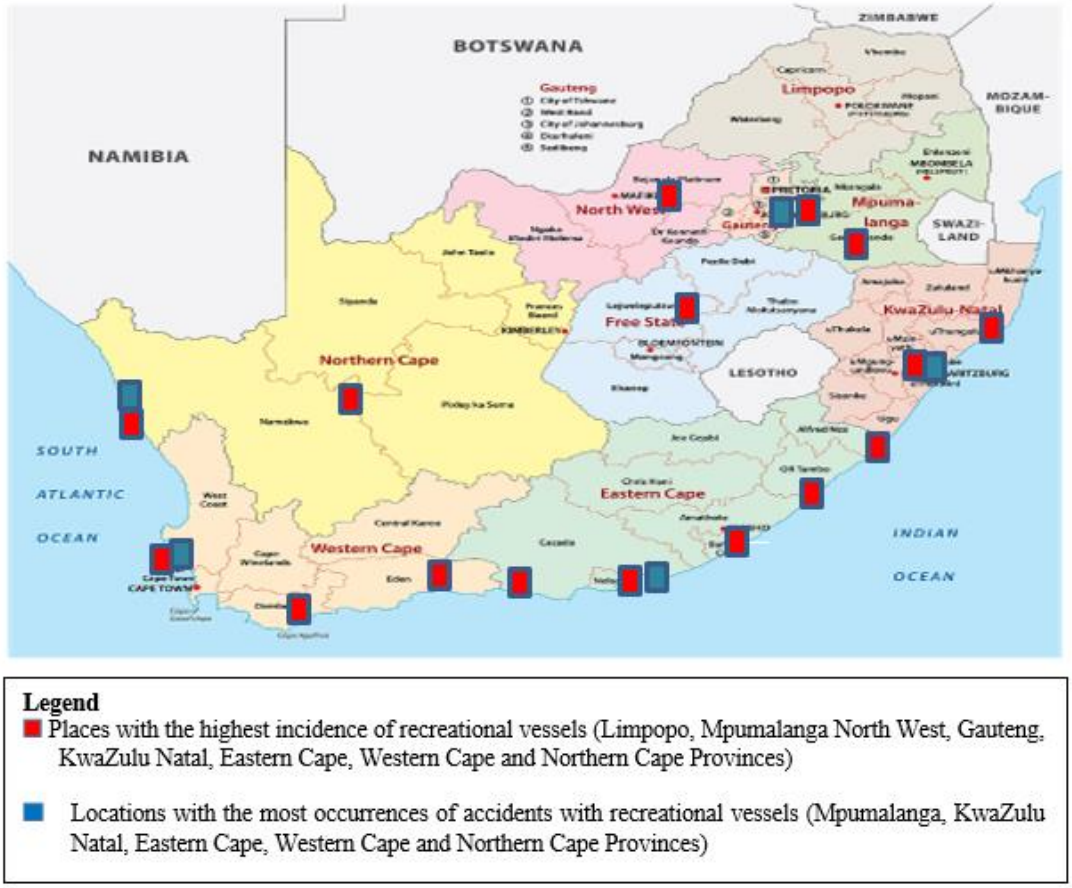
2.4. SOUTH AFRICA DEMOGRAPHIC AND MARINE RECREATIONAL PROFILE

South Africa is a neighboring country with Mozambique (see Figure 2) and has a population of 59,893,885 inhabitants (World Bank, 2022), with a coastline stretching 3900 km and an exclusive economic zone of 1.5 million km2. The country has eight main ports (Saldanha, Cape Town, Mossel Bay, Port Elizabeth, Ngqura, East London, Durban, and Richards Bay), which places it in a strategic position and allows maritime operations with countries in Asia, South America, and in African (South African Government, 2017).

Education in the maritime is assured by around 90 institutions distributed across the country, providing several programs. Additionally, over 55 private establishments offer training courses (mainly in safety and medical assistance) for African countries, including Mozambique, South African Government (2017).

South Africa stands out in the repair, maintenance, drills-ship, and civilian and military shipbuilding industry. Cape Town only has around 40 boat yards. The country ranked in 18th position in the global exportation of recreational vessels, reaching $208M in 2021 (South African Government, 2017), and (Observatory of Economic Complexity, 2023).

Figure 2. *Places with More Recreational Boating and Accidents in South Africa*



Note. Adapted from https://www.worldatlas.com/maps/south-africa.

2.5. COMPETENT AUTHORITY AND AUTHORIZED AGENCIES

The Merchant Shipping Act 1998 establishes that SAMSA has the mandate to guarantee the safety of navigation in navigable waters, prevent pollution, and promote national interests in the maritime domain. However, the institution does not undertake its activities in isolation due to the substantial contingent of recreational vessels. According to SAMSA (n.d), SAMSA certifies authorized agencies under the Merchant Shipping Regulations 2007, as stated in Regulation 30. The institution encourages training and membership in certified agencies (governing bodies, clubs, or an organization allied to a governing body) as they have been certified to assist boat owners with registration, licensing, and training. Ensuring members with easier compliance with the rules and regulations, gaining more representation and weight in decision-making in recreational activities with boats. Accordingly, the competent authority has certified the agencies illustrated in Table 2.

Table 2. *South Africa Authorized Agencies for Recreational Affairs*

No	Agency	Competencies
1	South African (SA) Sailing	Inspection and certification of recreational vessels < 100 GT, examinations of skippers of motorized vessels <9m, and certification of sailing vessels skippers
2	South African Deep Sea Angling Association (SADSAA)	Inspection and certification of recreational vessels <9m, and evaluation of skippers of motorized vessels <9m under
3	South African Small Craft Association (SASCA)	Inspection and certification of recreational vessels <9m, and evaluation of skippers of motorized vessels <9m
4	South African Institute of Skippers (SAIS)	Inspection and certification of recreational vessels <9m, examinations of skippers of motorized vessels <9m, and examinations of skippers for recreational vessels ≥9m

Note. Adapted from https://www.samsa.org.za/Pages/Authorised-Agency.aspx.

2.6. STRATEGY AND LEGISLATION FOR RECREATIONAL VESSELS IN SOUTH AFRICA

For the maritime transport sector, the Transport Strategy (2020) encourages improving governance and capability by mitigating risk through training, capacity building, and compliance with the legislation. It also establishes a performance measure of fewer than five accidents and one death per year in 2025. Particularly in the recreational domain, arising from the need to build harmony in the approximately 1.2 million vessels that carry out various activities in approximately 23 rivers and other waterways existing in South Africa, the Inland Water Strategy was launched in 2021. The instrument aims to establish governance in internal waters and highlights the effective implementation of regulations and safety culture. Additionally, it emphasizes education, awareness raising, close collaboration, and communication with the various actors (SAMSA, 2021).

Similarly, The Merchant Shipping Regulations 2007 settles the safety regime for recreational vessels, taking into account their categories and establishing that the skippers must hold a certificate of competencies and the vessel a certificate of fitness (COF), renewable annually by the competent authority or recognized entity. Regulations 6 and 7 address, respectively, address the vessels' design and construction and safety equipment on board, which must be available and updated according to the type of vessel, characteristics of the occupants, and upon authorities' recommendations. On the other hand, Regulation 8 institutes the safety conditions under which the skipper must navigate, and overcrowding without adequate justification is stated in Regulation 11. Nevertheless, the instrument has provisions for the presence of unauthorized alcohol and or drugs with narcotic effects on board, applicable exclusively for commercial vessels in Regulation 19. Additionally, the Regulation establishes the specifications for inspections, vessel registration, and penalties.

Table 3. *SWOT Analyses for Recreational Vessels in South Africa*

Strengths	**Weaknesses**
➢ Existence of a specialized Search and rescue Institute; ➢ Stakeholders with the availability of rescue assets; ➢ Existence of local boat manufacturing industry; ➢ Accessibility of training centers and schools; ➢ Existence of recognized agencies; ➢ Large number of clubs and boating associations for recreational vessels;	➢ Decentralization of competencies and activities makes access to information and activity control difficult;
Opportunities	**Threats**
➢ Introduction of skippers' training courses in neighbouring countries' languages;	➢ Preference of tourists for neighbouring countries to carry out the recreational activity ➢ Water temperature (colder and more severe in winter) ➢ Extensive coastline, challenging authorities for effective enforcement

Note. Created by Author.

2.7. REGIONAL COOPERATION ON MARITIME DOMAIN

The African Union, through its Maritime Transport Charter, adopted on July 26, 2010, establishes in Article 23 the need for cooperation between states to update current maritime legislation, while Article 24 highlights the sharing of information and mutual assistance, additionally, among other aspects, the instrument highlights the need for

training professionals working in the maritime area. Moreover, the African Union (2012) states in Africa's Integrated Maritime Strategy the need for cooperation in the maritime sector and also, among other areas, the elaboration of a recreation strategy for the continent, taking into account the sustainability of the activity, professional training, harmonization of national maritime instruments and bilateral and regional collaborations.

At the level of the SADC region, the 1996 Maritime Sector Development Protocol encourages the expansion of the sector through the development of collectively elaborated strategies and policies and the implementation of international standards for maritime security, search and rescue, and training, among other services and related matters the maritime area.

Concerning search and rescue actions, according to SAMSA (2019), Mozambique and South Africa ratified the Multilateral Search and Rescue Agreement (MSRA), which establishes guidelines for cooperation in matters of search and rescue operations, forged at the 2000 IMO Florence Conference on Search and Rescue and Global Maritime Distress and Safety System, with the designation to create regional maritime SAR arrangements in Africa targeting coastal States to be organized in sub-regional. Therefore, South Africa has been targeted to host the regional Maritime Rescue Coordinating Center (MRCC). Therefore, in 2007, the IMO secured the signature of the South Africa MRCC Cape Town, which was in charge of the South African Maritime Safety Authority (SAMSA). South Africa, Comoros, Madagascar, Mozambique, Namibia, and Angola.

2.8. INTERNATIONAL AND REGIONAL GOVERNANCE FOR THE SAFETY OF RECREATIONAL VESSELS

The International Maritime Organization (IMO) establishes the international governance for the safety of navigation, training of seafarers, and protection of the environment through the elaboration and promotion of the ratification of conventions and collaboration between States for the achievement of maritime common goals

(Turčinović et al., 2019). However, Olsen et al. (2018), state that the governance system in IMO does not cover all safety gaps, particularly concerning recreational vessels.

Concerning the conventions, SOLAS sets safety standards for registering flags employ in their fleet. Chapter 1 has arrangements for the construction of safer ships. Consecutively, Regulation 6 highlights vessel inspections, stating that they must be held regularly by the authority or a recognized external surveyor. Inspections encompass verifying compliance with safety equipment parameters as per vessel specifications and correcting deficiencies. Regulation 11 addresses the need to maintain the vessel and the safety equipment. Chapter 1 equally establishes the procedures for accident investigation by the competent authority, however, these provisions are not applied to recreational vessels.

Nevertheless, the Convention on the International Regulations for Preventing Collisions at Seas (COLREGs, 1972) applies to every category of vessels in navigable waters. The Convention establishes provisions and rules for safe navigation considering different adverse scenarios; therefore, it overviewed the mechanism to avoid collision, recommended speed, traffic separation and signaling schemes, and navigable conditions.

Regionally, the European Union adopted Directive 2013/53/EU to synchronize procedures between member states to provide recreational vessels with safety standards. It establishes the vessel and engine's design, construction, importation, and emissions parameters.

The distinguished approaches for managing recreational vessels make it challenging to obtain global information regarding the benefits, accident rate, and impacts of recreational boating.

2.9. CONCEPTUALIZATION: GOVERNANCE, RECREATIONAL VESSELS, RISK, AND SAFETY

Discussing the abovementioned concepts is an important step toward discerning deficits in risk governance affecting boating and recreational tourism. Marušić et al.

(2020) consider recreational tourism a niche registering exponential growth globally. However, as Olsen et al. (2018) argues, recreational vessels are more agile and flexible than large commercial craft and, therefore, can navigate to more dangerous areas.

Concerning **governance**, this concept has been profoundly analyzed in private and public domain. It incorporates management and monitoring of the activities and the set of rules and traditions adopted according to the culture of the organizations Aarstad (2016). Addink (2019) suggests that governance relates to fundamental facets of a society's functioning and its political and social systems, and it describes a fundamental measure of social stability and performance. It concerns a State's capacity to serve its citizens and involves the rules, processes, and behaviors through which interests are articulated, resources are managed, and power is exercised in society.

In the same perspective, Kaufmann et al. (1999) argue that governance is the culture and institutions through which power is exercised in a State, and that includes the method of choosing, overseeing, and changing governments as well as their capacity to make and carry out effective policy decisions and respect for their constituents as well as the Institutions that control the economy and their interactions with one another in society. Moreover, Mahon et al. (2020) add that governance is how resources or an environment are used, how opportunities and problems are assessed and analyzed, what behavior is considered acceptable or prohibited, and what rules and sanctions are applied, which are means to assess governance. Now, in the maritime domain, governance is conceptualized, according to van Leeuwen (2015), as a foundation of competence for the elaboration of policies through coordination with government institutions and with different stakeholders at the levels (local, national, regional, and supranational and international) to manage the shipping activity and what comes from it. On the other hand, **risk governance** is conceptualized according to Cedergren and Tehler (2014) as the different domains employed by stakeholders in the public and private scenarios deal with risk and its features.

The affective perception and application of these concepts and designs can lead to a more structured and effective environment and platform for the absence of harmful events Formela et al. (2019) advocate that **safety** is the state of being sheltered from

or unlikely to present a risk of harm, the condition in which risks and conditions that could cause physical, psychological, or material harm are under control to protect people's health and wellbeing as well as the wellbeing of the community as a whole, Haapasaari et al. (2015) simplifies the concept, stating that safety is the state in which threats have been anticipated and mechanism to overcame them are already provided, therefore, the author suggests that safety entails that actors are aware of the nature, propensity, and effects of events that could endanger their system and are in conditions to minimize them reducing the risk. Moreover, Haapasaari et al. (2015) add that risk relates to the unpredictability, likelihood, and repercussions of an unpleasant event that could jeopardize attaining a system's goals.

On the other hand, the notion of **risk** is as intricate as its identification; generically, risk is associated with danger and a situation about which one does not have much knowledge. Ahmeti and Vladi (2017) suggest that the concept of risk is complex in the process of generating a definition, and it differs according to the organization and context. However, relying on the concepts proposed by several writers, the authors consider risk as the reaction and personal discernment when dealing with the unknown, pointing to the assumption that probabilities are identifiable when dealing with risk. Haapasaari et al. (2015) in turn, suggest that risk relates to the unpredictability, likelihood, and repercussions of an unpleasant event that could jeopardize the attainment of a system's goals.

In this context, risk is situational and associated with unexpected events. In turn, this can be perceived differently in the organization, so its identification interferes with formulating strategies and decision-making.

Recreational vessels receive several denominations concerning different realities. Therefore, Olsen et al. (2018) suggest they can be addressed as pleasure craft, yachts, and small boats. Additionally, Todorov and Milenkovski (2023) and Recreational Fishing and Sports Regulation Decree n° 82/2021, define recreational vessels as boats, whether or not propelled by a motor, used for recreational purposes. On the other hand, the EU Directive 2013 considers recreational craft vessels with dimensions between 2.5m and 24m employed in recreational or sports activities.

2.10. RECREATIONAL VESSELS RISKS AND RESPONSE

2.10.1. Recreational Boaters Employment of Safety Equipment and Accidents

Scholars have conducted studies with different approaches and settings, identifying recreational boating risks. However, very little of this work analyzes countries in Africa. Molberg et al. (1993) conducted research in Ohio, analyzing the risk factors for the occurrence of fatal boating accidents. Having determined that 36% of the time, accidents occurred during navigation, 17% when drifting, and 15% while performing fishing. The study determined that the type of vessel, lack of experience, training, and age of the operators influenced the occurrence of accidents. Therefore, inexperienced younger operators and the employ of small non-motorized vessels were indicated to be factors susceptible to accidents. Additionally, capsizing and falling overboard were equally appointed as loss of life factors.

Similarly, Willcox-Pidgeon et al. (2019) investigated the relationship between drownings and boating incidents in Australia and concluded that deficiencies in the use of life jackets, consumption of alcohol and other psychotropic substances in addition to navigation in remote locations are factors behind deaths from drowning in boating and as such, it suggests campaigns to raise awareness of communities in terms of safety, the introduction of drug use tests for vessel pilots and the reinforcement of legislation. The usage of safety equipment was equally observed in the United States, having revealed that the use of lifejackets is associated with poor mastery of swimming, discomfort, and difficulty in finding the appropriate equipment size. As recommendations to enhance boat users to wear lifejackets, it is suggested that the legislation considers it mandatory, and the availability of the equipment has to be adequate to the different users' biotypes (Quistberg et al., 2014).

2.10.2. Skipper Behaviour and Competency

Various scholars appoint human behavior as the cause of boating accidents. In this sense, Antão and Soares (2019) implemented the Bayesian Belief Network model in Portugal to assess human error in different types of accidents, sea conditions, time, and seasons. The results determined that recreational boaters have low situational awareness and risk perception irrespectively of the sea conditions. To address these findings, it is proposed to train recreational boaters and have available rescue equipment in more prone accident locations.

Virk and Pikora (2011) analyzed the conduct of recreational boat users in Western Australia through the development and testing of the boating safety scale tool (BSS), having revealed that boating with less frequency in inland waters and not being affiliated with an association of boats contribute for a higher boating safety behavior.

On the other hand, Virk and Pikora (2010) suggest that completing boating training courses increases 70.6% of awareness, discernment, cautiousness, and knowledge of safety regulations in recreational skippers. The study was conducted in Australia and intended to evaluate pilots after completing boating training courses based on the premise that knowledge is associated with safety behavior. However, behavioral change is gradual. A combination of three elements is recommended for long-term results and reduction of accidents and injuries: legislation, education, and engineering.

Similarly, alcohol consumption was appointed as a risk factor in recreational boating; Miller and Pikora (2008) support that consuming alcoholic beverages constitutes a risk for recreational boaters. The study in Western Australia suggests that 72.8% of boat users targeted in the research do not have training in piloting vessels, and, in turn, 45% of non-certified pilots are susceptible to consuming alcohol during navigation, thus being less aware of safety measures.

Additionally, concerning the action to respond to recreational vessel risks, Smith et al. (2021) studied the influence of social media (*Facebook*) on behavior change through safety campaigns in users of recreational boats in British Columbia - Canada, considering that boating safety strategies should accommodate individual conduct issues, target already existing safety knowledge and avoid making behavior change a

reason to feel ashamed. The study revealed that the use of social media is positive since it gives immediate feedback from the target audience.

In turn, van Leeuwen (2015) studied the importance of regionalization for the decentralization of the governance system to fill the vacuum of implementation of international and national standards and, among actors who have the same interest in taking appropriate measures, the author presents a framework based on cooperation and integration embedded in governance principles, where communication and inclusion of stakeholders are the pillars of the framework. The study concludes that regionalization can bring about better results in maritime governance by establishing and enforcing strict standards.

Table 4. *Recreational Boating Risks'*

Element	Identified Risk	Mitigation Measures
Vessel and equipment	Obsolete	Technological improvement
Skipper	Lack of competencies and skills	Training
	Alcohol and substance consumption	Alcohol and drug test
		Enforcement of the legislation
		Awareness campaign
	Lack lifejackets usage	Legislation enforcement
		Awareness raising
	Reckless behavior	Social media campaign
Authorities	Lack of response	Regionalization
		Enforcement of regulations
		Preparedness in places where accidents occur most frequently
		Social media awareness campaigns
Others	Capsizing	Training
	Overboard	Training

Note. Created by Author

2.11. IMPLEMENTING A RISK GOVERNANCE FRAMEWORK FOR RECREATIONAL VESSELS

Recently, pleasure craft has gained notoriety, as discussed throughout the paper and reinforced by Peden et al. (2021) argue that recreational vessels are largely employed, and with it, several risks are associated; therefore, the competent authorities must implement strategies, Olsen et al. (2018) additionally suggest that different jurisdictions, management models make difficult for discerning the impact of the activity. Establishing a risk governance framework will provide the competent authorities with elements to manage risk and guarantee the continuity of activity. Therefore, for the scope of the research, the framework presented by the International Risk Governance Council (IRGC) and the ISO 31000:2018 are discussed to identify the risk governance deficits in recreational craft in Mozambique and South Africa.

2.12. INTERNATIONAL RISK GOVERNANCE COUNCIL - RISK GOVERNANCE FRAMEWORK

The International Risk Governance Council (IRGC) has developed a guidance risk governance framework (RGF) to oversee risk Florin & Bürkler (2017), designed according to Choi and Choi (2018) to manage systemic risk. Additionally, Florin & Bürkler (2017) highlights that various governance deficits have their foundation in the scarcity of a convenient legal or regulatory framework; therefore, the IRGC-RGF provides organizations with risk management and improvement recommendations.

Additionally, Cucinelli et al. (2023) explain that the structure was designed to be applied in different contexts. The framework's foundations are established in a communication and stakeholder-based involvement context, promoting transparency, trust, fairness, efficiency, and public awareness Florin & Parker (2020).

The framework comprises four phases: pre-assessment, appraisal, characterization, and evaluation, operationalized by seven actions: pre-assessment, risk assessment, concern assessment, knowledge characterization, risk evaluation, decision-making, and implementation, with distinct responsibilities for each stage and different layers of accountability.

The *pre-assessment* comprises the collection of risk perceptions from the stakeholders and the society, describing the various aspects related to it and the indicators available to manage. On the other hand, the *appraisal or assessment* identifies and predicts the consequences and assesses potential sources of risk. Therefore, risks are categorized according to their complexity, uncertainty, and ambiguity; upon that, it is decided whether the risk should be taken or not, considering stakeholders' opinions and preoccupations (Renn, 2005) and (Florin & Bürkler, 2017).

Concerning the *risk characterization* Cedergren and Tehler (2014), Cucinelli et al. (2023), and Florin and Bürkler (2017).

suggest that it is fragmented into various dimensions. It can be connected to environmental or natural factors, the scope, and the level of knowledge that one has regarding the risk. Therefore, considering all these variables, risk can be categorized as simple, complex, uncertain or ambiguous, and even a combination of all.

A risk escalator was therefore designed, ranking risk for its simplicity, complexity, uncertainty, and ambiguity Renn (2005) and (Goerlandt & Pelot, 2020), as summarized in Table 5.

On the other hand, Florin and Bürkler (2017) suggests that *risk evaluation* is the stage in which the judgment on risk is made; it is assessed on whether it is acceptable, tolerable, or not; therefore, appropriate mitigation measures are taken accordingly. Moreover, economic, social, and political issues are considered in this phase. In the same concept, in the *risk management* phase, tolerable risk is handled following appropriate procedures and actions personalized to contain or reduce risk (Florin & Bürkler, 2017).

Finally, the RGF discourses the ***cutting across aspects***, which are the framework's central aspect and addresses the importance of communication and the involvement of stakeholders, and the need for decisions to be taken according to situational societal settings (Florin & Bürkler, 2017).

Table 5. *Adaptation and Summarization of Risk Escalators*

Risk Characteristic	Features	Measures	Instruments	Actors	Role of risk perception
Simplicity	Risk course and repercussions are clear	Risk judgment and reduction	Use available mechanisms to manage risk	Regulatory bodies and experts	
Complexity	Multiplicity of risk factors	Improvement risk treatment through experts' opinion	Strict measures based on scientific evidence and layers of security	Regulatory bodies, experts, and scientist	
Uncertainty	Lack of information on risk and its consequences	Use of tools to determine the tolerability of risk and adaptation	Participation of all stakeholders and societal involved in the response	Regulatory bodies, experts, scientists, and stakeholders	Communication-based
Ambiguity	Different perspectives on risk acceptability	Communication and stakeholder participation combined with and use of structural mechanisms for conflict resolution and management	Collective approach in the treatment of risk, valuing debates about	Regulatory bodies, experts and scientists, stakeholders, and society	For setting the basis for societal discourse

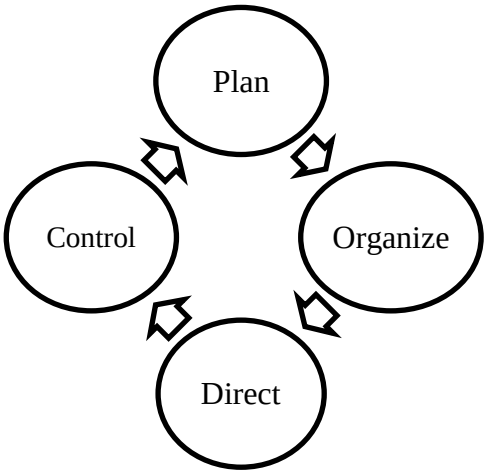
Note. Adapted from Renn (2005) and Goerlandt and Pelot (2020)

2.13. INTERNATIONAL STANDARD ORGANIZATION RISK MANAGEMENT GUIDELINES 31000:2018

With the exact purpose of setting a risk governance system, the International Standard Organization (ISO) developed a set of procedures to be implemented in any organization, the ISO 31000:2009 risk management guideline (ISO, 2009) and (Leitch,

2010). Lalonde and Boiral (2012) suggest that the ISO 31000 standard outlines the development of a risk management policy, informing all relevant parties of its positive benefits, implications, and ensuring that adequate resources are available. It underlines the significance of adapting the risk management system to the unique context of each business or organization, including cultural and political traits, stakeholders' expectations, and the organizational culture, following the logical principles of management (see Figure 3).

Figure 3. *Management Principles*



Note. Adapted from ISO 31000:2018 Lalonde and Boiral (2012).

To adapt to the new concepts of management that shifted from centered and prescriptive, the 2018 ISO version is considered by various scholars to be more open to inclusiveness, leadership, and goal-based solutions. The guideline is, therefore, designated ISO 31000: 2018, has the mandate to provide good governance and insert a risk culture in the organization.

The ISO 31000:2018 guideline is based on three elements: principles, structure, and process, which in turn guarantee the success of risk management (Rampini et al., 2019), and (Alijoyo (2022).

ISO (2018) proposes that risk management should be viewed as a practice-based approach that can be adjusted to a variety of threats. Therefore, to fulfill its mission,

the organization must be conscious of the complexity, circumstances, triggers, and consequences of risk. Accordingly, ISO (2018) the *principles* guide risk management activities, communication, and clarity in dealing with uncertainty. Principles are dynamic and intended to be adaptable, situational, and customizable.

The s*tructure* or *framework* contains elements that allow the organization to study what may be going wrong and what may contribute to the success of risk management through its components: integration, design, implementation, evaluation, and improvement (Rampini et al., 2019).

Conversely, the process is associated with internal mechanisms, feedback procedures, and accurate risk decision-making. In this context, Alijoyo (2022) suggests that ISO 31000 imposes the need to design plans and concrete activities and ensure the implementation of plans, such as monitoring and evaluation. Moreover, as it is a continuous process, Lalonde and Boiral (2012) indicate that encouraging and investing in the human factor (training and capacity building) is a prerogative for the success of risk management, in addition to the appropriate allocation of financial and material resources.

2.14. DESIGNING A RISK MANAGEMENT FRAMEWORK FOR RECREATIONAL VESSELS

Although both frameworks have been widely used, as discussed by several authors, their procedures and design are also criticized.

Choi and Choi (2018) conducted a study aiming to examine the IRGC-RGF and socially viable solutions, emphasizing that the employment of risk governance and a structured framework arose from the need to include stakeholders and communities in the search for solutions and decision-making. However, the authors criticize the IRGC framework for considering that the governance structure is deficient at the local level, as it does not incorporate stakeholder participation in the characterization and evaluation phase and has limited variables for risk categorization.

On the other hand, Goerlandt and Pelot (2020) argue that ISO 31000:2018 has a limited scope since it focuses on internal administrative decision-making. Hutchins (2018)

suggests that the guideline is practical for small-medium sized organizations with risk-based thinking. Moreover, the guideline was designed to incorporate risk management into already existing ISO management systems such as ISO 91001: 2015 and ISO 14001: 2015 or other practices and procedures. For that purpose, they must be reviewed and mimicked in ISO 31000: 2018. Additionally, in the organizational setting, examples of implementing the ISO 31000: 2018 are merely for certification purposes.

Consequently, considering the flexibility of both IRGC and ISO 31000:2018, it is comprehensible that implementing a risk management system does not imply replicating a rigid existing model. Therefore, it is proposed to establish a symbiosis between the two models and create an adjustable framework for the context of risk management for recreational vessels in Mozambique and South Africa. As such, it is proposed to identify safety gaps in recreational craft using the Pre-COVER risk governance structure, designed to prevent, cooperate, evaluate, and respond to the risk of recreational vessels (framework presented in Chapter 3).

CHAPTER 3: RESEARCH METHODOLOGY

3.1. INTRODUCTION TO THE CHAPTER

Research methodology is a technique comprised of different approaches for solving research problems in a methodical approach. It may be considered a discipline that studies how research is conducted scientifically (Kothari, 2004). In it, one examines the many approaches typically used by a researcher to analyze his study challenge and the reasoning behind them. Particularly, this research aims to examine the management of the risk with recreational vessels in Mozambique and South Africa by identifying the deficits in governance. Various frameworks are available for the identification of governance deficits. Chapter 2 of this dissertation discusses the frameworks presented by the IRGC and ISO 31000: 2018 and the challenges of their implementation. Therefore, it is suggested a tailored governance framework, resulting from the merger of the risk framework of the IRGC and ISO 31000: 2018. Accordingly, this symbiotic model was implemented as the overall analytical framework.

As a result, semi-structured interviews were carried out and thus addressed to the maritime competent authorities from Mozambique and South Africa, INAMAR, and SAMSA, respectively. Equally stakeholders from boat clubs of both countries were targeted, and a recognized examiner and surveyor from South Africa. Additionally, the maritime enforcement authority from Mozambique, the Coastal, Lake, and Fluvial Police (PCLF), and questionnaires directed to tourists from Mozambique and South Africa were similarly carried out.

3.2. RESEARCH METHODS

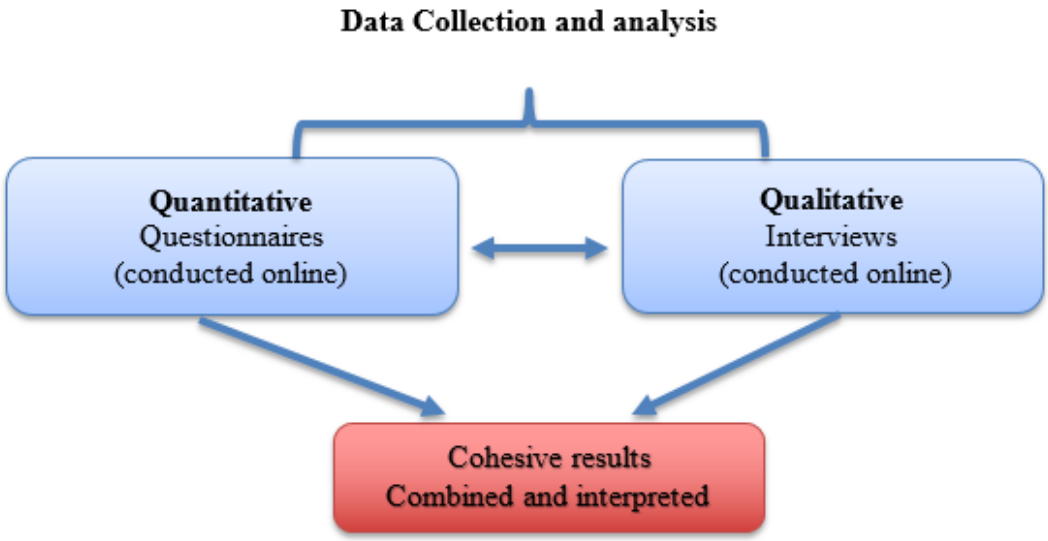
A mixed method has been employed for this research, combining quantitative and qualitative techniques, allowing a better understanding of the research problem than applying the methods separately (Trochim et al., 2016).

Thus, the **quantitative** method allowed the systematization of data and inferences through statistical estimates of the information gathered through questionnaires with boat users (Appendix IV). On the other hand, the **qualitative** method exalted the

perspectives and experiences of the participants by providing more in-depth descriptive information from the Maritime Authorities and other stakeholders from Mozambique and South Africa by applying semi-structured interviews (Appendix I - III).

The data collected from qualitative and qualitative methods were combined and compared through the data triangulation method, which, according to Kuanda (2012), enhances the cohesiveness of the results, as illustrated in the following figure.

Figure 4. *Data Triangulation Method*



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3.3. SAMPLING AND DATA COLLECTION

For the present research, the data were collected from questionnaires to the skippers of recreational vessels in Mozambique and South Africa since they perceive the risks of the activity and interpret them in different ways. In addition, they witness the repercussions of the competent authority's actions to mitigate the risk. The interviews, therefore, were designed for the competent maritime authorities of Mozambique and

South Africa, boat clubs, and recognized surveyors and examiners. Similarly, secondary data was collected through activity reports provided by the competent authority and information available on the websites and pages of different institutions accessible in the public domain.

3.4. QUESTIONNAIRES

Flick (2013) suggests that this form of data collection allows the comparison of responses from the target participants. Therefore, a largely multiple-choice questionnaire was planned and administered to **104** recreational boat skippers from Mozambique and South Africa. The eligibility criteria for the survey were that the respondents owned or operated a recreational vessel in Mozambique and/or in South Africa. The participants had been reached out through emails, competent authorities' offices, and tourist lodges.

The questionnaire had six multiple-choice questions and 51 open questions addressing the demographic profile of the participant, locations of the practice of recreational activity, conditions, competencies, licensing and equipment required before navigation, training perception of risk associated with recreational vessels, inspections, communication, and relationship with the competent authority and community, casualties and the response to them.

3.5. INTERVIEWS

Interviews allow the researcher to obtain the participants' personal views by employing open questions (Flick, 2013). Initially, **12** participants from the competent and enforcement authorities were targeted. However, during the data collection, concerns arose and there was the need to obtain the perspective of the recognized agencies that examine and inspect skippers and boats in South Africa and the boat clubs' perspective on safety from both Mozambique and South Africa. Therefore, **16** interviews were conducted in total. The participants were selected according to the intensity of

recreational boating in their jurisdiction. The interviews were conducted via telephone conference.

Table 6. *Actors in the Recreational Vessels Safety Governance Interviewed in Mozambique and South Africa*

Organization/Institution	**Interviewee**	
MOZAMBIQUE		
INAMAR	Director of Maritime Transport Services	Surveyor
Maritime Administration	Maritime Administrator of Maputo	
	Maritime Administrator of Gaza	Responsible for the Technical Department of Gaza
	Maritime Administrator of Sofala	
PCLF	National Chief of Operations of Coastal, Lake, and Fluvial Police	Chief of Operations of Coastal, Lake, and Fluvial Police of Gaza
		Chief of Operations of Coastal, Lake, and Fluvial Police of Inhambane
		Chief of Operations of Coastal, Lake, and Fluvial Police of Nampula
Clube Marítimo	Commodore	
SOUTH AFRICA		
SAMSA	Senior Manager Maritime Policy	Surveyor
		Provincial Boating Officer
Recognized Entity	SAMSA Recognized Surveyor and Examiner	Safety Officer
Club	Commodore	

Note. Created by Author.

In this regard, for the elaboration of the interviews and questionnaires, a combination of variables of the IRGC and ISO 31000:2018 frameworks were employed to understand and evaluate how risk with recreational vessels is managed in the studied areas. Concerning the IRGC framework, the following principles were addressed: ***risk assessment*** for hazard identification, ***concern assessment*** to identify the risk perceptions, ***knowledge characterization*** to identify the judgment of the significance of risk and reduction options, ***risk evaluation*** to understand the tolerability of risk and decreasing measures, ***decision making*** and ***implementation*** of measures to reduce risk. Moreover, with the same concept, regarding the ISO 31000:2018 the three components outlined by the guideline (framework, principles, and process) were adapted to scheme the questionnaires and interviews. Concerning the ***framework*** design of risk treatment, resources allocation, communication, consultation, evaluation of decision-making measures was highlighted. In the ***principles***, availability of information, involvement of stakeholders, and integration of risk in the activities of the institution are discussed, and finally, the ***process***, every variable presented by the guideline was integrated to frame the questions (see IRGC and ISO 31000:2018 risk framework at appendix XI and XII respectively).

Table 7. *Data Collected in the Interviews*

INSTITUTION	DATA
Maritime Competent Authority Mozambique (INAMAR)	-Existence of a recreational database; -Adequacy, strategies, and legislation to mitigate accidents with recreational vessels -Certification and annual inspection -Communication of recreational vessels' safety risks; -Stakeholders involvement -Response and Decision-making to risk -Risk assessment procedures; -Partnerships and coordination of procedures between stakeholders;
Maritime Competent Authority South Africa (SAMSA)	-Existence of a recreational database; -Adequacy, strategies, and legislation to mitigate accidents with recreational vessels -Certification and annual inspection -Communication of recreational vessels' safety risks; -Stakeholders involvement -Response and Decision-making to risk -Risk assessment procedures; -Partnerships and coordination of procedures between stakeholders;
Enforcement Competent Authority Mozambique (PCLF)	-Preparedness for risk response -Adequacy of resources -Actions undertaken to mitigate risk -Collaboration for risk response
Recognized Agents	-Role in Safety -Relationship with the authority -Procedures for examination and inspections
Clubs	-Role in Safety -Relationship with the authority -Response

Note. Created by Author

3.6. SECONDARY DATA COLLECTION

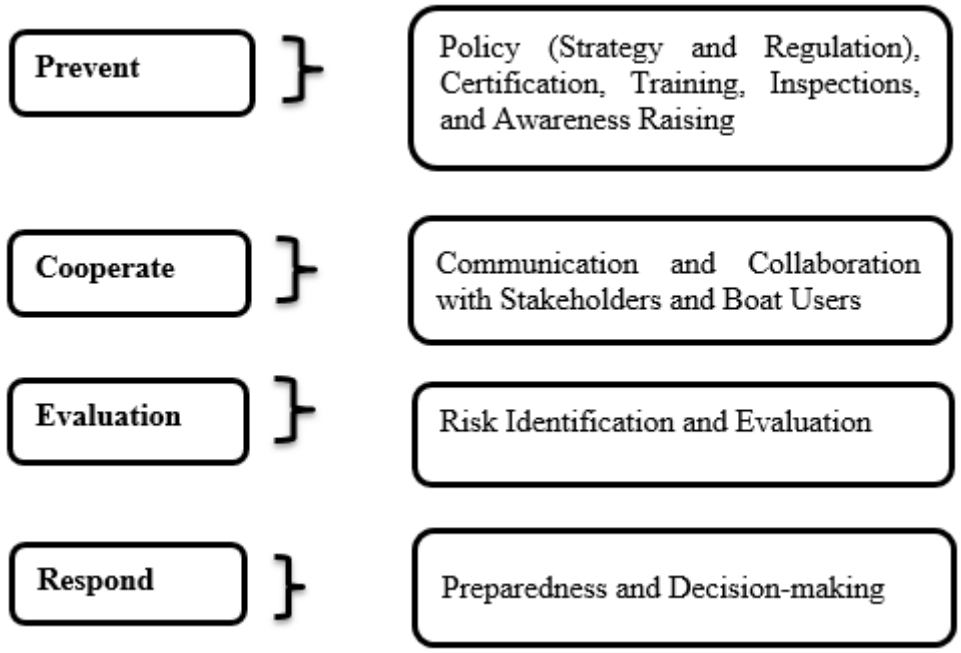
The research was also based on information available on the pages of government, organizations, agencies, and companies that offer services in the maritime domain of Mozambique and South Africa, such as INAMAR, SAMSA, *Clube Marítimo*, SADSAA, NSRI, as well as reports of activity of the competent maritime Authority in Mozambique and academic publications available on literature and scholarly research platforms.

3.7. DATA ANALYSIS AND INTERPRETATION

Data analysis was made through the Pre-COVER (described in Figure 5), which results from the combination of frameworks presented by the IRGC and ISO 31000:2018, to identify the risk governance deficits determined from the interviews and questionnaires. Therefore, the data was compiled using computer tools, and the data collected were coded and categorized in the Software *Nvivo14*. Flick (2013) enlightens that the coding places the participants' statements into context and is applicable to select the relevant content.

The data interpretation was made through descriptive and comparative methods. Gil (1999) suggests that the descriptive method consists of relating the characteristics of a given population or phenomenon or establishing relationships between variables, and thus, an explanation was made of how the Authorities of Mozambique and South Africa engage, implement, and enforce the current legislation to minimize the risk with recreational vessels, consecutively, Gil (1999) states that the comparative proceeds by investigating individuals, classes, phenomena, or facts, to highlight the differences and similarities between them. This method was implemented when comparing the results obtained in the data collection with those of the literature review and the hypotheses with the results obtained.

Figure 5. *Pre-COVER Risk Governance Framework Applied to Recreational Vessels Safety*



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CHAPTER 4: RESEARCH RESULTS AND DISCUSSION

4.1. INTRODUCTION TO THE CHAPTER

This chapter is dedicated to presenting, analyzing, and discussing the findings in the questionnaires and interviews. The questionnaires encompassed 104 participants.

The data was processed in *Microsoft Excel* Software and therefore presented in three dimensions: Mozambique as a flag state, incorporating participants with vessels registered by nationals and foreigners residing in the country (60 respondents), equally, it examines the country visitors' perspective as a port state (35 visitors boating regularly in Mozambican but residing in South Africa and boating with less frequency in their country of origin).

Finally, to examine the recreational boating governance in South Africa, addressing the boaters that navigate more frequently in the country (9 respondents) and the visitors to Mozambique (35 respondents) that practice boating equally in South Africa. Therefore, aspects related to certification, training, and inspections will be addressed to South Africa (circumstances of overlaps will be duly identified).

The interviews covered eleven Senior-level stakeholders from INAMAR, Maritime Administration of Maputo, Gaza and Zambezia, Coastal, equally from PCLF of Maputo, Gaza, Inhambane and Nampula, and *Clube Maritimo* in Mozambique, which in turn were coded from P1 to P11, in South Africa, the interviews involved five stakeholders from SAMSA, and authorized actors, identified from P12 to P16, as described in Appendix V.

Consecutively, codes were generated through the qualitative data examination Software ***Nvivo 14*** (described in Appendix VI to X). The Pre-COVER framework was the basis for data analysis and identification of governance deficits.

4.2. RECREATIONAL BOATING ACCIDENTS IN MOZAMBIQUE

Findings suggest discrepancies in the competent authority's awareness of accidents in the country. P3 and P6 state that there were no reports of a recreational vessel being involved in an accident in at least five years. On the contrary, boat users suggest that accidents have occurred constantly since 2018, and over 50 accidents were mentioned to have happened in the provinces of Maputo, Maputo City, Gaza, and Inhambane, evidencing therefore, that accidents are more prone to happen in the southern part of the country.

However, P1 reports capsize at the mouth of access to the ocean in Xai-Xai - Gaza similarly, P10 states that collisions are common in the same Province, I2 equally accounts for accidents and unreported near misses, in Chidenguele, but more frequently on Bilene beach in Gaza (accidents types are described in figures 6 and 7 for residents and visitors (18 respondents) respectively).

Figure 6. *Resident's Perspective on Type of Recreational Boating Accidents*

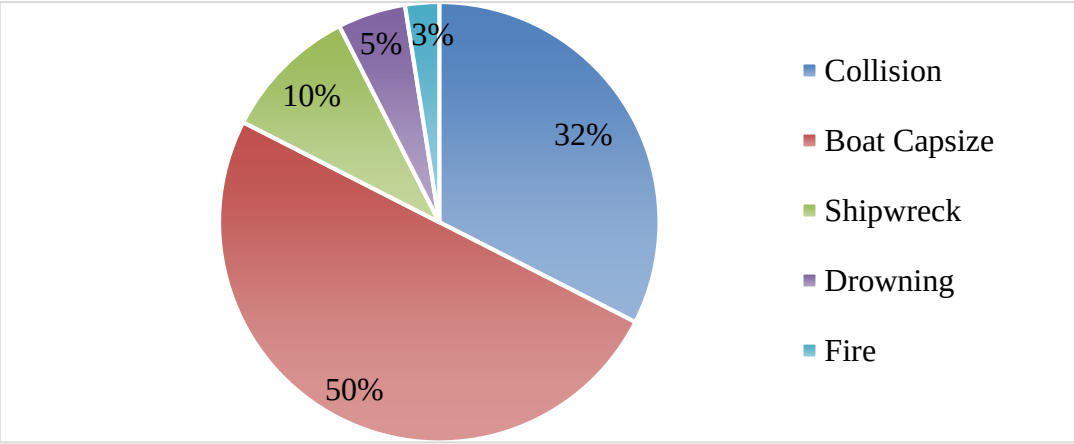

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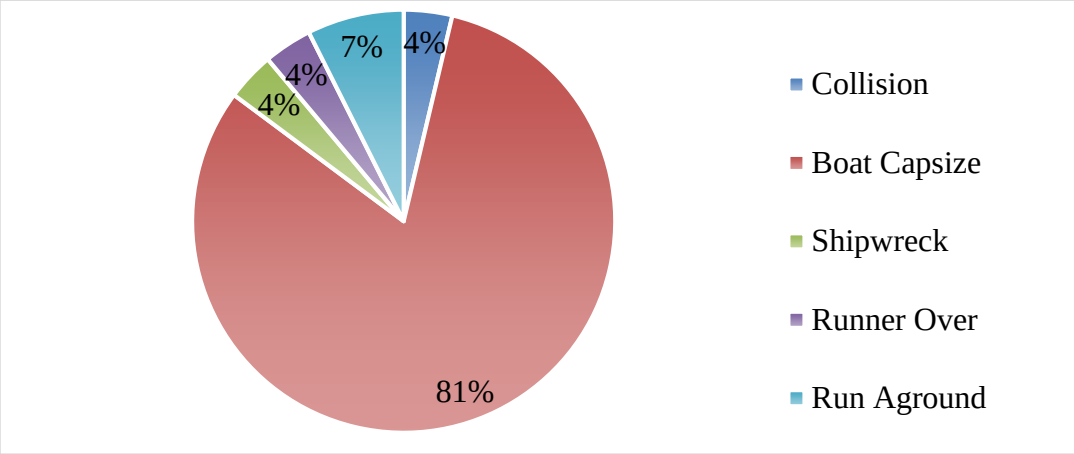
Figure 7. *Visitors' Perspective on Type of Recreational Boating Accidents*



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4.2.1. Causes of Accidents

The questionnaire findings suggest that accidents are caused mainly by the lack of skills of the skippers and their reckless behavior while boating. In contrast, the competent authority interpretation suggests that, overall, skippers demonstrate good competencies (P1 and P5). P1 additionally states that the access mouths in Gaza are challenging and require extra abilities from the skippers. On the other hand, P2 accounts that accidents are mostly caused by alcohol consumption: "*The biggest cause of accidents in recreational settings has sometimes been alcohol*''. *Thus*, as Miller and Pikora (2008) stated, alcohol consumption influences the shipper's behavior even though findings on the questionnaires state that only 5% of accidents are caused by substance ingestion. (figures 8 and 9 demonstrate the causes of accidents highlighted by residents and visitors -18 respondents).

Figure 8. *Residents' Perception of Recreational Boating Accidents Causes*

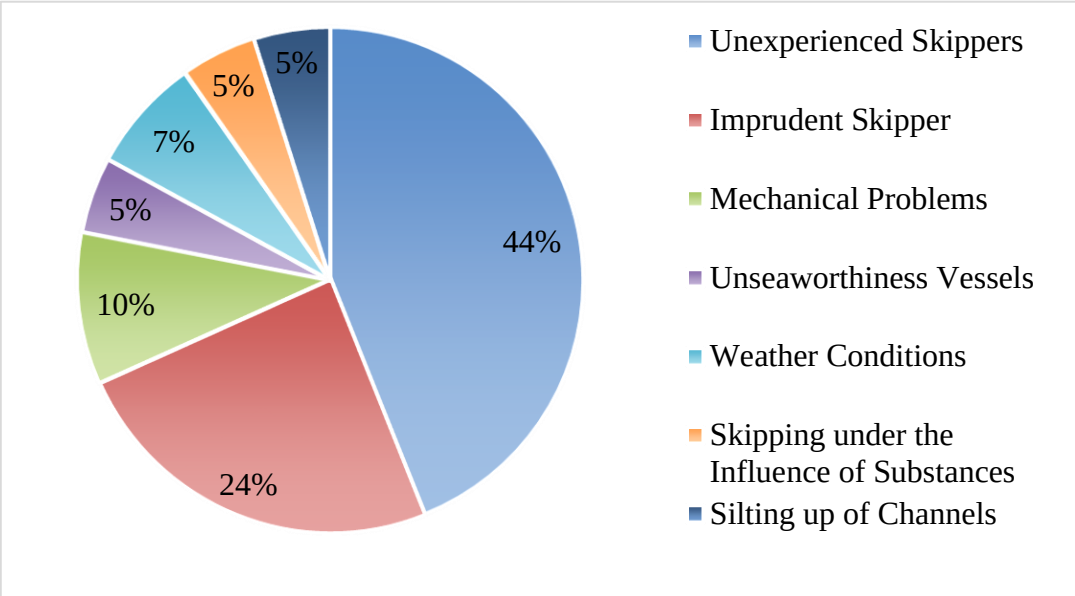

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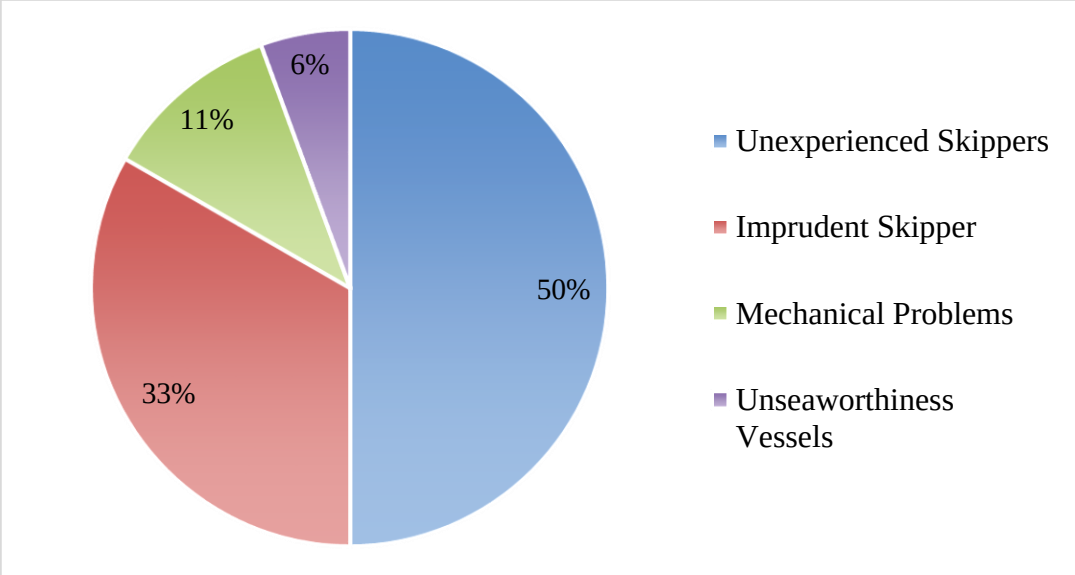
Figure 9. *Visitors' Perception of Recreational Boating Accidents Causes*



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4.2.2. Consequences of Recreational Boating Accidents

Concerning the consequences of accidents, authorities, P2, P7, and P8 refer to injuries and damage or loss of safety equipment as more recurrent accidents with loss of life are reported to be rare. Results from the questionnaires reaffirm that injuries have been the most common consequence of accidents. However, vessel damage or loss and loss of life are equally reported. Thus, visitors and residents share different experiences on the consequences of the accidents, showing that visitors demonstrate more skills to avoid fatal accidents, Figures 10 and 11 demonstrate the consequences of accidents for residents and visitors (18 respondents).

Figure 10. *Residents' Perception of Recreational Boating Accidents Consequences*

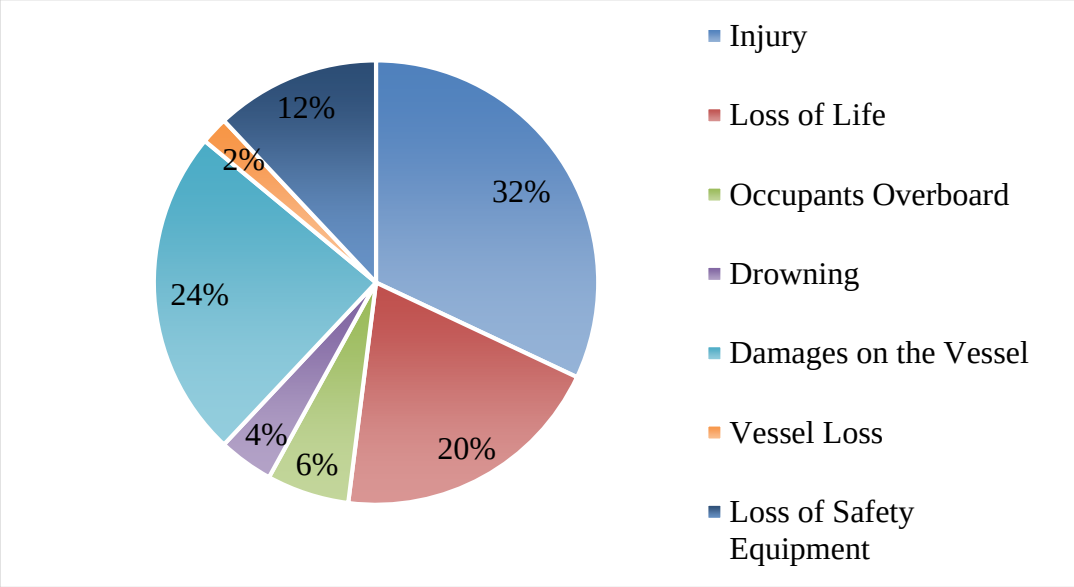

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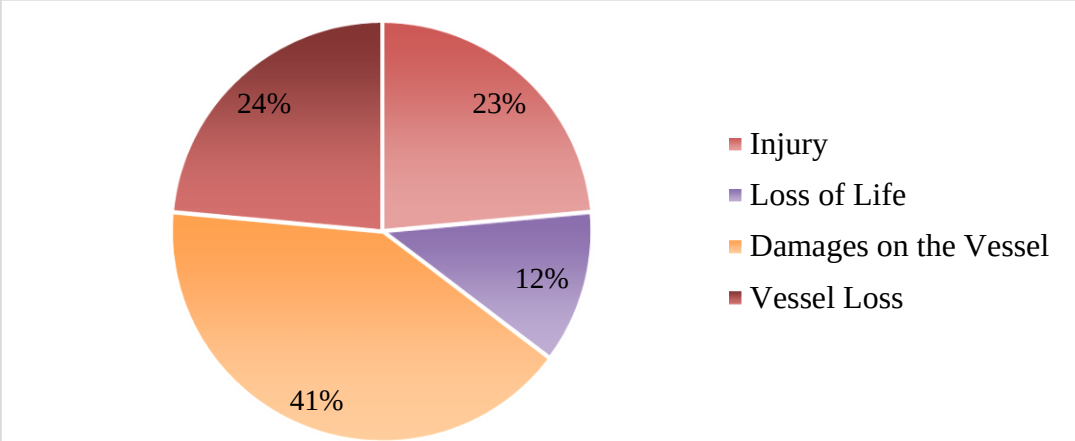
Figure 11. *Visitors' Perception of Recreational Boating Accidents Consequences*



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4.3. PRE-COVER RISK FRAMEWORK: GOVERNANCE DEFICITS IN MOZAMBIQUE

As mentioned in the methodology chapter, the Pre-COVER framework is the basis for analyzing governance deficits in Mozambique and South Africa. For that purpose, the framework was fragmented, and the analysis was made for each country separately. However, the measurement parameters and the summary of deficits identified in both countries are provided jointly.

4.4. ACCIDENT PREVENTION IN RECREATIONAL VESSELS

Figure 12. *Prevent: Policy, Certification, Training, Inspections and Awareness Raising*

Note. Creating by Author.

4.4.1. Certification, Training, and Skipper competency

Findings suggest that the certification of the skippers is an exclusive role of the competent authority. P6 clarifies that recreational skipper certification involves approval in a theoretical and practical exam the competent authority conducts. The training, though, is carried out by private entities as the competent authority does not provide those services. However, the results show that not many institutions provide training in Mozambique. P4 and P6 advocate that two locations are offering recreational skippers training, one in the south of the country (Maputo Province) and another in the North (Cabo Delgado Province).

Therefore, results show that 38% of skippers submitted to exams without prior preparation from a certified facility and that skippers without a recreational skipper's license operate recreational boats. Moreover, training procedures must also have a standard since skipper's state having done only the theoretical component. Being exposed to a training course has evidenced its benefits in situational awareness, knowledge, and skills, as Virk and Pikora (2010) discussed. However, P2 states that candidates in Gaza are provided with the legislation at the moment of application for the exam for preparation and further consultation.

Figure 13. *Skipper's Certification Status and Preparation Prior Certification Exam*

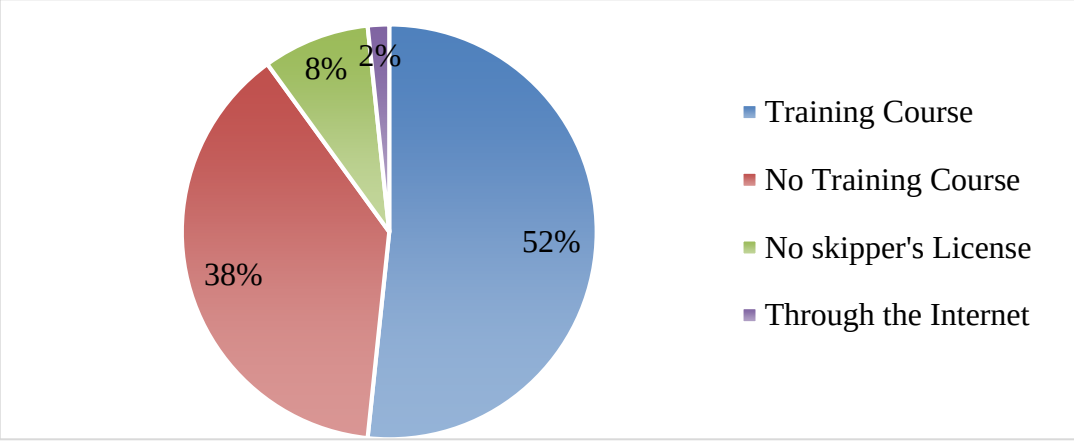

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Figure 14. *Type of Training Reportedly Done by Skipper's*

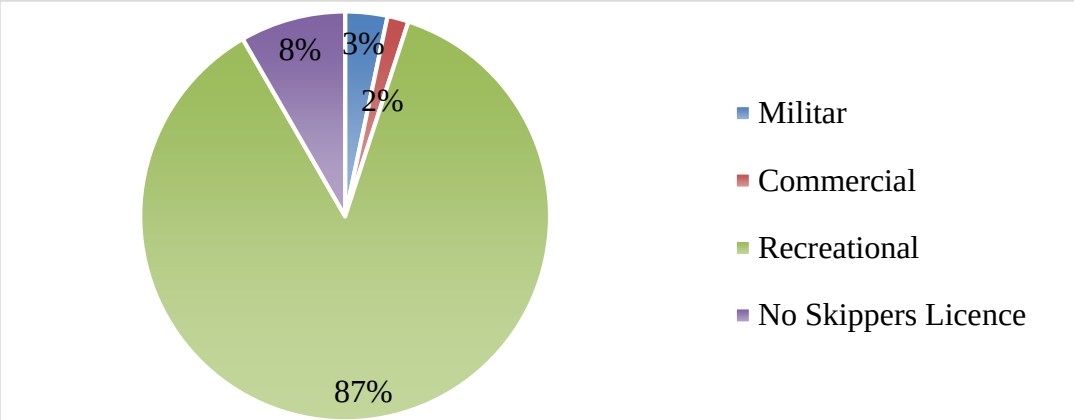

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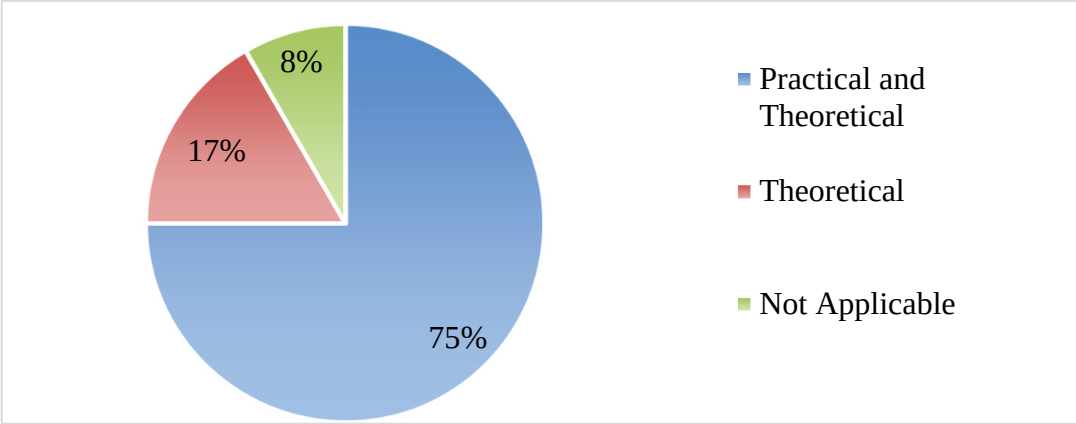
Figure 15. *Modality of Skipper's Training*



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4.4.2. Annual Vessel Inspections

The research findings demonstrate that annual inspections allow the authority to interact with the skipper to verify the vessel's navigability conditions and the pilot's competence. In this context, it was evident that there are two different inspection regimes for recreational vessels, with the first covering vessels registered in the country and the other vessels visiting for a particular period.

The national annual inspection occurs from January 1st to March 31st, as established in the Regulation of Captaincies Decree-Law 265 (P3, P6, and P5). P1 informs that annually in November, a notice is issued and distributed to vessel owners, centers, clubs, establishments, and places of clusters of vessels informing the calendar. However, P6 states that nowadays, the annual inspection calendar needs to be followed more strictly. The findings of the respondents suggest that this statement reflects the reality since only 22 skippers complied with the inspection campaign period. On the other hand, the data reveals fragilities in patrols, given that some vessels have been able to navigate for nine years without undergoing inspections, as illustrated in Table 7.

Additionally, P3, P5, and P6 declare that the process of inspection encompasses verifying the conformity of the documents of the vessel, the skipper, safety equipment, and seaworthiness of the vessel, as presupposed in Article n°165 of the Regulation of Captaincies Decree-Law 265, stating that recreational vessels must be adequately maintained and carry on-board appropriated equipment, P2, P4, and P5 suggest that in case of non-compliance during the inspection, recommendations are issued for skippers' fulfillment within a designated period. However, penalties are applied if the vessel is caught in a patrol in case of non-observance, as highlighted by P1, I2, and I8. Consequently, 30% of respondents consider carrying life-saving supplies, 22% fire extinguishers, 15% distress signals, 13% anchors, 13% first aid kits, 7% communications, and the devices illustrated in Figure 16.

Regarding the maintenance of safety equipment and devices, 30% suggested doing it regularly, 28% once a year, and 21% when launching.

The findings demonstrate that the perception of the inspections is positive once 50 participants consider them essential for safety. On the other hand, six respondents do not see their importance and believe it is a waste of time.

Figure 16. *Essential Devices Reportedly Carried On Board by Boat-owners*

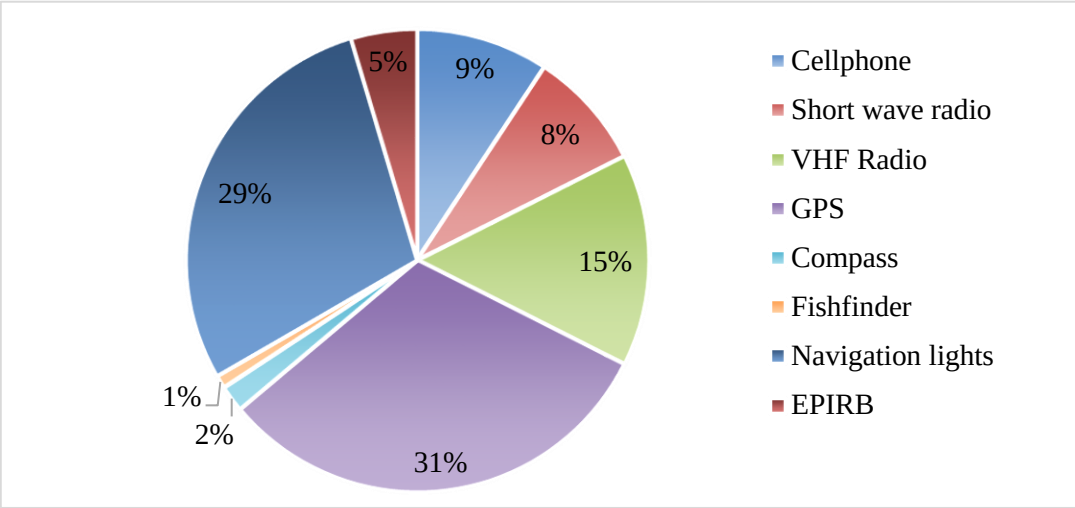

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Figure 17. *Boat Owners' Preferable Time for Inspections*

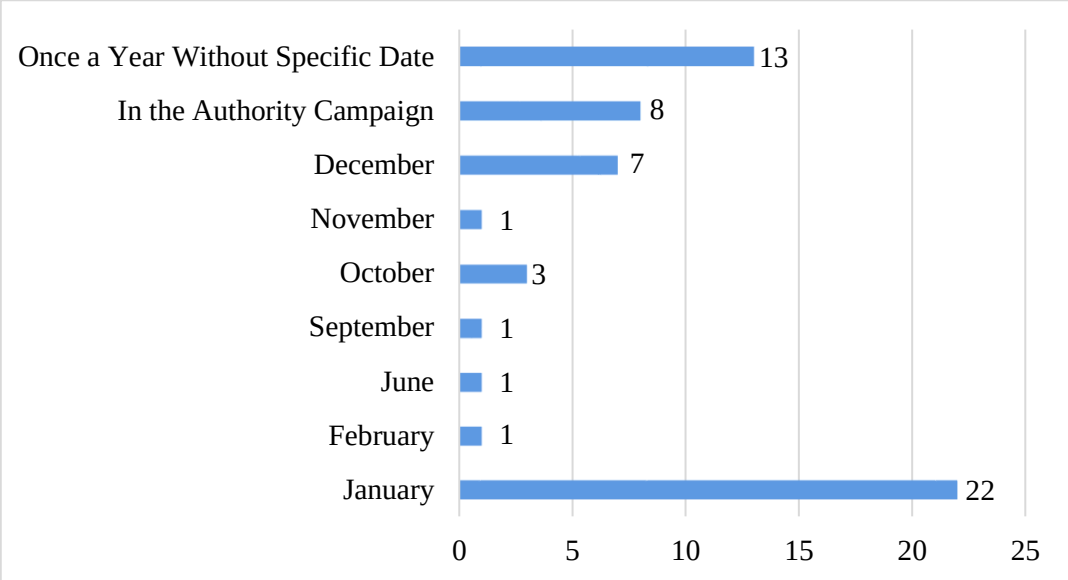

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Table 8. *Last Vessel Inspection Reportedly Done by Boat Owners*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Out	Nov	Dec	Total
2012		1											1
2016				1									1
2017							1						1
2018						1							1
2020	2		1										3
2022			2			3				3		2	10
2023	20	5	6	1	2	5	2						41
Total													**60**

Note. Created by Author.

4.4.3. Awareness Raising

Findings suggest that awareness raising is carried out to inform skippers and the public about boating risks, legislation and to settle a safety culture in boat users and bathers. To raise awareness, the authority has excelled in placing signals in dangerous navigation areas and launching facilities in Maputo and Gaza (P1, P2, and P6).

However, personal contact with boat users and bathers has been recognized as an efficient method, inclusively proposed by Willcox-Pidgeon et al. (2019), that suggests awareness campaigns stimulate safety behavior and must be expanded to the community. P6 and P7 clarify that awareness campaigns are held based on national guidelines. Additionally, P1 states that "*the institution has constantly given lectures in the most crowded places, has signalized the beaches, signs with some writings that indicate the dangers of going to sea, we have given lectures at school as well"*. In sequence, P11 states that every club member has a safety briefing and checking before launching.

Nevertheless, findings from the questionnaires support that skippers make personal efforts to be aware of the risks and boating legislation and improve their competencies through research and training. However, they equally recognize the authority's endeavour.

Figure 18. *Skippers Improvement Competency and Situational Awareness*

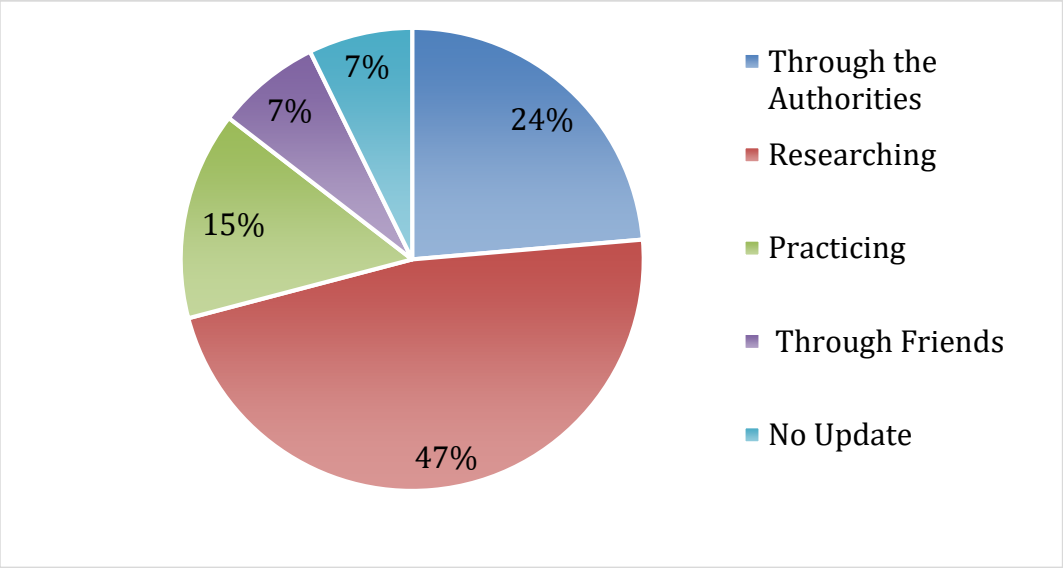

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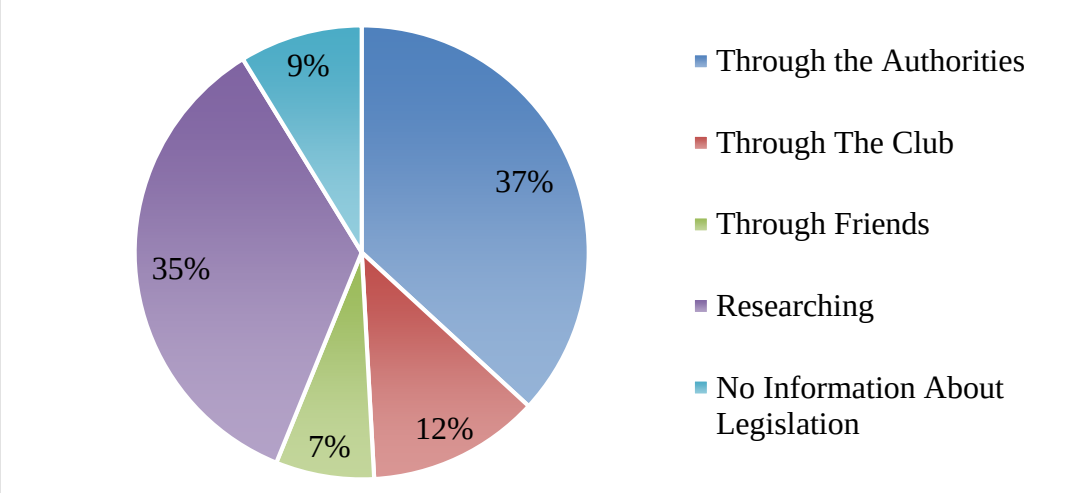
Figure 19. *Skippers Acquisition of Legislations Awareness*



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4.5. COOPERATION IN RECREATIONAL GOVERNANCE

Figure 20. *Cooperate: Stakeholders Communication and Collaboration*

Note. Created by Author.

The findings suggest that communication establishes a link between the institution and the user and between the institution and other stakeholders, as suggested by P1. The authority has available the Radio Naval Post (located in the capital) to assist distressed vessels. Apart from that, there is no formal specific risk communicating mechanism with the boaters and the authority, as enlightened by P3, P4, and P6. However, P6 informed that a website mainly designed for communication with the public is about to be released at INAMAR.

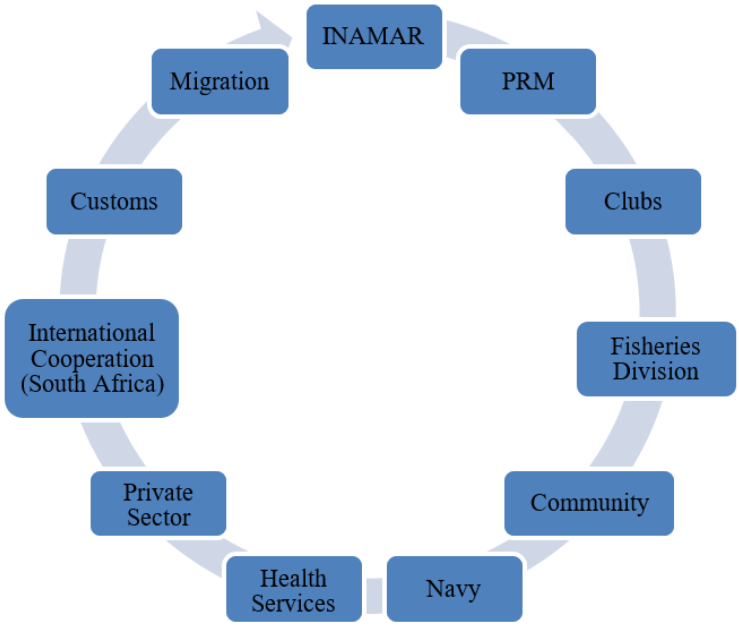
P6 explains that the mechanisms available for the public in every representation of INAMAR are the suggestions and complaint books, as a right assisting the users, granted by Decree n° 30/2001. Additionally, P2 adds that the user is contacted by cell phone and verbally in case the authority needs to convey a message.

On the other hand, findings suggest that communication flows conveniently among stakeholders, and there is mutual involvement in decision-making. P3 emphasizes that "*we are always invited when there is a meeting and any information is sent officiously*''; similarly, stakeholders collaborate closely in search and rescue, patrols, protecting the environment and fishing resources.

Stakeholders in the recreational spectrum in Mozambique include national[1](illustrated in Figure 21) and international actors. Internationally, coordination is currently happening with SAMSA (South Africa), through the Maritime Rescue Coordination Center (MRCC), which supports Mozambique in rescue and expertise. P4 and P6 highlighted witnessing circumstances where these collaboration has been activated.

The synchronization between Mozambique and South Africa makes way for considering the regionalization of governance in the maritime domain, enabling the establishment of standards, harmonization of procedures, and regulations, once vessel users recreate in both countries. van Leeuwen (2015) has discussed and proposed regionalization to obtain better maritime governance results.

Figure 21. *Stakeholders in Recreational Boating Governance in Mozambique*



Legend: INAMAR – National Maritime Institute

PRM – Police of the Republic of Mozambique

Note. Created by Author.

[1] According to P7 Police of the Republic of Mozambique (PRM) is represented in the recreational segment mainly by the Coastal, Lake, and River Policy – PCLF, but also by the National Public Salvation Services – SENSAP, Canine Response and Criminal Investigation Services – SERNIC.

4.6. RISK EVALUATION IN RECREATIONAL GOVERNANCE IN MOZAMBIQUE

Figure 22. *Evaluation Risk Identification and Evaluation*

Note. Created by Author.

4.6.1. Risk Identification

Research findings suggest that risk identification is made through inspections and patrols. P1, P2, P2, P5, and P9 support that potential circumstances that may contribute to accidents are verified during inspections. P1 points out that in Gaza Province, risks for recreational boating are: "*the existence of unqualified skippers, not having life-saving equipment on board the vessel*", (table 8 exhaustively illustrates the risks identified by the interviewees). Furthermore, concerning the patrols, P9 clarifies that they are carried out jointly between INAMAR and PCLF so that both institutions can draw the same conclusions and mutually take corrective measures (depending on the circumstances, other actors are equally involved in patrols). P2, in turn, adds that issues frequently reported to the institution also indicate that a particular issue constitutes a risk.

On the other hand, questionnaire findings show that residents and visitors are aware of the risks in the areas they navigate. Therefore, they related it to skippers' lack of competency and reckless behavior of other boaters, limited assistance of the authority, and weather and tide conditions, apart from other risks, enhancing the possibility of capsizing. Residents additionally emphasize local fishermen who put their nets in the navigation channel. However, there are residents and visitors considering that there is no risk (figures 23 and 24 illustrate in detail the risk identified by residents and visitors (35 respondents), respectively).

In turn, Renn (2005) and Florin & Bürkler (2017)consider risk identification a critical exercise to manage it, additionally, the ISO (2018) states that it is crucial for the company to achieve its purposes. Additionally, approaches presented in Chapter 2 suggest that risk in recreational boating is associated with the skipper's behavior, use of life-saving equipment, and alcohol consumption, equally identified by Mozambican authorities and skippers.

However, examining the authorities and the skipper's perspective, it is possible to infer that there is limited capacity from the authority to intervene in risk mitigation, given that they are aware of the risk.

Figure 23. *Recreational Boating Risks Identified by Residents*

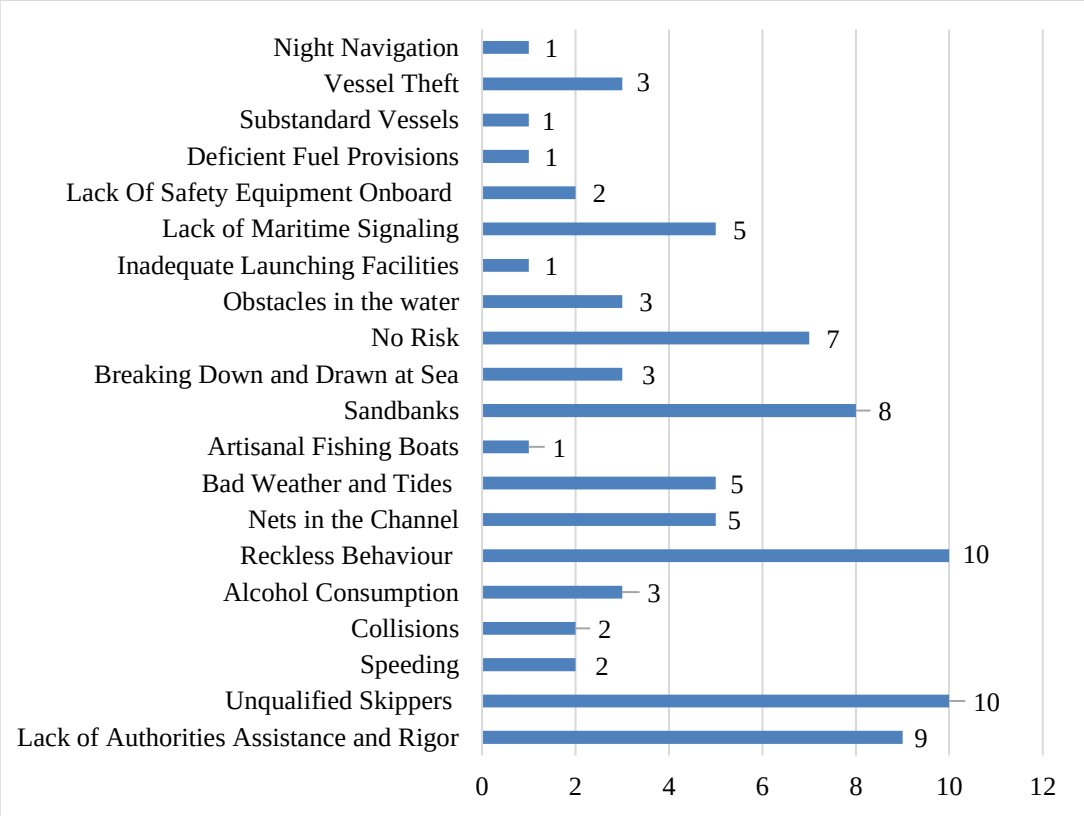


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Figure 24. *Recreational Boating Risks Identified by Visitors*

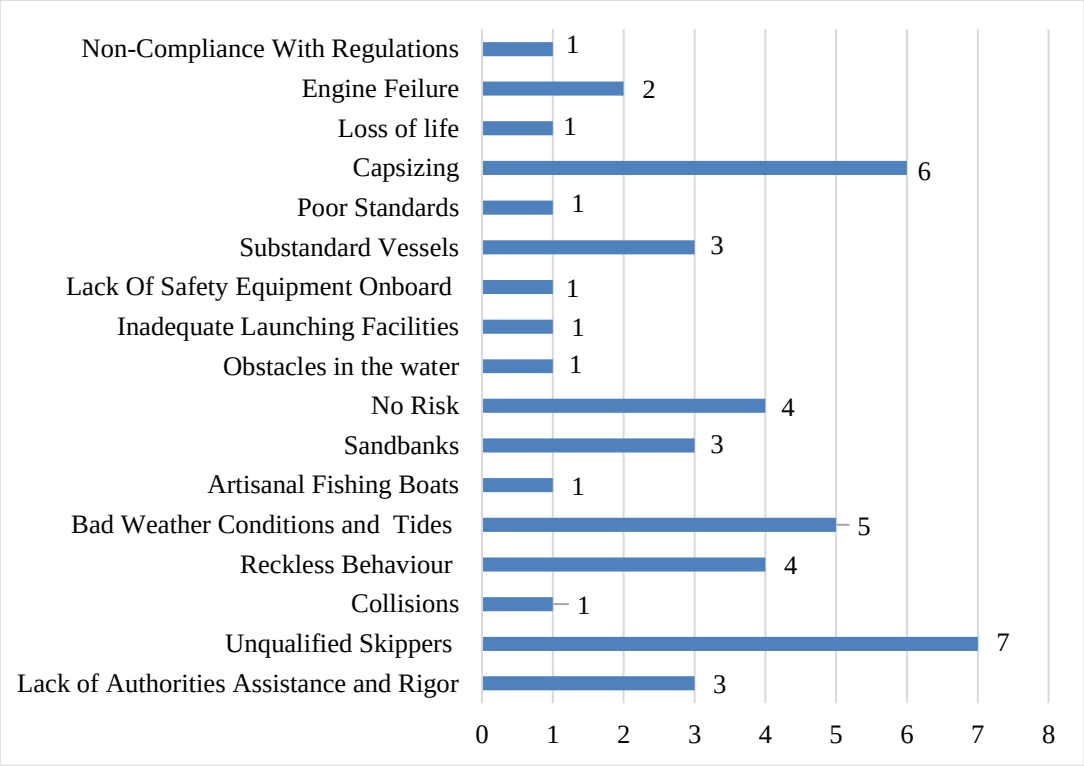

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Table 9. *Recreational Boating Risks Identified by Authorities and Recognized Actors*

Subject	Identified Risk
Institutionally	
Policies	Inadequate regulations;
Response	Lack of material, human (qualified) and, financial resources
	Lack of maintenance of navigation channels
	Inadequate signage
Infrastructures	Inadequate facilities
Recreational Boater	
Skipper's Competency and Behaviour	Unqualified skipper
	Reckless behaviour
	Lack of knowledge of the channels
	Non-usage of life jackets
	Consumption of alcoholic
	Use of boats not respecting the characteristics *"There are boats that I believe were made for lakes and rivers but there are cases in which some owners risk going to the high seas''* (P2).
	Ignoring weather conditions warnings
	Speeding
	Overcrowding the vessel
	Non-compliance with annual inspections
Vessel	
Vessel maintenance and Equipment	Lack of life-saving equipment on board the vessel (including distress signals)
	Lack of maintenance of engines/spark plugs and accessories
	Lack of communication assets
	Cracks in the hull (infiltration)
	Engine Maintenance
	Run aground
	Safe equipment out of date
Other Sources of Risk	
Others	Other non-motorized vessels
	Unmarked fishing nets
	Bathers who disobey their designated area

Note. Created by Author

4.6.2. Risk Evaluation

Findings suggest discrepancies in risk evaluation by authorities and skippers. Based on the questionnaires, the skipper's opinion of risk in Mozambique demonstrates to be

moderated, whereas the authority approach reveals it to be considered simple. Renn (2005) and Goerlandt and Pelot (2020) suggest that simple risks are easily managed and identified by decision-makers, and the perception of risk is clear, as are its repercussions. In contrast, complex risk involves multiple factors and requires external agents for treatment. P3, P4, and P9 state that the risk in recreational activities is low compared to other categories of activities and that recreational activities have diminished visibility. On the other hand, 42% of residents say they have interacted with the authorities to share their perception of risk, while 58% did not.

From the perspective of visitors (35), 51% claim to have yet to approached the authority, in contrary to 49% that has done it.

In both experiences, residents and visitors state that there was limited response from the authority, as illustrated in Figures 25 and 26. However, respondents commented that some issues are beyond the authority's capabilities, and others are accountable to the skipper.

Figure 25. *Actions of the Authorities After Resident's Communication of Risk*

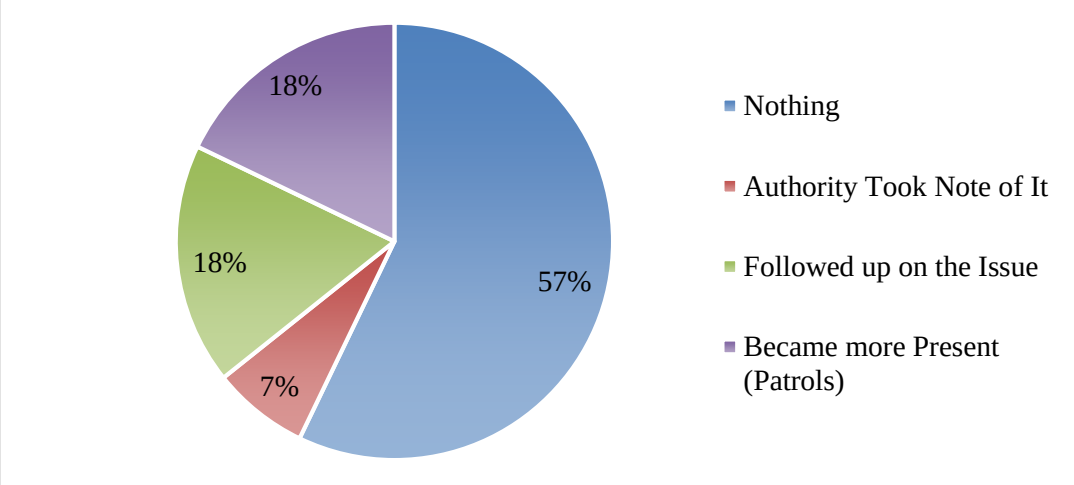

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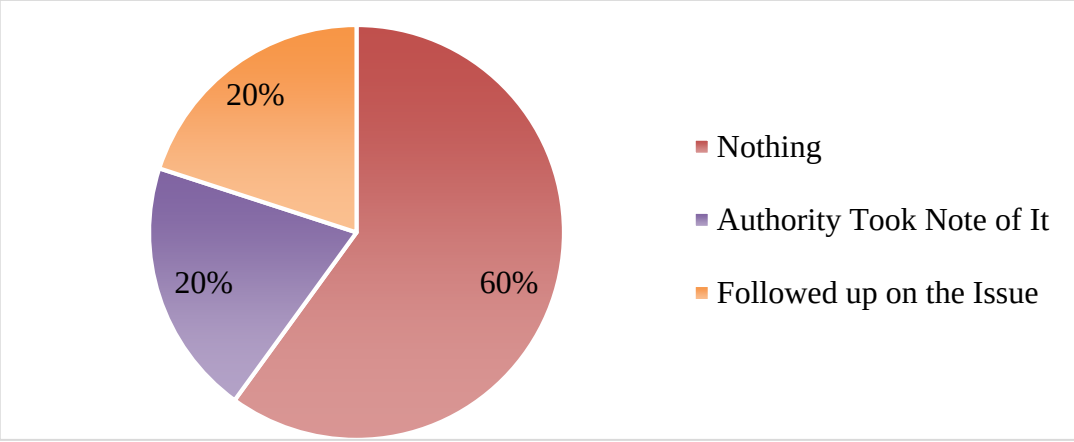
Figure 26. *Actions of the Authorities After Visitors' Communication of Risk*



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4.7. RISK RESPONSE IN RECREATIONAL BOATING GOVERNANCE IN MOZAMBIQUE

Figure 27. *Respond: Preparedness and Decision-making*

Note. Created by Author

4.7.1. Response Typology

The research findings reveal that the response to risk with pleasure vessels in Mozambique occurs in two forms equally corroborated by P6: proactive and reactive. The proactive response involves the preparation of *annual and partial inspections*, where faults on the vessel (nationals and foreigners) are identified, and the authority decides under what conditions navigation should or should not take place. Response encompasses equally the *training and certification* of skippers according to the

activity they wish to perform (training has been already discussed by Virk and Pikora (2010) as a solid instrument to increase skippers' perspicacity); and through *awareness-raising campaigns* where individuals are informed about the risks that exist in navigation.

On the other hand, the reactive response occurs, as suggested by P6, to "*respond when proactive measures fail.*" Therefore, there is a collaboration between stakeholders for the response to accidents and search and rescue, and "*the institution participates in the search and rescue process in collaboration with other institutions. It is a multi-sectorial work*" (P1), which includes, as clarified by P2, the removal of damaged equipment from the water and assistance to victims.

In addition, the authority carries out accident investigation inquiries and takes them as lessons learned. P2, P5, P6, P3, and P4 clarify that if the skipper is found to be at fault, sanctioning measures are taken after an accident investigation. As the case may be, the offender is subject to payment of a fine or prevented from navigating.

Additionally, P2 and P6 state that there is limited intervention from the Tourism and Hydrography sector to demarcate activity areas in the maritime domain and dredge navigational channels. To address this gap, P1, P2 and P6 inform that the maritime authority has proactively identified activity zones in Maputo and Gaza. P2 clarifies that in collaboration with other authorities, such as Municipal, the periods for navigation were distinguished in interior waters in Gaza according to the type of activity "*on these recreational vessels we end up separating the activities, and during the day the activity that has to take place is just for recreation, at night it is fishing*"', additionally, silted-up channels have been marked.

Nevertheless, 49% of the residents and 39% of visitors claim to receive prompt intervention and assistance from the competent authority, community, and tourists providing mainly evacuation (the type of assistance is clarified in figures 25 and 26 for residents and visitors -18), on the other hand, 25% of residents and 33% of visitors stated that there was no assistance. Comments suggest that the flexibility in assistance depends on the season.

Figure 28. *Type of Authority's Assistance Provided for Residents*

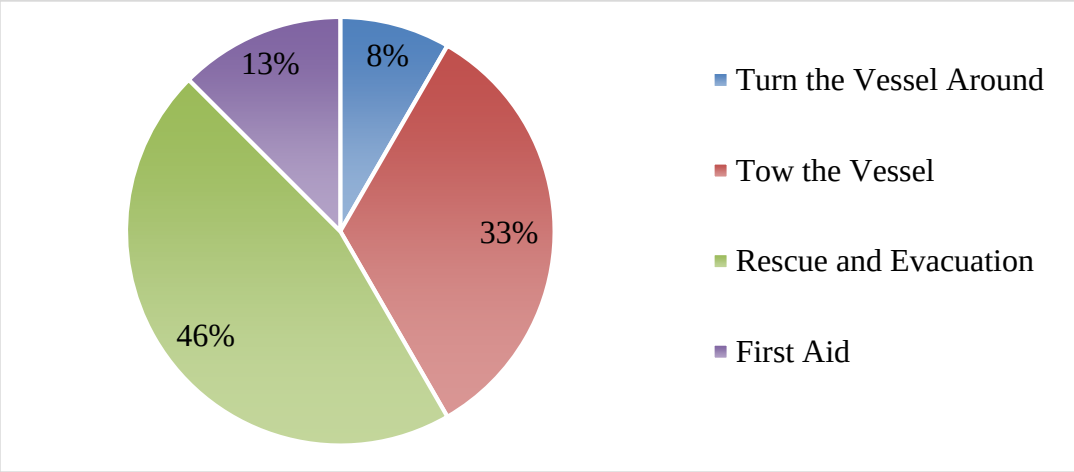

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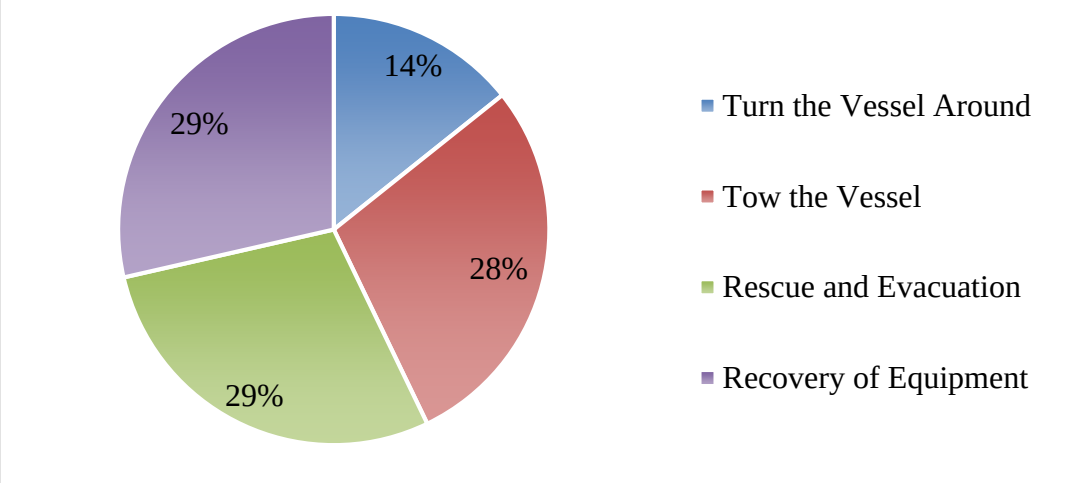
Figure 29. *Type of Authority's Assistance Provided for Visitors*



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4.7.2. Decision-making and Responsiveness

Concerning decision-making and responsiveness, the findings suggest that decision-making lies on INAMAR after hearing from other stakeholders, without neglecting the jurisdiction of each sector.

However, decision-making and response to accidents are conditioned by the availability of resources. P6 suggests that there is a lack of technical, human, financial,

infrastructural, and legislative capacity in INAMAR, P2, P6, and P7 indicate difficulties in covering all the jurisdiction areas in patrols due to the inadequacy of resources, P2 clarifies equally that the current legislations have gaps, for instance, the consumption of alcohol is not foreseen, as well as the means to check whether the skipper has consumed it. On the other hand, PCLF has technical qualifications but needs more resources. Therefore, they make joint use of the resources allocated to each territorial representation of INAMAR, which are not adequately suitable (P6 and P7).

4.8. FINDINGS PRE-COVER RISK GOVERNANCE FRAMEWORK IN MOZAMBIQUE

Findings indicate that risk governance in Mozambique has deficits in preventing boating accidents, given the gaps in the legislation and strategic parameters of boating, lack of establishments for training skippers, and difficulties in enforcing the annual inspection program. Additionally, the institutions' risk assessment is imbalanced with respondents' risk perceptions, clarifying the need for revising. Communication with the users requires upgrades as per current trends (social media and digital resources) to incentivize accidents and near misses reporting.

However, awareness campaigns, cooperation, and stakeholders' inclusiveness have flown conveniently and contributed to skippers' behavior change and response efforts.

4.9. RECREATIONAL BOATING GOVERNANCE IN SOUTH AFRICA

4.9.1. SAMSA, Authorized Agencies, Clubs Association and Safety

According to SAMSA (n.d), the Merchant Shipping Regulations (2007) have provisions in Regulation 30 to recognize external agencies to perform some safety roles, training, examining, and inspecting recreational vessels. P12 states that these actors have the role of performing vessel inspections, *"they even inspect those vessels for seaworthiness every year and issue the relative certification."* In turn, P15 suggests that the clubs were established to better organize the activity, protect boat owners,

manage the usage of dams, and assist SAMSA with the number of recreational vessels to manage "*for instance, only SADSAA has registered over 40.000 vessels, in 2023 has already registered 3500, South Africa counts with some 126 clubs distributed all over the country*".

P14 explains that clubs established the need to hire safety officers to perform inspections and assist in safety issues. In this context, SAMSA provides criteria, standards, and accreditation. P15 suggests that the vast majority of boat skippers are affiliated with a club and consider navigation in dams safer, contrary to the perspective of Virk and Pikora (2011) that suggest that reduced frequency of navigation in inland waters and not being affiliated with clubs is associated with a safer performance.

4.9.2. Accidents Occurrence with Recreational Vessels

Accidents in South Africa occur, according to P16, in Richards Bay, Cape Town, Durban, and Port Elizabeth. Additionally, P13 reports being aware of accidents in KwaZulu-Natal, Mpumalanga, and Eastern Cape, P15, along the coast and at the dams. However, respondents have a different opinion (table 9 illustrates accident locations identified by residents - visitors to Mozambique, and those boating in SA). P12 and P16 from SAMSA state that when an accident occurs, the authority must be informed within 24 hours in order to proceed with the investigation process; however, P15 suggests that not all accidents are necessarily reported, accidents with less severity are handled within the club, an authorized surveyor can be requested to monitor.

Additionally, P13 states that the most frequent type of accident is collision. Nevertheless, residents mentioned capsizing (see Figure 30). Additionally, respondents state that from 2012 onwards, accidents happen annually.

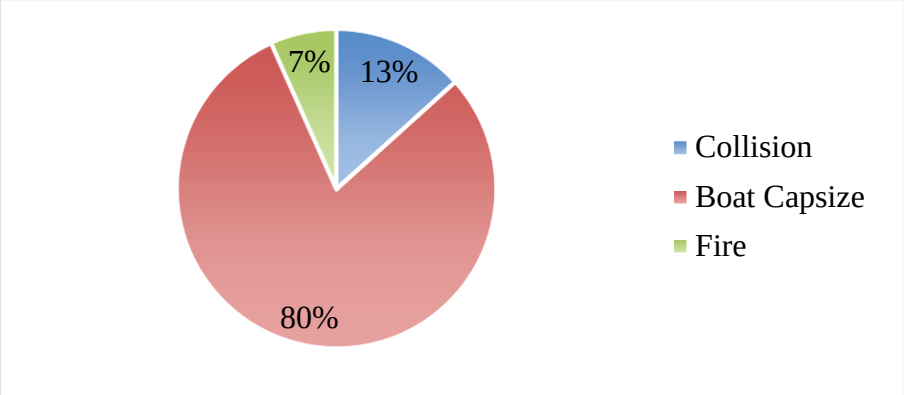
These discrepancies in the data demonstrate that the authority needs to gain awareness of the status of recreational boating.

Table 10. *Place of Occurrence of Accidents*

Province	Place of Occurrence of Accidents				Total
KwaZulu Natal	Sodwana Bay	Cape Vidal	Shelly Beach	North Coast	
	7	1	1	1	10
Mpumalanga	Vaal River				
	2				2
Eastern Cape	Port Alfred				
	1				1
Along the Coast	3				3
Dams	2				2
TOTAL					18

Note. Created by Author.

Figure 30. *Type of Accident with Recreational Vessels*



Note. Created by Author.

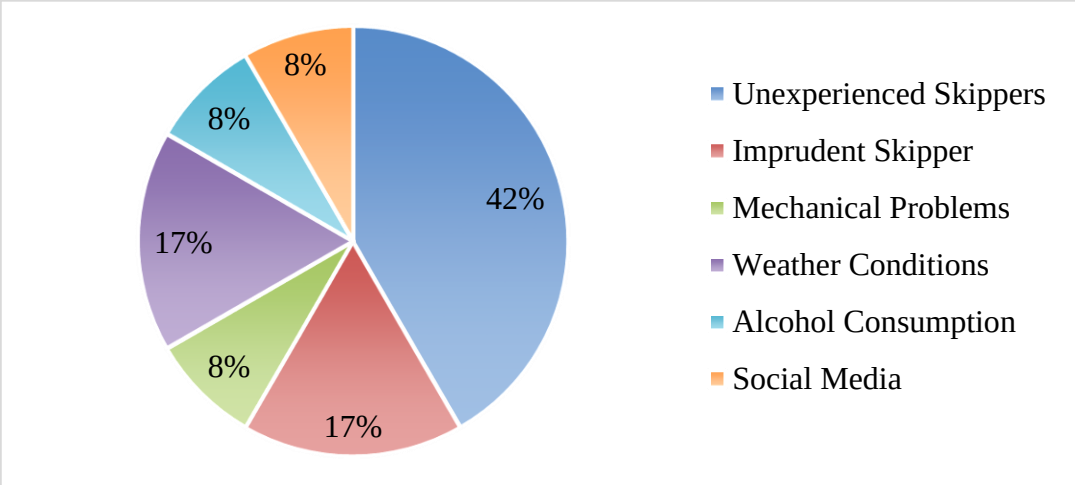
Figure 31. *Accident Type: Capsize (Accident in Cape Vidal: KwaZulu-Natal Province)*

Note. Source P14.

4.9.3. Causes of Accidents

Respondents suggest accidents are caused predominantly by the lack of experience of skippers (see Figure 32). Antão and Soares (2019) discussed the importance of training to improve skills and situational awareness to improve this deficiency. Moreover, capsizing prevalence is an opportunity for a specific training or improvement course. However, on a small scale, alcohol consumption is equally mentioned as an accident cause, validating Miller and Pikora (2008) assumption that it constitutes a risk for boating. On the other hand, P13 declares that human behaviour is behind the occurrence of accidents, *"Most common accident, I would say mostly it's human behaviour*".

Figure 32. *Causes of Recreational Vessel Accidents*



Note. Created by Author.

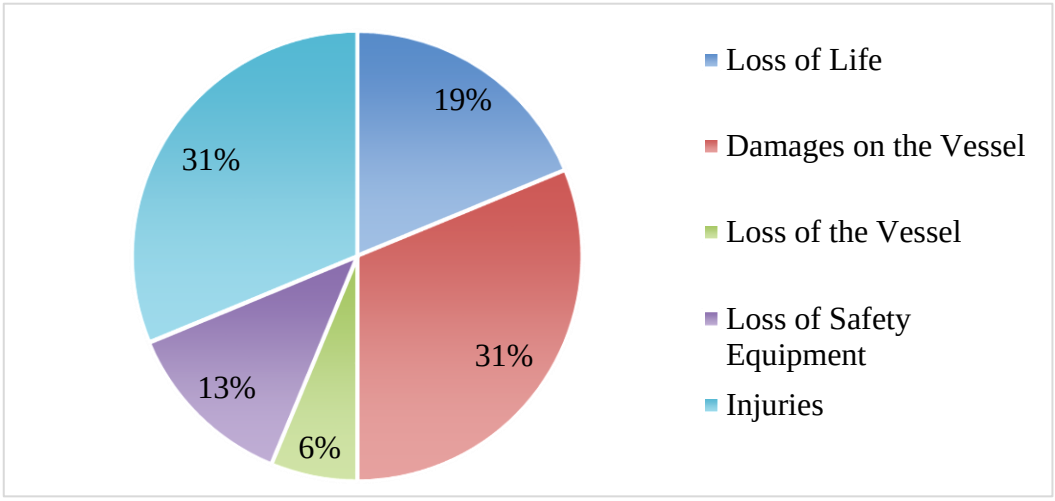
Figure 33. *Accident Caused by Bad Weather Conditions (Accident in Cape Vidal: KwaZulu-Natal Province)*

Note. Source P14.

4.9.4. Consequences of Accidents

P15 and P16 state that the most severe accidents result in loss of life. P16 equally refers to a particular accident in Richards Bay that led to a change in the fiberglass vessel building policy. A national marine notice was issued instituting the change in the engine rooms of recreational vessels.*" Now we are required that on an engine room, especially a fiber class engine room, must be insulated if it has an imported engine on. The policies are amended."* Respondents, on the other hand, point out damage to vessels and injuries, as illustrated in Figure 34.

Figure 34. *Consequence of Recreational Boating Accidents*



Note. Created by Author.

Figure 35. Accident *Consequences: Damage on the Vessel and Loss of Safety Equipment* (*Accident in Cape Vidal: KwaZulu-Natal Province*)

Note. Source P14.

4.10. PRE-COVER RISK FRAMEWORK: GOVERNANCE DEFICITS IN SOUTH AFRICA

Figure 36. *Prevent: Policy, Certification, Training, Inspections and Awareness Raising*

Note. Created by Author.

4.10.1. Policy: Strategy and Regulation of Recreational Boating in South Africa

In this paper's approach, policy refers to the regulations and strategies employed for recreational vessel safety. The literature discussed in Chapter 2 elucidates the need to implement strategies and regulations to treat risks associated with recreational vessels. Concerning the policy, P12 states that SAMSA is governed by the Comprehensive Maritime Transport Policy (CMTP), although particularly for recreational vessels "*We have the inland waterways strategy, we also have the regulations for small vessels*". P16 clarifies that the inland strategy deals mostly with sports and recreational activities, demarcations, and commitments required for the proper management of the dams and the communications center coordination. Additionally, the interviewee highlights the difficulty of implementing the instrument due to the lack of resources.

Concerning legislation, P12 and P13 clarify that the Merchant Shipping (National Small Vessel Safety) Regulations, 2007 is applicable for recreational. Both interviewees consider it adequate, although it is currently being reviewed due to some gaps. Particularly regarding alcohol consumption, the guideline has provision only for commercial vessels, despite the adverse effects in recreational boating, as discussed by Miller and Pikora (2008).

4.10.2. Certification, Training, and Skipper competency

The research findings suggest that the certification of recreational skippers involves participation in training courses offered by SAMSA and by recognized entities (including external surveyors and examiners). P12 clarifies, "*We authorize training schools or agencies to do the training*." Similarly, P15 emphasizes, "*You actually needed the accreditation for the examinations and also for the surveys*." P14, as safety officer, elucidates that *"SAMSA is our standard provider; we have to confirm what SAMSA has put out*. " P13 additionally emphasizes that authorizing the agency arose from the need to fill in the gap with the shortage of the human factor and allow existing resources to focus on other categories of services. Even so, ultimately, SAMSA has the autonomy to issue the certification.

In sequence, respondents stated that the training met their expectations and covered practical and theoretical components. Furthermore, 25 respondents claim to have carried out their certification in private institutions, one with friends, two do not have, and sixteen had in a public institution (44 residents in total).

Regarding the competence of skippers, P12 and P13 consider adequate, judging by the reduced accident rate, highlighted by Virk and Pikora (2010) that skippers present a responsible profile after going through training. However, P13 stresses that some skippers display bad behavior and get involved in accidents.

Regarding the visitors to South Africa P12, explain that they operate according to their countries' standards and that there is no intervention by SAMSA in inspection for certification, seaworthiness, or fees.

The procedures presented here for the certification of skippers are under provisions of the National Small Vessel Safety Regulations 2007. However, the lack of procedures for the safety of foreign vessels puts their and natives' safety at risk.

4.10.3. Annual Vessel Inspections

The data reveals that vessel inspections occur under two regimes (private and public, similar to skipper's certification). P16 clarifies that the inspection takes place voluntarily and on the initiative of the skipper.

P12, P13, and P15 clarify that the general condition of the vessel, hull, foam, points of calculation, communication, safety equipment, inboard documents, and construction are verified during the inspection. Respondents consider distress signals and GPS as essential equipment, therefore, their maintenance is made frequently, as illustrated in Figures 38, 39, and 40.

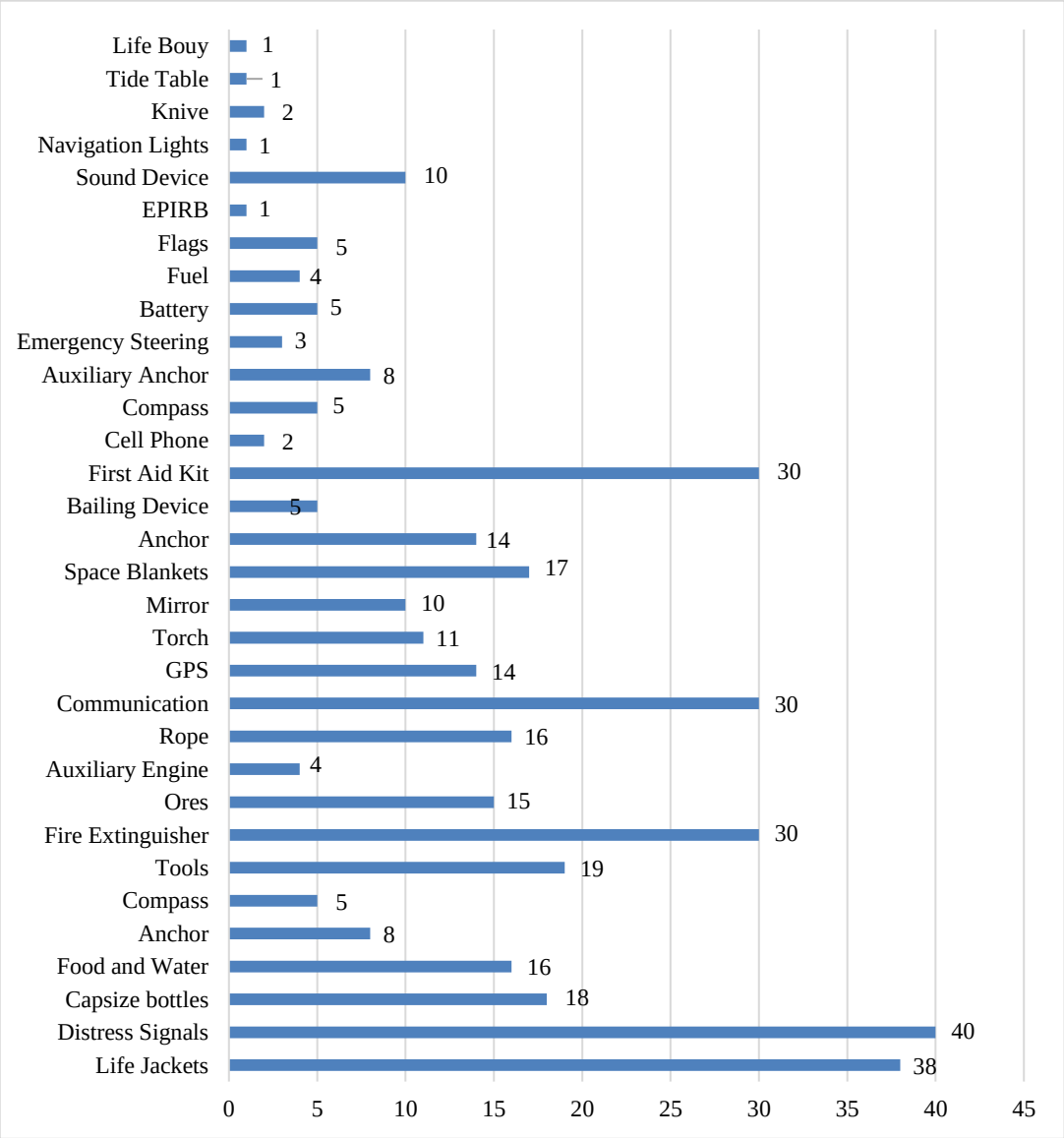
Moreover, 93% of the respondents consider the experience with the inspections good since it is done by competent inspectors from clubs, although strict and demanding.

P16 reveals not having sanctions for skippers non-complying with the certificate of fitness (COF) renewal as long as they justify not being navigated during that period. Additionally, P16 states that SAMSA needs more resources to patrol.

On the other hand, P14 clarifies that a seaworthy weekend generally takes place on the last weekend of November, and massive inspections of vessels are carried out in clubs. Likewise, the results of the questionnaires reveal that skippers have participated in these campaigns but equally do the inspections randomly when the license expires (figure 40 describes inspection periods in detail). Table 10 reveals that every participant but one had the inspections in date by the time the data were collected.

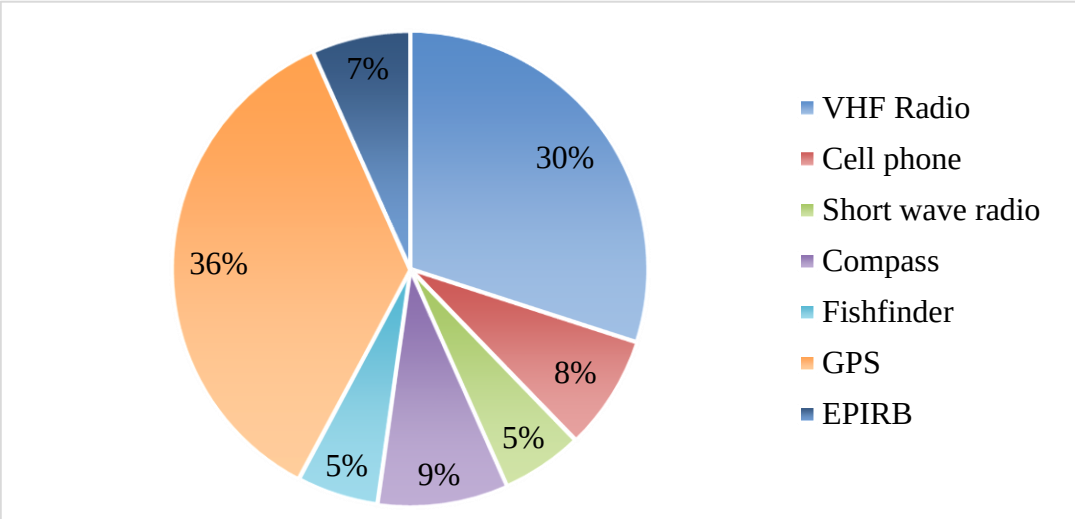
The presented procedures align with the legislation, although there needs to be more control of compliance with annual inspections. Additionally, the authority needs a schedule to address annual inspections, leaving the procedure to the user's decision.

Figure 37: *Safety Equipment Skippers Reportedly carried on board*



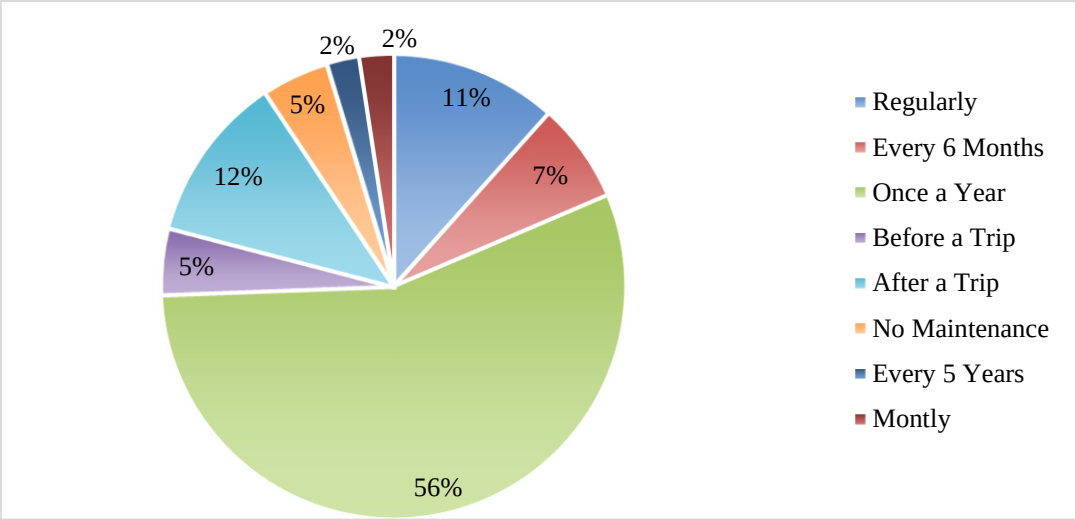
Note. Created by Author.

Figure 38. *Essential Devices Reportedly Rarried On Board by Boat-owners*



Note. Created by Author.

Figure 39. *Frequency of Equipment Maintenance Reportedly by Boat-owners*



Note. Created by Author.

Figure 40. *Skippers' Preferable Time to Do Inspections*

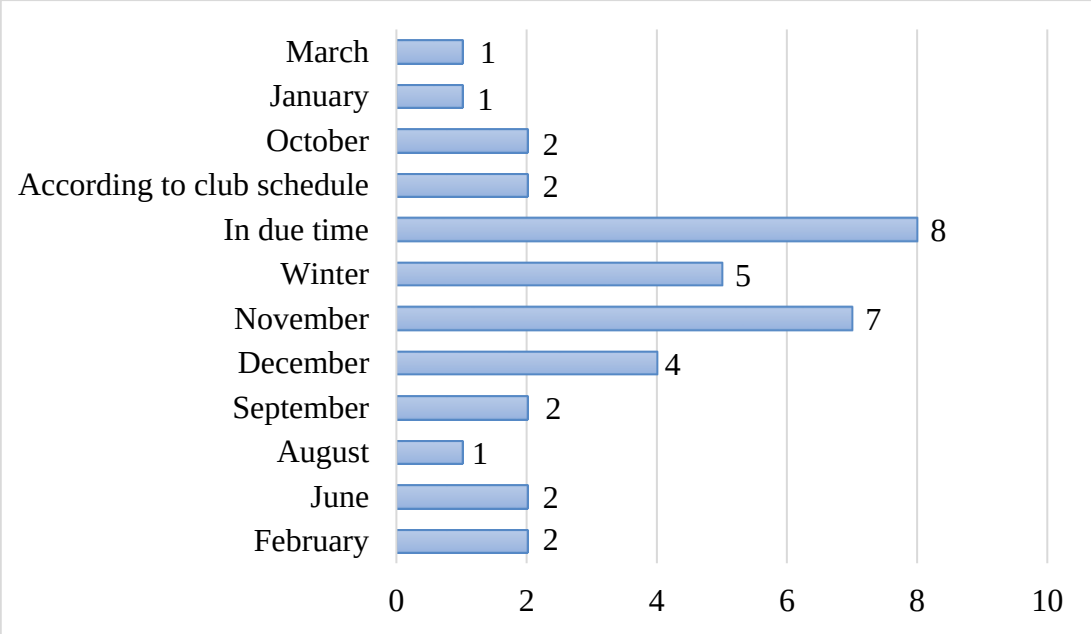


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Table 11. *Boat Owners Last Vessel Inspection*

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
2022					1		2	1	4	6	5	5	24
2023	3	2	2	2	1	5	5						20
TOTAL													**44**

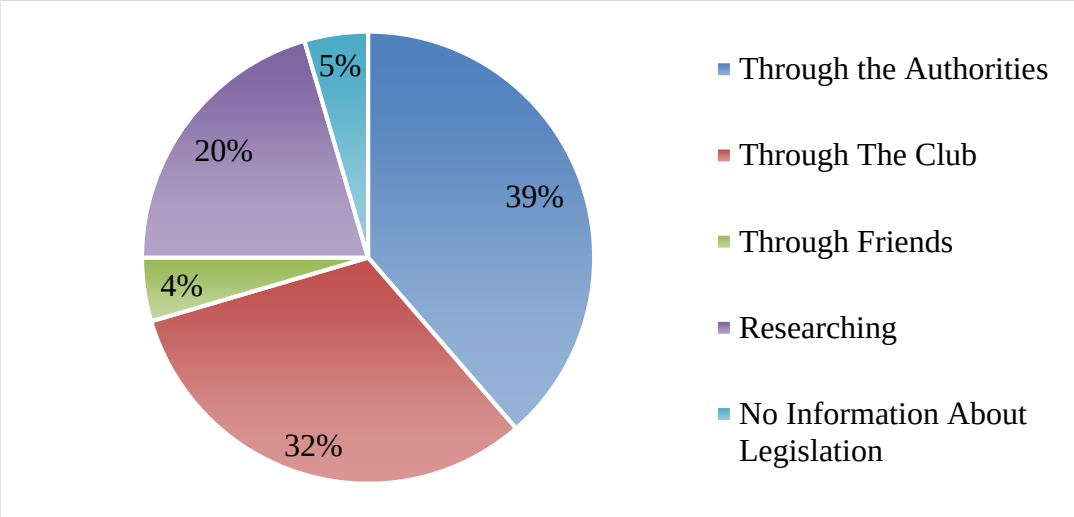
Note. Created by Author.

4.10.4. Awareness Raising

Findings suggest that awareness campaigns are a valuable tool for reaching communities. P16 states that "*We do the awareness campaign specifically for your sports and recreation, where basically we are trying to spread awareness to all those people, that must be aware, and people must be cautious when they are operating*".

Additionally, P13 clarifies that *"we do a safety awareness campaign to make people aware of boating risks and impact"*, consecutively, P13 adds that leaflets with safety messages are distributed on inland waters, in places with large clusters of boaters and bathers. Safety campaigns are also helpful in spreading the legislation among skippers. However, they equally use other means, as illustrated in Figure 43.

Figure 41. *Boat Owners'* Awareness of Legislation



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4.11. COOPERATION IN RECRECATIONAL GOVERNANCE IN SOUTH AFRICA

Figure 42. *Cooperate: Stakeholders Communication and Collaboration*

Note. Created by Author

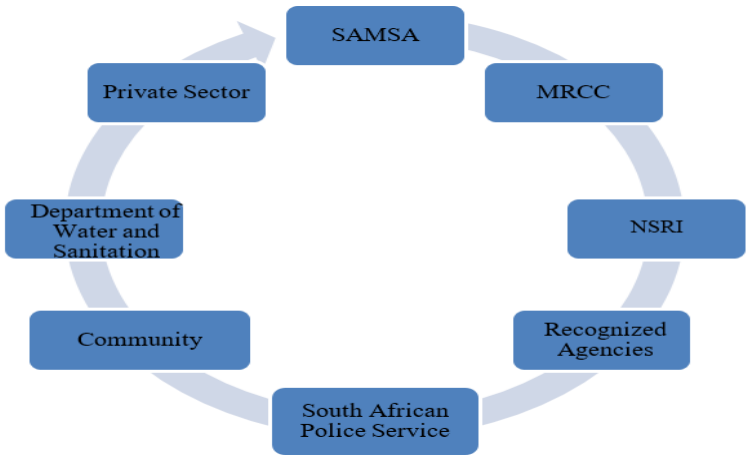
Findings suggest that SAMSA has maintained good collaboration and communication with stakeholders, makes efforts to establish communication with the public, and

propagate safety messages. P12, P13, and P16 explain that the institution has a website where marine notices are published to inform the user regarding changes in policies, procedures, legislation, general safety information, and forms, and an emergency number is similarly available, the agency has equally improved paperwork procedures with the use of emails.

In addition, P13 explains that the institution has a blog that publishes the most recent information and events. Likewise, SAMSA is accessible on the social media platforms *WhatsApp*, *Facebook*, and *LinkedIn*, Smith et al. (2021) studied the impact of social media on changing user behavior through safety campaigns, which proved to be effective in obtaining immediate feedback from participants and changing behavior, this method has proved by respondents to be efficient.

For accident response, SAMSA relies on partnerships with NSRI and the South African Police Service (SAPS). Additionally, due to the scarcity of resources, it also counts on the support of private entities for prompt intervention. In the case of a large-scale accident, the institution has the MRCC, which coordinates the response with the different actors. SAMSA's collaboration extends equally to the community, clubs, boat associations, and neighbouring countries.

Figure 43. *Stakeholders in Recreational Boating Governance in South Africa*



Legend: SAMSA – South African Maritime Authority
MRCC – Maritime Rescue Coordination Center
NSRI – National Sea Rescue Institute

Note. Created by Author.

4.12. RISK EVALUATION IN RECREATIONAL GOVERNANCE

Figure 44. *Evaluation: Risk Identification and Evaluation*

Note. Created by Author.

4.12.1. Risk Identification

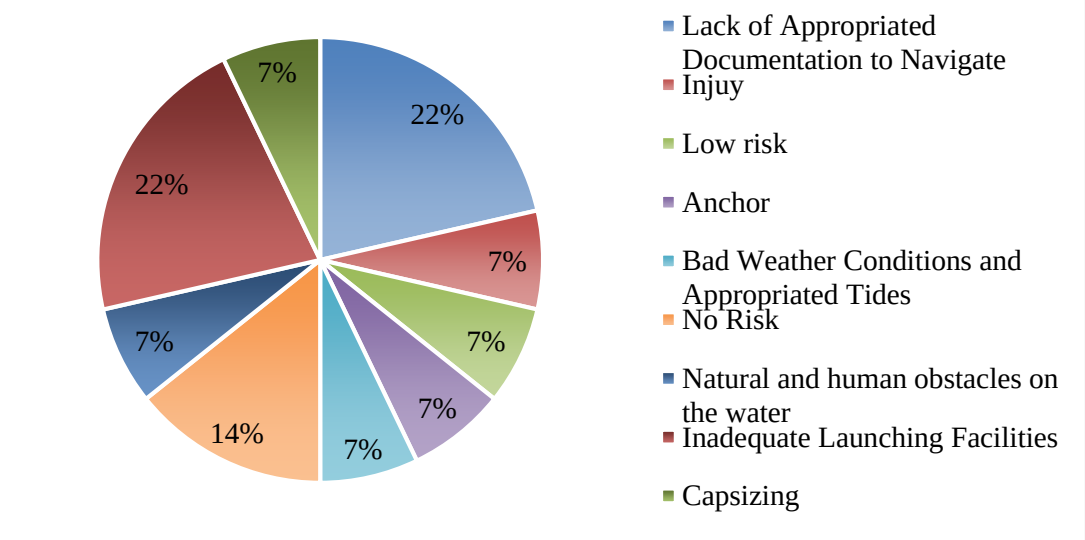
Risk identification is a preponderant tool for risk mitigation, as widely discussed by IRGC and ISO 31000:2018. At SAMSA, risk identification has been carried out through safety campaigns and accident investigation as stated by P13, P16 reinforces *"after an accident, investigation, and risk assessment are carried out."* However, some information may not be properly integrated once SAMSA does not govern recreational activities in isolation; P12 states, "*in terms of recreational vessels, we do not really get much involved, as we have the recognized agencies."* P16 notes that the agency focuses more on categories of vessels that, in case of accidents, the impact and number of casualties might be more substantial, such as passenger vessels.

Table 11 and Figure 45 demonstrate differences in risk identification by skippers, authority, and authorized actors, making the discrepancy in risk perception evident.

Table 12. *Recreational Vessel Risks Identified by Authorities/Club*

Subject	Identified Risk
Authority	
Response	Lack of capacity (material, human, qualifications, and financial resources)
Recreational Boater	
Skipper's Competency and Safety Culture	Lack of skipper skills
	Reckless behaviour
Vessel design and equipment	Lack of life-saving equipment
	Unseaworthiness of the vessel
	Lack of communications on board
	Lack of maintenance of engines
	Inappropriate Safety Equipment
	Not having adequate foam for the vessel category
	Construction of vessels without following procedures
	The absence of a kill switch
Environment	
	Demarcation of Inland Water (for activities)
	Hazards to navigational safety (floating logs, sand banks, wrecks and rocks)

Figure 45. *Recreational Vessel Risks Identified by Boaters*



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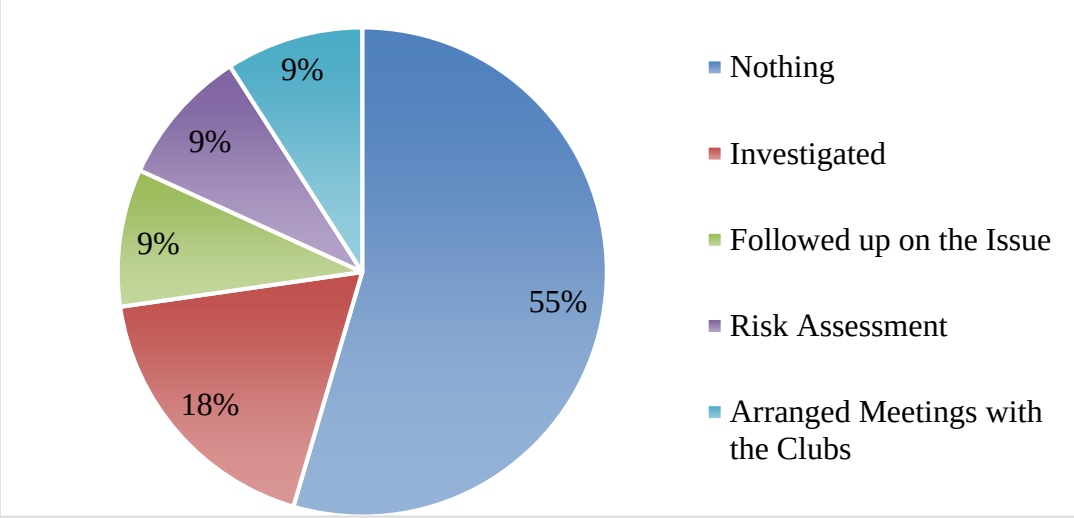
4.12.2. Risk Evaluation

The Renn (2005) and Goerlandt and Pelot (2020) proposed a four-risk scaler model described in Chapter II, mitigated according to the severity. In South Africa, recreational boating risk has two conflicting levels. Skippers consider risk complex, given the multiplicity of stakeholders responding to eventualities. However, from the competent authority's perspective, risk can be described as simple reflected by the fact the authority outsourced external actors to give support in recreational boating governance. P12 and P15 clarify that SAMSA's involvement in recreational activities is not very significant. P13 adds that there are no means to respond institutionally in the event of accidents, thus relying on NSRI, Clubs, and private operators. On the other hand, 54% of respondents stated that they communicated risk to the authorities and had responses to it, as illustrated in Figure 47.

Figure 46. *Actions of the Authority After Risk communication*



Note. Created by Author.

4.13. RISK RESPONSE IN RECREATIONAL GOVERNANCE IN SOUTH AFRICA

Figure 47. *Respond: Preparedness and Decision-making*

Note. Created by Author.

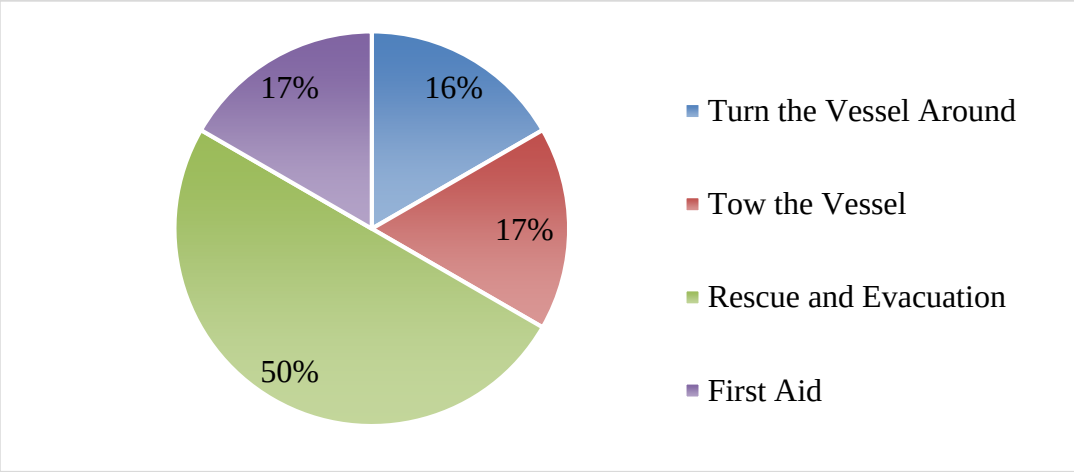
4.13.1. Response Typology

The data suggest that the response to risk in South Africa is associated with the level of severity of the issue since when accidents occur, the response is attributed to NSRI, as corroborated by P13. However, SAMSA is responsible for investigating the causes and leading the subsequent processes in partnerships with other institutions.

In large-scale occurrences, the MRCC, an integral part of the SAMSA, takes the lead in coordinating the response and activation of the various stakeholders. Findings indicate that even relying on other actors, SAMSA has the primary role in the governance of recreational boating. As P16 justified, accident investigation has been essential and offers a practical response so that similar incidents do not recur through lessons learned from a given circumstance.

In this context, in the event of an accident, 86% believe that there was prompt and rapid intervention by the NSRI in the rescue and evacuation of people in most cases, as shown in the figure, while 14% claim that there was a feeble response from the authorities, assistance.

Figure 48. *Type of Assistance Provided by the Authority*



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4.13.2. Decision-making and Responsiveness

The research data suggests that even though SAMSA has difficulties in responding on the ground to some recreational boating demands, the responsibility, coordination, and decision-making remain with the institution. P14 reiterates that every activity done by external surveyors happens under the auspices and standards of SAMSA.

4.14. FINDINGS PRE-COVER RISK GOVERNANCE FRAMEWORK IN SOUTH AFRICA

Findings indicate that recreational boating governance in South Africa needs to be more cohesive. SAMSA does not have the capacity to license, certify, and respond to recreational boating accidents; therefore, it relies on external surveyors and in the NSRI. On the one hand, recognizing agencies prevents the institution from having an accurate picture of boating. On the other hand, those external agents contribute to covering the fleets of recreational vessels and skippers' certification. SAMSA has settled a diverse approach to communication with users through social media and digital platforms; similarly, lessons learned from accident investigations have been used to change boating policies.

4.15. PRE-COVER RISK GOVERNANCE DEFICITS IDENTIFIED IN MOZAMBIQUE AND SOUTH AFRICA - SUMMARY

The research findings demonstrate that Mozambique and South Africa face governance challenges in responding to recreational boating risks because of the need for more financial and personnel resources, expertise, and policy. However, the perception of risk weighs equally in responding to it. Authorities in Mozambique and South Africa share different risk perspectives with the boat users. Table 12 demonstrates Pre-COVER 's risk deficit identification parameters.

Table 13. *Pre-COVER Parameters for Governance Deficits Identification*

Pre-COVER Governance Deficits Mozambique and South Africa					
	Prevent				
	Policy	**Certification**	**Training**	**Inspections**	**Awareness raising**
	Parameters				
	Adequacy for responding safety in recreational boating	High standards to ensure competent skippers	Theoretical and practical components	Fulfilment with inspection schedule and ensuring compliance	Awareness campaigns
MOZ					
SA					
Cooperate					
	Collaboration with Stakeholders	**Communication with Stakeholders**	**Communication with boat users**		
	Mutual assistance Stakeholders /institution	Inclusiveness of Stakeholders in decision-making	Existence of channels of communication		
MOZ					
SA					
Evaluate					
	Risk Identification	**Risk evaluation**			
	Risk assessment	Categorization of risk			
MOZ					
SA					
Respond					
	Preparedness	**Decision-making**	**Accident Investigation**		
	Institutional capacity for accident/risk response	Decision-making addressing risk	Lessons learned		
MOZ					
SA					

Note. Created by Author.

Moz – Mozambique

SA – South Africa

Poor Moderate

Good Excellent

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

This chapter addresses the conclusions and recommendations on the identified deficits in recreational vessel safety, the future research areas, and the study's limitations.

5.1. CONCLUSIONS

This research aimed to identify governance deficits in recreational vessels in Mozambique and South Africa, recognizing the mutuality, geographic proximity, and sharing of visitors between both countries. Thus, an unprecedented framework derived from the merger of the risk governance framework of the IRGC and ISO 31000:2018 was employed to identify the governance deficits in recreational boating safety in Mozambique and South Africa, the Pre-COVER Risk Governance Framework.

The results demonstrate challenges in both country's recreational boating administration. In Mozambique, the governance system is based on empirical procedures rooted in the institution and transmitted through generations due to the legislation misfit and lack of resources. Therefore, personal communication is regularly employed with the user.

Certification of the skipper is equally challenging due to the need for more training facilities in the country. Equally, it was apparent that inspections and patrols are critical activities for the Authority (INAMAR and PCLF) once it is an opportunity to share information and knowledge and assess the skipper's competence and situational responsiveness. Similarly, they are a central tool for risk assessment and awareness raising to the community and beach users. Nevertheless, risk perception by the authority differs upon the region and is lower than skippers'.

However, it is necessary to highlight the positive aspects of interpersonal communication, multisector, and international collaboration achieved to respond to recreational vessels' safety.

Regarding South Africa, there is a regulatory and strategic framework for small boats applied to recreational vessels that are currently undergoing improvements to cover governance gaps in certification and other aspects.

To comply with the demand of recreational boats and skippers, the authority certifies external agents who report and work according to SAMSA's standards. Equally, the institution has adapted to current communication trends through social media to establish a link and quick response to users' concerns.

In the event of a casualty, SAMSA responds with an accident investigation that provides lessons learned for emends and promulgation of the legislation and equally, awareness campaigns are held in locations with conglomerates. Moreover, the challenge remains in elevating the response beyond accident investigation, and awareness campaigns an investment in human resources, both in terms of hiring and training, is necessary to guarantee more control and responsiveness of the institution as a competent authority.

In this context, the findings suggest that the Pre-COVER risk governance framework emerged governance deficits in the foundations, policies, training, and response in Mozambique that require reformulations and restructuring of the Maritime Authority. On the other hand, in South Africa deficits in control, involvement, and response from SAMSA were identified, which requires more ownership by the agency in controlling vessels and recreational activities.

Finally, it requires both parties, Mozambique and South Africa, to put into practice in the recreational boating domain the provisions of the Integrated Maritime Strategy of Africa and SADC, which highlight the value of integrated strategies and coordination between states and expand equally the provisions of Multilateral Research and rescue agreement (MSRA) ratified in 2019.

5.2. RECOMMENDATIONS

Based on the findings of this research, it is recommended that the competent authority from Mozambique and South Africa establish a regional agreement for recreational vessels governance, addressing the harmonization of legislation, procedures (licensing, certification, and prices), communication, coordination of activities, a joint database platform with recreational boat records, accident reports, and trends; development of recreational boating training programs complying with the same standards to improve skippers' competence in adverse conditions, strengthening human factors through hiring and training personnel to deal with recreational vessels' risk.

Concerning Mozambique, it is proposed to update the legislation and the development of a strategy for recreational vessels and improving personal capacity through hiring, outsourcing for recognized external surveyors, or the fusion of INAMAR and PCLF (once INAMAR has some resources but suffers from the availability of personnel and technical capacity, PCLF has personnel, even if not in the desirable quantities, but with technical capabilities).

For South Africa, the harmonization of inspection periods is suggested to allow for better supervision and compliance.

5.3. FURTHER AREAS TO RESEARCH

Future research is necessary for recreational activity with boats not covered by international conventions, particularly regarding the effectiveness of local legislation and the impact of the activity on the global economy.

5.4. RESEARCH LIMITATIONS

In this research, the limitation was accessing the participants due to their time availability, thus delaying the data collection process and, equally, the coverage of the

questionnaires. Residents of the southern part of Mozambique were more prone to respond to it.

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APPENDIX I

Interview for Maritime Authority

You are kindly invited to participate in the following Interview regarding the **''Risk Governance Framework for the Safety of Recreational Vessels in Mozambique and South Africa**'', which is part of the master's program in Maritime Affairs at World Maritime University – WMU.

The collected information will only be used for purely academic purposes, therefore, it will be kept confidential.

Your participation is greatly appreciated, Thank You for dedicating time to participate in this interview.

Section 1: Regards to the participants' profile.

1. **Name (optional): _____**
2. **Age: _____**
3. **Gender: _____**
4. **Profession (optional)_____**
5. **Institution which carries out activities_____**
6. **Position: _____**
7. **How long do you work in your current position? _____**
8. **How long have you been working in this Institution? _____**

Section 2: In this section questions intended to obtain information regarding the management of risk, relationship with stakeholders, and communication of risk will be addressed.

1. Would you mind sharing if there is a database of recreational vessels accessible to the public?
    a. If yes, which information does it convey?
2. Does the government have safety parameters to enhance the safety of recreational vessels?
3. How do you evaluate the institution's conditions and level of preparedness to respond to recreational vessels' safety?
4. What is the role of the stakeholders in decision-making to mitigate the occurrence of accidents with recreational vessels?
5. If you had to rank the prioritization of the recreational vessels activity for this institution, how would you grade it?

6. What provisions are foreseen in the institution's strategy to guarantee the safety of domestic and foreign recreational vessels?
    a. Do you consider they are fit for purpose? Please elaborate.
7. Does that strategy address elements do reduce accidents with recreational vessels?
8. What is the frequency of accidents with recreational vessels in your jurisdiction?
9. Can you please describe some major accidents in the recent past that had an impact on the institution’s procedures to ensure the safety of recreational vessels?
10. Did any of these accidents have national repercussions?
11. What is the institution's response to accidents involving recreational vessels?
12. Are there other institutions that assist in the response to accidents?
    a. If so, what are they and how are the activities coordinated?
13. Was there any circumstance when you felt unable to respond fully to an accident involving recreational vessels? What were the reasons? How did you overcome this deficiency?
14. What are the resources available to ensure the safety of navigation of recreational vessels?
15. Would you mind discussing the adequacy of those resources for the safety of the recreational vessels?
16. Institutionally, do you consider the provisions adequate for search and rescue operations?
17. Regarding your infrastructure, do you consider them adequate for the activities you perform?
18. Concerning the human resources, do they respond to the institution's need to guarantee recreational vessel safety?
19. Would you mind sharing your opinion on the adequacy of the legislation to deal with recreational vessel matters?

20. Would you mind sharing how risk is identified in recreational boating activities?
21. How would you describe the risks associated with the safety of recreational vessels? Would you mind identifying them?
22. How does the institution carry out the risk assessment for the safety of recreational craft?
23. What are the challenges that come to your mind when you think about the safety of navigation for recreational vessels in your jurisdiction?
24. Regarding recreational vessel safety, what procedures does the institution have in line for the annual inspection?
25. What is verified during recreational vessels' inspection?
26. What are the procedures for the non-complying vessels? And the procedures for those vessels that do not carry the safety equipment?
27. In your opinion the vessel owners make appropriate maintenance of their boats?
28. What are the requirements for the user to navigate recreational vessels?
29. What is your opinion on the media approach regarding recreational vessels (do they help promote the activity and spread safety information?)
30. How does the media react in the event of an ostentatious accident?
31. Is there a mechanism installed for communication between the user and the institution for information on the risks associated with recreational craft? (both from the user to the institution, and from the institution to the user)
32. What is your opinion on the recreational vessel skipper's profile?
33. Is there any training facility providing courses for the skippers?
34. In your opinion the institution has been preparing adequately the skippers?
35. Does the training of skippers include practical and theoretical components?
36. What is required for renewing or updating skipper licenses?
37. How does the institution ensure that skippers keep up-to-date knowledge about recreational vessels' safety?

38. How do you ensure that the skippers are aware of what the legislation provides for the safety of recreational vessels?
39. Have you ever experienced scenarios where the skippers didn't follow the legislation? Would you mind elaborating on how?
40. Are you aware of occasions when skippers have been caught consuming alcohol or psychotropic substances?
41. What are the procedures carried out for skippers who violate the provisions for guaranteeing the safety of recreational vessels?
42. What are the most frequent violations?
43. What would you recommend to the skippers and local community to enhance recreation vessels safety?
44. Institutionally, what do you believe should be improved to increase the safety of recreational vessels?

APPENDIX II

Interview for the Law Enforcement Institution

You are kindly invited to participate in the following Interview regarding the **''Risk Governance Framework for the Safety of Recreational Vessels in Mozambique and South Africa**'', which is part of the master's program in Maritime Affairs at World Maritime University – WMU.

The collected information will only be used for purely academic purposes, therefore, it will be kept confidential.

Your participation is greatly appreciated, Thank You for dedicating time to participate in this interview.

Section 1: Regards to the participants' profile.

9. **Name (optional): _____**
10. **Age: _____**
11. **Gender: _____**
12. **Profession (optional)_____**
13. **Institution which carries out activities_____**
14. **Position: _____**
15. **How long do you work in your current Position?_____**
16. **How long have you been working in this Institution?_____**

Section 2: In this section questions intended to obtain information regarding the management of risk, relationship with stakeholders, and communication of risk will be addressed.

1. What is your jurisdiction area?
2. Are you aware of the existence of a database for recreational vessels at the institutional level? If yes, what does it contain?
3. Considering your role as an enforcement institution, what is your contribution to reducing accidents with recreational vessels?
4. In your point of view why do recreational vessels get involved in accidents?
5. If you had to rank the priority given to the safety of recreational craft activity for this institution, how would you rank it?
6. How could you improve sectoral collaboration to mitigate accidents involving recreational vessels?

7. In your area of jurisdiction, what are the most common offenses associated with recreational vessels?
8. What is the frequency of accidents involving recreational craft in your jurisdiction?
9. Would you mind describing some serious enough accidents that impacted the procedures in force at the institution to guarantee the safety of recreational vessels in your jurisdiction?
    a. Did any of the accidents mentioned have national repercussions?
10. What are the documents required prior to vessel navigation?
11. What are the procedures when the skipper is not a carrier of those documents?
12. What is foreseen for skippers who are not licensed and for those who consume psychotropic substances on board?
13. Is there any inspection of the safety equipment before the launching of the vessels?
    a. What is verified on the vessel?
14. In your opinion, do vessel owners properly maintain their means?
    a. When checking the equipment, have the owners presented the required material on board?
15. What is your opinion regarding the skills of the skippers/pilots?
    a. Are they duly qualified and prepared to avoid accidents?
16. With regard to fishermen and residents, what is your opinion regarding their behaviour with regard to navigation safety?
17. In the event of an accident with recreational vessels how would you analyze the need to involve the media?
18. What are the most severe consequences resulting from accidents with recreational vessels that you have experienced in your career?
19. Did any accident challenge you enough that you considered abandoning the sector? What were the reasons?

20. What is your intervention in the event of an accident with recreational vessels?
21. How is the response to accidents with recreational vessels organized?
22. What are the technical competencies of the institution's personnel?
23. How do they get their competencies up to date?
24. How often do the personnel get their competencies up to date?
25. Is there any local or foreign institution providing training?
26. How is the Institution equipped to respond to risk resulting from the navigation of the recreational vessels?
27. Institutionally do you consider the provisions adequate for search and rescue operations?
28. If you had to think of an ideal institution, what would be the human and material contingent that would be needed to reach it?
29. Regarding your infrastructure, do you consider them adequate for the activities you perform?
30. In your point of view what can be improved at the institutional level for the assurance of the safety of recreational vessels?
    a. And what about partnerships with other institutions?

APPENDIX III

Interview for Boat Club Association and Recognized Agencies

You are kindly invited to participate in the following Interview regarding the **''Risk Governance Framework for the Safety of Recreational Vessels in Mozambique and South Africa**'', which is part of the master's program in Maritime Affairs at World Maritime University – WMU.

The collected information will only be used for purely academic purposes, therefore, it will be kept confidential.

Your participation is greatly appreciated, Thank You for dedicating time to participate in this interview.

Section 1: Regards to the participants' profile.

17. Name (optional): _____

18. Age: _____

19. Gender: _____

20. Profession (optional)_____

21. Institution which carries out activities_____

22. Position: _____

23. How long do you work in your current position?_____

24. How long have you been working in this Institution?_____

Section 2: In this section questions intended to obtain information regarding the management of risk, relationship with stakeholders, and communication of risk will be addressed.

31. What qualification must a club manager (commodore) have?
32. What were the reasons behind the establishment of the club?
33. What is your mission?
34. What is your role in the safety of recreational vessels?
35. Does the club have any statute or policy stating safety requirements that must be followed?
36. Does the club have a database for recreational vessels what does it contain?
37. Is there any training for the personnel assisting recreational vessels?
38. How often are they updated?
39. What are the requirements to become a member?

40. What are the services provided for the members?
41. Do you offer training courses to prepare skippers for skills and to obtain certification?
42. What is your opinion about the skipper's profile?
43. Do you consider them properly trained?
44. Do you consider that skippers maintain their boats appropriately?
45. Is also part of the club's responsibility to update skippers with the provisions of legislation or knowledge?
46. Is the national legislation adequate to ensure recreational vessels' safety?
47. What are the requirements before launching the vessel?
48. How do you control club vessels once they launch?
49. The club is prepared to search and rescue?
50. Does the club have a good relationship with the competent authority?
51. Does the communication flow properly?
52. How is the process for the annual inspection organized?
53. What are the procedures for noncomplying vessels?
54. Do you have records of accidents with recreational vessels?
55. What are the challenges to ensure recreational vessels' safety?
56. Institutionally, what could be improved to assure recreational vessels' safety?
57. What is your opinion on the community's behavior towards recreational vessels' safety?
58. What would you recommend for the community?
59. What would you recommend to the competent authority to enhance recreational vessels' safety?

APPENDIX IV

Questionnaire for tourists

You are kindly invited to participate in the following questionnaire regarding the **‘’Risk Governance Framework for the Safety of Recreational Vessels in Mozambique and South Africa**’’, which is part of the master's program in Maritime Affairs at World Maritime University – WMU.

Your participation is greatly appreciated and of great value for data collection, completing the questionnaire will only take a few minutes. It should be noted that your participation in the study is on a voluntary basis, therefore, no payment will be made. The collected information will only be used for purely academic purposes therefore all information shared will be kept confidential.

Please answer writing in the space provided and/or marking the boxes.

Section 1: Regards to the participants’ demographic profile, a line or box to fill in will be provided.

1. Do you own and currently operate a recreational vessel?
   - ☐ Yes
   - ☐ No
2. Name (optional): _____
3. Age: _____
4. Gender: _____
5. Nationality: _____
6. Place of residence
   a. Province _____
   b. District_____
7. Education level_____
8. Place where you exercise recreational boating the most
   a. Province _____
   b. District_____

Section 2: This section intends to understand the perception of risk related to recreational vessels, as well as the interaction of the Authorities with visitors in the context of information on risk in recreational activities with small vessels, as well as the consideration of perceptions of visitors in relation to it.

9. How often do you use recreational vessel services?
   - ☐ Once a year
   - ☐ Two to four times a year
   - ☐ More than four times a year

10. Where did you buy your recreational vessel?

    _____

11. Were you the first user of the recreational vessel?

_____

12. How old is your recreational vessel?

_____

13. Where do you preferably navigate with your recreational vessel?

☐ Interior waters. Please mention the name and location of the River or Lagoon

_____

☐ Open Sea. Please mention the name and location

_____

14. What time of the year do you rather launch your recreational vessel?

_____

15. What is your opinion on night navigation?

_____

16. How do you prepare your vessel for night navigation?

_____

17. Regarding your certification: Would you mind sharing the expiration date of your skipper's license?

_____

18. Would you mind sharing what sort of training you received for skipping recreational vessels?

_____

19. In which institution did you have the training?

_____

20. Would you comment on whether the training incorporated both practical and theoretical components?

_____

21. Would you elaborate on whether it met your expectations?

_____

22. What are the requirements to keep your skipper's license up to date?

_____

23. Is there any other license required from the Regulatory Authority to skip a recreational vessel?

24. How are you keeping knowledge on safety up to date?

25. How did you get to know the legislation applied for recreational vessels?

26. What is the safety equipment that you carry onboard?

27. Why do you carry that equipment?

28. Would you mind sharing from where the awareness of the need for that equipment was acquired?

29. Regarding your equipment: What are the safety devices (Communication, EPIRBs, GPS, Navigation Lights) do you have on board?

30. How often do you do the maintenance of this equipment?

31. How often is your recreational vessel inspected?

32. When was your vessel last time inspected?

33. When do you preferably do the annual inspection of your recreational vessel?

34. Would you please discuss your experience with the annual inspection of the vessel?

35. What is your opinion on the relevance of those inspections?

36. What is it that the authority observes during the annual inspection?

37. Do you consider that all the equipment required on the legislation is actually necessary on board the vessels?

38. What precautions do you take before launching your boat in the water?

39. In your opinion what are the risks to the safety of recreational vessels in the place that you operate them?

_____

40. Did you ever have the opportunity to express them to the Authority?

_____

41. Could you elaborate on what were the actions of the Authority after that?

_____

42. Are you aware of accidents involving recreational vessels?

☐ Yes

☐ No

43. Where did the accidents occur?

_____

44. In which year did the accidents occur?

_____

45. Could you please elaborate on the types of accidents they were?

_____

46. Are you able to share the causes of the accidents?

_____

47. Would you mind describing the consequences of the accidents?

_____

48. In your opinion those accidents could have been avoided?

_____

49. Would you mind elaborating on whether there was timely and relevant assistance after the accidents?

_____

50. Would you kindly mention what sort of assistance was provided after the accidents?

_____

51. Concerning boat users: What is your opinion on the behavior of the other boat user and the local community regarding boating safety?

_____

52. What would you recommend to the authority to enhance recreational vessels' safety?

_____

APPENDIX V

Table 1. *Senior Level Interviewed from Mozambique and South Africa*

Participant	Code	Position	Institution
MOZAMBIQUE			
Participant 1	**P1**	Maritime Administrator of Gaza	Maritime Administration of Gaza Province
Participant 2	**P2**	Responsible for the Technical Department	Maritime Administration of Gaza Province
Participant 3	**P3**	Maritime Administrator of Maputo	Maritime Administration of Maputo Province
Participant 4	**P4**	National Senior Naval Inspector	Mozambique Maritime Institute – INAMAR
Participant 5	**P5**	Maritime Administrator of Zambezia	Maritime Administration of Zambezia Province
Participant 6	**P6**	Director of Maritime Safety Department	Mozambique Maritime Institute – INAMAR
Participant 7	**P7**	National Chief of Operations of Coastal, River and Lacustrine Police	Police of Mozambique Republic (PRM) - PCLF
Participant 8	**P8**	Chief of Operations of Coastal, River and Lacustrine Police of Inhambane Province;	Police of Mozambique Republic (PRM) - PCLF
Participant 9	**P9**	Chief of Operations of Coastal, River and Lacustrine Police Nampula Province;	Police of Mozambique Republic (PRM) - PCLF

Participant 10	**P10**	Chief of Operations of Coastal, River and Lacustrine Police of Gaza Province;	Police of Mozambique Republic (PRM) - PCLF
Participant11	**P11**	Commodore	Club in Maputo City
SOUTH AFRICA			
Participant 12	**P12**	Senior Manager Maritime Policy	South Africa Maritime Safety Authority – SAMSA
Participant13	**P13**	Provincial Boating officer	SAMSA
Participant14	**P14**	Sports and Recreational Safety Officer	Private Club
Participant15	**P15**	SAMSA Authorized Surveyor and Examiner	Authorized Agency
Participant 16	**P16**	Surveyor	SAMSA

APPENDIX VI

Table 2. *Coding Maritime Authority Mozambique*

Name	Description	Files	References
Accidents that lead to a change in the institution	Description of a major accident that led to changes in procedures in the institution	3	4
Accidents	Accidents circumstances and occurrences	7	19
Causes of accident	Circumstances behind the accidents	6	14
Adequacy of resources	Suitableness of the resources available	5	15
Adequacy of the Legislation	Perception of the adequacy of the legislation	6	14
Annual vessel inspection	Procedures for Annual Inspection	6	50
Awareness campaign	Organization and frequency	3	11
Certification Update	Requirements to update skippers' license	6	10
Challenges for Recreational Vessel Safety	Obstacles to responding to recreational vessels safety	6	9
Communication of risk	Mechanisms to communicate risk	8	15
Compliance with recommendations on the inspection	Skippers' precedents towards deficiencies on vessels after inspection	2	2
Existence of Data Base	Management of recreational vessel archives and information	17	29
Government parameters for safety	Government guidelines are provided to ensure the safety	6	16
Level of Preparedness	How is the authority prepared to handle risk	8	62
Origin of visitors	Country of origin of visitors to Mozambique	1	3
Patrol	How are patrols organized, stakeholders involved	1	1

Name	Description	Files	References
Place with more recreational activity in Moz	Areas more prone to recreational boating	1	1
Provisions in the strategy for recreational vessel safety	Arrangements for recreational boating safety	5	15
Rank of recreational activity in the institution	Level of importance of recreational boating in the institution within other activities	6	8
Recommendations	Improvements to be made in the sector (institutionally, within the skippers, and the community)	6	35
Response to Accidents and violations	Institutions actions after the occurrence of an accident	6	27
Risk Identification by the institution	Recreational vessel risks perceived by the institution	10	28
Role of Stakeholders in Decision-making	Participation of stakeholders in decision-making	6	12
Role of stakeholders in risk identifying	Participation of stakeholders in risk identification	1	1
Skippers competency	Skills shown by skippers residing in Mozambique	6	26
Skippers Examination	Procedures to obtain certification	4	10
Stakeholders	Identified stakeholders	6	18
Training	Institution provisions for skippers' training	6	20
Vessel maintenance	How boat owners keep their vessels	6	11

APPENDIX VII

Table 3. *Codding PCLF Interview*

Name	Description	Files	References
Accidents	Frequency of accidents	4	29
Adequacy of the legislation	Perception of the adequacy of the legislation	2	2
Area of jurisdiction	Areas and categories of boats SAMSA has actions on	4	4
Awareness raising	Frequency of awareness campaigns	4	28
Cause of accidents	Accidents circumstances and occurrences	3	8
Challenges for Recreational Vessel Safety	Obstacles to responding to recreational vessels safety	4	22
Collaboration	Stakeholders' relationship and coordination of work	4	17
Community Behaviour	Communities' approach to safety	4	6
Existence of database	Management of recreational vessel archives and information	7	15
Media	Cooperation with the media for awareness-raising	4	12
Origin of the visitors	Country of origin of visitors to Mozambique	3	5
Patrol	How are patrols organized, stakeholders involved	4	26
Level of Preparedness	How is the authority prepared to handle risk	4	21
Rank of Recreational boating Activity	Level of importance of recreational boating in the institution within other activities	4	5
Recommendations	Improvements to be made in the sector (institutionally, within the skippers, and the community)	4	21

Name	Description	Files	References
Response to Accidents and violations	Institutions actions after the occurrence of an accident	4	26
Role for the safety of the recreational vessel	Mission in recreational vessel safety	4	13
Skippers competency	Skills shown by skippers residing in Mozambique	4	15
Stakeholders	Identified stakeholders	4	15
Training	Institution provisions for skippers' training	4	20
Violations	The most common violation in recreational boating	4	5

APPENDIX VIII

Table 4. *Codding ‘’Clube Maritimo’’ Commodore*

Name	Description	Files	References
Accidents	Accidents circumstances and occurrences	1	1
Adequacy of legislation	Perception of the adequacy of the legislation	1	1
Annual inspection	Procedures for annual inspections, requirements, and dates	1	4
Collaboration	Relationship between the club and the Maritime Authority	1	3
Vessel Maintenance	How recreational vessels are maintained, and procedures for non-compliance	1	1
Membership	Requirements and obligations of the members	1	2
Mission	Role in the spectrum of recreational vessel safety	1	5
Preparedness	How the institution is prepared to respond to recreational accidents	1	5
Recommendations	Improvements to be made in the sector (institutionally, within the skippers, and the community)	1	8
Response	Clubs' response to recreational vessels' risks	1	5
Skipper Competency	Member certification requirements	1	2
Training	Training provided to skippers	1	3

APPENDIX IX

Table 5. *Codding Interviews South Africa*

Name	Description	Files	References
Accidents	Frequency and severity of accidents	3	26
Adequacy of resources	Suitability of resources available in the institution	3	10
Annual inspection	Procedures, dates for annual inspections	3	29
Authorized Agencies	Certification and accountability of authorized agencies	3	15
Awareness raising	Frequency of awareness campaigns	3	7
Challenges for Recreational Vessel Safety	Obstacles to responding to recreational vessels safety	3	12
Collaboration and Stakeholders	Relationship and working arrangements with stakeholders	1	2
Communication with the public	Communication between the institution and the public and vice-versa	3	11
Database existence		5	13
Jurisdiction	Areas and categories of boats SAMSA has actions on	2	5
Adequacy of the Legislation	Perception of the adequacy of the legislation	2	5
Social Media	Relevance of social media for	3	11
Mission	Roll in recreational vessels safety	4	17
Place with more recreational activity	Places in the country with more recreational boating	3	4
Level of Preparedness	How is the authority prepared to handle risk	3	18
Provisions on the strategy	Arrangements for recreational boating safety	2	4
Rank of recreational activity	Level of importance of recreational boating in the institution within other activities	1	4

Name	Description	Files	References
Recommendations	Improvements to be made in the sector (institutionally, within the skippers, and the community)	3	12
Government guidelines provided to ensure the safety	Government guidelines provided to ensure the safety	3	18
Government guidelines provided to ensure the safety	Government guidelines provided to ensure the safety	1	2
Role of Stakeholders in Decision-making	Participation of stakeholders in decision-making	1	2
Safety parameters	Government guidelines provided to ensure the safety	2	13
Skippers Competency	Skills shown by skippers residing in Mozambique	3	23
Stakeholders	Identified stakeholders	3	8
Training	Institution provisions for skippers' training	3	8
Update Knowledge	Actions from the institution to update skippers' awareness	1	2
Vessel Maintenance	How boat owners keep their vessels	3	4
Violations	The most common violation in recreational boating	3	4

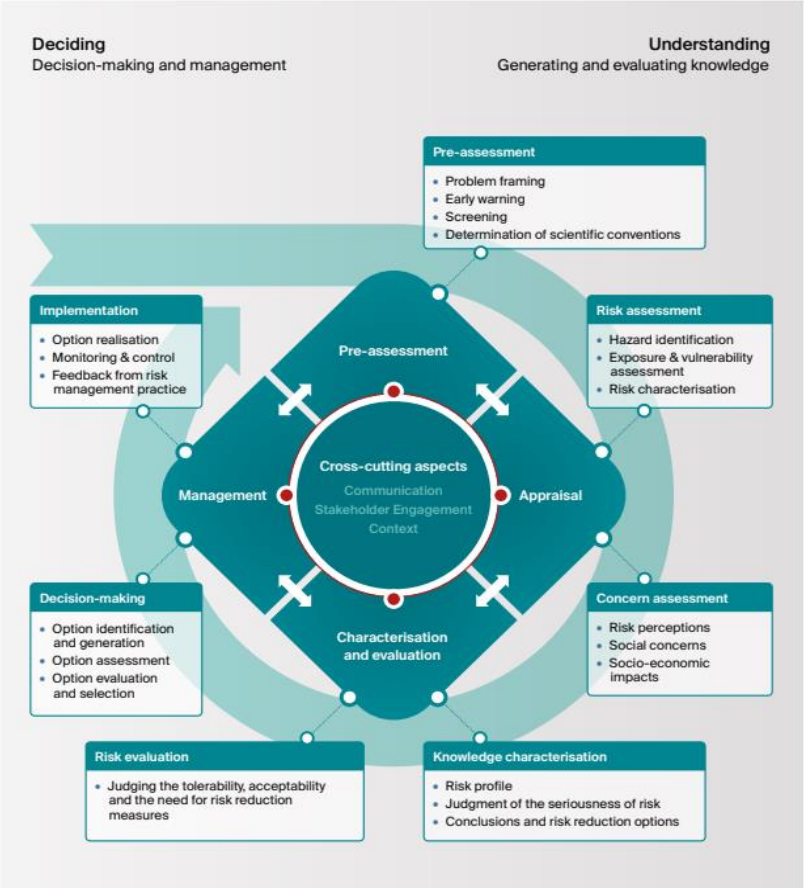
APPENDIX X

Table 6. *Authorized Surveyor South Africa*

Name	Description	Files	References
Accidents	Accidents circumstances and occurrences	2	14
Accountability	How does SAMSA hold Authorized surveyors and examiners responsible	1	1
Accreditation	Process and requirements for accreditation	2	17
Boat survey	How boat inspections are held	2	10
Challenges in the activity	Difficulties faced by surveyors in performing activities	1	3
Database	How flies of registered boats and examined skippers are kept	1	1
Examination	Process, length, and components of examination	1	5
Ranking of recreational Boating	Level of importance of recreational boating in the institution within other activities	1	2
Recommendation	Improvements to be made in the sector (institutionally, within the skippers, and the community)	2	6
Role	Mission in recreational vessel safety	2	37
Violations	The most common violation in recreational boating	1	6

APPENDIX XI

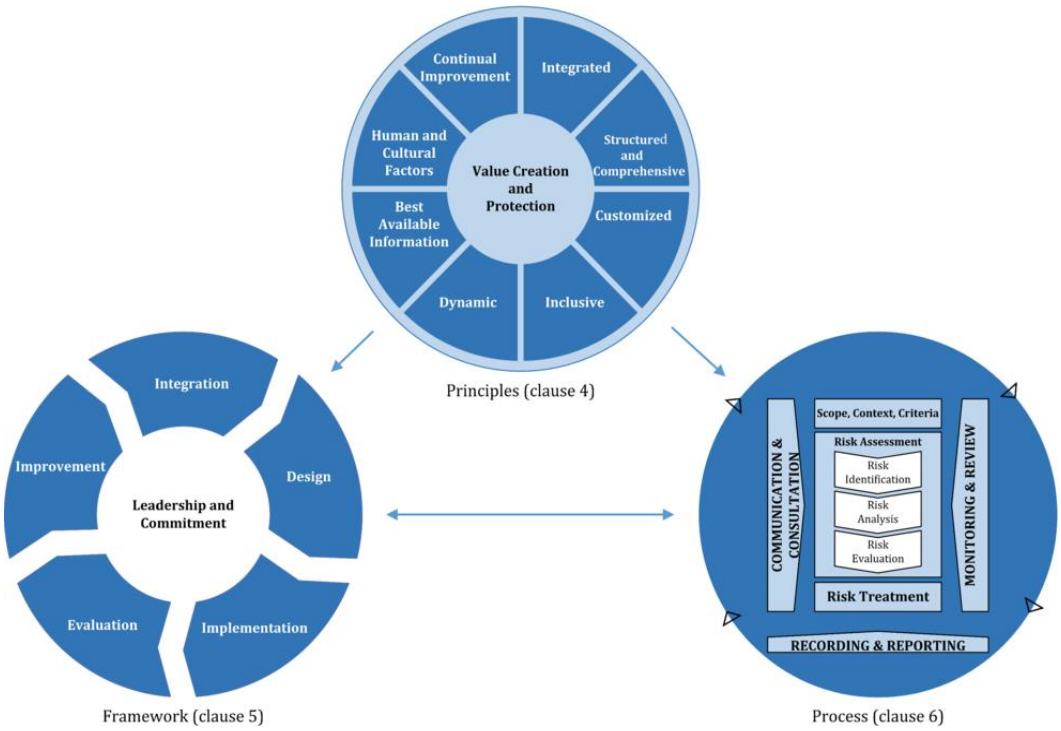
Figure 1. *IRGC Risk Governance Framework*



Note. From 10.5075/epfl-irgc-233739

APPENDIX XII

Figure 2. *IRGC Risk Governance Framework*



Note. From https://www.iso.org/obp/ui/#iso:std:iso:31000:ed-2:v1:en.