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EXAMINING THE IMPLEMENTATION OF THE INTERNATIONAL SHIP AND PORT FACILITY SECURITY (ISPS) CODE IN THE PORT OF DAKAR (SENEGAL)

By

DIOGAL GUAYS
Republic of Senegal

A dissertation submitted to the World Maritime University in partial fulfilment of the requirement for the award of the degree of

MASTER OF SCIENCE
in
MARITIME AFFAIRS

(MARITIME SAFETY AND ENVIRONMENTAL ADMINISTRATION)

2020

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Declaration

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

The content of this dissertation reflect my own personal views, and are not necessarily endorsed by the university.

Diogonal GUAYS

(Signature) ........................................

(Date) 21 September 2020

Supervised by : Dr Dimitrios Dalaklis

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Acknowledgements

The accomplishment of this research effort was a challenge. It cannot be possible without the support and help of the World Maritime University (WMU) and its faculty, especially the associate Professor Dimitrios Dalaklis, supervisor of this research paper, the one added to its value through his advice and guidance and has never stopped pushing me to perfection since the beginning of this work.

During 18 months of joys and sorrows, dark and sad days were the most difficult, but a difficult adaptation to the new environment of the English language was the highlights of this year. "WMU far away from home" is the university's slogan, which has proven to be true. Far from the family, far from my wife and my daughter, the challenge of succeeding and returning has been my studies' primary goal. Over time, friendships were formed, making them a new family. The studies were also a challenge this year, a year difficult due to the COVID 19 virus's appearance, which keeps worldwide into a psychosis, making the stay in Sweden more difficult with the pressure and thoughts for the country's family.

With all the obstacles and difficulties, we came to the end of our training with the writing of this dissertation.

This accomplished work is dedicated to my family, father, mother, brothers, and sisters.

A special dedication is granted to my daughter, my princess sun of my life.
ABSTRACT

Title of the dissertation: EXAMINING THE IMPLEMENTATION OF THE INTERNATIONAL SHIP AND PORT FACILITY SECURITY (ISPS) CODE IN THE PORT OF DAKAR (SENEGAL)

Degree: Master of Science

After the sad even of September 11, 2001, when the greatest terrorist attacks in history occurred in the United States, security became a major concern for the shipping industry. This catastrophic event of unprecedented scale raised awareness in the international maritime community, including the International Maritime Organization (IMO) of the need for a new global legal framework that addresses security risks and establishes mitigating measures to improve the level of security.

The Republic of Senegal has been a member of the IMO since 1960. The National Agency Maritime Affairs (ANAM) was created in 2009 in replacement of the merchant navy who was already in charge of the implementation of the ISPS Code in the ports of Senegal is dedicated now to the implementation of all IMO instruments on behalf of the government of the Republic of Senegal. Examining the implementations of the International Ship and Port Facility Security (ISPS) Code in the port of Dakar is the purpose of this dissertation. The port of Dakar is presenting a lot of loopholes regarding the security. How to improve the security in port of Dakar is the main aim of this dissertation. ANAM is empowered by to fully implement and enforce the provisions of the ISPS Code.

The port of Dakar receives ships on local and international voyages, hence the need to comply with the ISPS code to correct the gaps and improve security of the port to international standards. The objective of this thesis is to examine and provide recommendations on the implementation of the ISPS Code at the port of Dakar.

Keywords: Maritime security, International Convention for the Safety of Life at Sea (SOLAS), International Ship and Port Facility Security code (ISPS), Port Facilities Security Plan (PFSP), Port Facilities Security Officer (PFSO).
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List of Abbreviations

ANAM: National Agency of Maritime Affairs
ANSP: National Port Security Authority
CCTV: Closed Circuit Television
GOG: GOLF OF GUINEA
IMO: International Maritime Organization
ISPS: International Ship and Port Facility Security
ITCP: Integrated Technical Cooperation Program
LNG: Liquefied Natural Gas
LRIT: Long Range Vessel Identification and Tracking
MARSEC: Maritime Security
NASD: National Agency for Statistics and Demography
PAD: Port autonomous of Dakar
PFSA: Port Facility Security Assessment
PFSO: Port Facility Security Officer
PFSP: Port Facility Security Plan
PSO: Port Security Officer
RO: Recognized Organization
RSO: Recognized Security Organization
SOLAS: International Convention for the Safety of Life at Sea
SUA: Suppression of Unlawful Act against the safety maritime navigation
UN: United Nations
USA: United States of America
USCG: United States Coast Guard
VTS: Vessel Traffic Services
Introduction

1.1 Background

The first terrorist act with a significant impact in the maritime industry can be traced from the hijack of one Italian cruise liner ACHILLE LAURO, in October 1985. (Cassese, A. (1989). This incident led to the International Maritime Organization (IMO) adopting the resolution A.584 (14) on measures to prevent unlawful acts and threaten their passengers and crews' safety. In the following years, IMO adopted in March 1988, the Convention for the Suppression of Unlawful Act (SUA) against the maritime safety navigation. In that same year of, another terrorist attack took place on a ship, The City of Poros, a Greek cruise ship that carried out day cruises for Cycladic cruises to Hydra, Aegina, and Poros from the marina of Flisvos, a port in the suburbs of Athens. Before the ship's attack, an explosives-laden car was prematurely detonated on the pier, killing two Arab terrorists involved in the attack. On July 11, 1988, the ship was attacked by a gunman who subsequently killed eight tourists before committing suicide in a subsequent explosion. At the time of the attack, there were 471 people on board the ship.

Security and safety are not mutually exclusive, but even if often synonymous, it is the shipping tradition to distinguish between maritime safety and maritime security (Mejia, M. (2003). Other attacks happen too, as of October 12, 2000, the suicide attack of the USS COLE in Aden where 17 crew members were killed and 39 injuries, in October 2002, the French tanker LIMBURG was attacked by terrorists in Yemen.

September 11, 2001, a series of terrorist attack take place in the United States of America (USA) (CNN, 2001). This day almost 25,000 people were injured as the result of the said occurrence, unknown persons hijacked, piloted and crashed commercial airlines into the twin tower of the world trade center in New York, Manhattan, Washington DC and Shanks
Ville, Pennsylvania, killing a total of 2,977 people according to the report of the national channel CNN. This changed the global perspective on the International security and also at the same time international terrorism. (CNN, 2001)

Even if the 9-11 incident was an aeronautic one, it broadens the global discussion on international security touching all transportation modes. After the 9/11 terror attacks in the US, security became a primary concern for the shipping industry. This catastrophic event raised the international maritime community's awareness, including the IMO, of the need for a new global legal framework that addresses security risks and establishes mitigation measures to enhance the maritime field's security level. Consequently, until 2002, illegal activities and threats were not fully taken into account. Indeed, the International Ship and Port Facility Security (ISPS) Code was adopted in 2002 following September 11, 2001. It reflects the awareness that a ship, like an airplane, can be targeted and hijacked to commit a significant attack.

It is in this concern that the chapter XI of the International Convention for the Life at Sea (SOLAS) Convention includes in 2002 a second part “Special measures to improve maritime security”, integrating the ISPS code and making a marked difference with the concept of maritime security already present in the rest of the convention. Entered into force on July 1, 2004, under chapter XI-2 of the SOLAS Convention, the ISPS Code has since formed the basis of a comprehensive and mandatory security regime for the international maritime transport sector. The Code is made up of two sections, Part A and Part B. The part A is compulsory and part B not compulsory, this to facilitate cohesion between the different countries, some of which have expressed their disagreement on several points because security is a matter of national sovereignty. On the one hand, Part A, of a mandatory nature, presents detailed requirements relating to maritime security and port security to which Governments, port authorities and the maritime companies contracting the SOLAS Convention must imperatively adhere in order to be in conformity with the Code. On the other hand, Part B of the Code provides a set of recommendations
on the arrangements to be made to meet the requirements and obligations defined in Part A (ISPS Code, n.d.2012).

Since the publication of the 2012 edition of the Guide to Maritime Security and the IMO ISPS Code developed to assist Contracting Governments to the SOLAS Convention, port facility personnel and the maritime sector as a whole IMO has developed and implemented, through a global maritime security program included in the Integrated Technical Cooperation Program, a comprehensive set of technical cooperation projects and activities around the world, building on the Guide. The main focus is on supporting Member States for the implementation, verification, compliance, and enforcement of the provisions of the IMO maritime security measures. This includes the ISPS Code and SOLAS Chapter XI-2, anti-piracy initiatives, the Convention for the Suppression of Unlawful Act of violence against the safety of maritime navigation, and Long Range Vessel Identification and Tracking.

The ISPS should be viewed as a security regulation with which ships and ports must comply and attest to the ship’s security compliance by a certificate. In any case, Maritime security in Africa is evolving rapidly and therefore leads to innovations in the architecture of maritime security, thus opening itself up to increased regional coordination. Piracy and kidnapping in the Horn of Africa moved in the Gulf of Guinea (GOG), getting closer and closer to the Senegalese coast. Dakar, which is the principal port of Senegal, runs risks concerning security. Security is a fundamental element in a port if the latter wants to comply with international standards. The security risks in a port can be terrorism, piracy, intentional explosions at a port facility, riots or employee uprisings, theft, and illegal immigration. All those issues of safety and security are two speared domains even quite often they overlap. Later in section 1.2, which is the problem statement, will explain how these two domains overlap.

The ISPS Code was implemented in Senegal since 2004, but the previous arrangements made did not allow the port of Dakar to comply with this code. In 2004 there have been
significant changes concerning the implementation of the ISPS Code indeed following a visit to assess the implementation of the ISPS code by the US Coast Guard, deficiencies have noted and recommendations made to the authority. In this regard, the port's strategy was to establish an action plan relating to the recommendations that consisted of reducing the port facilities' size that the port is in charge of with all its requirements in terms of signal and access procedures. In addition to the recommendations, the first assessment and security plans for Dakar's port was made by an RSO G3S international group (G3S Securymind). G3S was responsible for implementing all the means: equipment, materials for its materialization, and maintenance and replacement of all the security equipment (PAD, 2015).

Dakar port, easy to access before by all users, even the animals that came to take the remains of seeds, was subject to a change imposed by the IMO according to the ISPS Code to be part of the standard and competitive ports. However, as an emerging country at this time, from 2013 to the present day, much change should be made, marked by the improvement of the ISPS Code implementation in Dakar's autonomous port. The distinction was made first by access authorized by an access card. Access was easy for everyone before 2013, the port has now restricted access by installing barriers and guards to monitor and secure access to port facilities. Many stowaways entered the port, trying to reach Europe or the United States via ships performing international voyages. In 2013, there were more than 130 cases of stowaways than 35 in 2014, to prove how positive the strengthening of security is improving in Dakar's port (PAD, 2015).

The fences, the barriers, and guards at all the entrances to the port requiring port access tickets were the first changes brought about implementing the ISPS code at Dakar's port. In 2015 there was the security decree of January 21, 2015, regulating security on ships and in ports, which integrates the provisions of the ISPS code into the Senegalese legal arsenal and declares the National Maritime Affairs Agency as Designated Authority when even the merchant navy acted as the naturally designated Authority as the interlocutor of
the IMO for matters relating to maritime safety and security. Created in 2009 to replace the merchant navy, ANAM is the designated Authority responsible for port security in Senegal.

Then there was the division of the port into port facilities and each port facility designated a port facility security officer to coordinate the actions of these port facility security officers, the decree established the Port Security Officer post whose main mission is to coordinate the action of these Port Security Facility Officer. It was then noted the need to have specific training for personnel assigned to security tasks and thus, following the decree, there was an order establishing the standard of minimum training for personnel in charge of security on ships and in ports. There has always been an identification system to access the port but rather the establishment of an accreditation system for RSOs to make assessments and security plans of port facilities with an approval process by ANAM, ANSP.

The RSO is a structure recognized by ANAM under an annual and renewable authorization issued to it to proceed to the development of security plans, the training of security personnel that directly involve security in a port, or a port facility. For instance, the increasing presence of unauthorized persons inside the port and the plethora of incidents of stowaways were clear indicators that there were deficiencies in the measures designed to prevent unauthorized access to the port facility (ISPS code 14.2.2). However, since the implementation of these security standards, the number of illegal immigrants has considerably decreased. In this good conduct of compliance with the standards established by the ISPS Code, Senegal released a draft decree entitled DRAFT DECREE REGULATING THE SECURITY OF SHIPS AND PORT FACILITIES.

This decree helps to better understand the entities responsible for security in Senegal but also to better understand their roles. The purpose of this decree is to:
1. Define the standards, procedures, obligations and responsibilities of the Maritime Administration, ships, port facilities and shipping companies for the implementation of relevant provisions of Chapter XI-2 of the International Convention for the Safety of Life at Sea (SOLAS), as set out in the International Code for the Security of Ships and Port Facilities (ISPS Code);

2. designate the National Port Security Authority (ANSP) provided for in Article 5 of this decree.

The scope of this decree applies to all ports and port facilities in Senegal that receive or deal with:

1. vessels of 500 gross tons or more carrying out voyages international; and

- ships offering international commercial passenger transport services.

The decree applies to ships flying the Senegalese flag and making international voyages and to ships flying the foreign flag in Senegal's territorial waters or having the intention to go to a port or an installation subject to this decree, namely:

- passenger ships, including high speed passenger craft;

- cargo ships, including high speed cargo craft, of equal gross tonnage or greater than 500; and

- mobile offshore drilling units. The decree does not apply to warships, auxiliary warships or other ships owned or operated by a national government and assigned exclusively to a service non-commercial audience.

In accordance with the provisions of the ISPS Code, the Port of Dakar has made changes over the past two years to the management system for access permits through the application, edition, issuance and control procedure.
The Autonomous Port of Dakar issues different types of access tickets (badges, buttons, day tickets, registration plates, etc.). It is a place of convergence of several trades (Dockers, consignees, stevedores, carriers, forwarding agents, staff of companies installed inside ...) and services (port services, Senegalese Customs, Maritime Gendarmerie, Sanitary Service at the Maritime Borders...). The Port of Dakar is frequented by thousands of people and vehicles per day and who in principle must have an access ticket depending on the area. This place of economic convergence can be a point of qualified threats and terrorist attacks.

This observation allows us to say that the judicious filtering of entries could be an essential point for improving security in the Port of Dakar.

However, the question arises as to whether access control at the entrance to each zone and port facilities is carried out following the ISPS Code’s provisions. Reasonable control and compliance with international security standards is an indicator of good port management. In this context, this research effort examines “The implementation of the ISPS Code in the Port of Dakar.

1.2 Problem statement

The port of Dakar is a deep water port, at the crossroads of the main sea routes The West coast of Africa. It has an excellent geographical position (the most advanced point of the West African coast) at the intersection of Europe's routes to South America and North America to South Africa. The figure 1 below shows the strategical position of the port of Dakar. Having a strategic position, Senegal is very coveted by merchant ships, tankers, cargo, bulk carriers. The port of Dakar principal port in Senegal is a hub of maritime traffic because of easy access and modernity.
However, the port of Dakar, although coveted by powerful shipping companies such as MSC, MAERSK, GRIMALDI and maritime investors, has a security deficit which could cause it enormous trouble as the West African sub-regions are often subject to terrorist attacks, trafficking, drugs, sabotage (Port de Dakar, n.d. 2020).

Maritime terrorism is not a new risk, but it takes on another dimension due to the development of the jihadist threat and the many armed groups growing in the West African region. In 2014, Al Qaida already outlined its maritime strategy. The terrorist organization called for strikes against oil tankers, LNG carriers, and offshore to disrupt the energy
supply of target countries. This terrorist group would have a fleet of 28 to 50 boats, thanks to its alliance with the Somali Shabab in particular (National Strategy for the Security of Maritime Spaces 2015, General Secretariat of the Sea). Indeed, Piracy is not the main target of the ISPS Code but terrorism. Nevertheless, all threats leading to a terrorist fact have to be prevented before the disaster, as pointed by maritime security experts on a general article ‘‘Piracy in the horn of Africa Some good news, but a lot of work has still to be done’’.

“Piracy has always been a challenge for decision makers around the world. Upon closer examination of the historical evidence, it is evident that piracy is a diachronic phenomenon. The reasons are pretty clear: Hacking is a low-risk criminal activity that pays well. In fact, the profit from piracy is disproportionate to the potential losses of individuals who engage in this type of activity. the easy gain of wealth, especially where there are weak and poor states”

Although pirates operate in East Africa and in the Gulf of Guinea the threat is approaching more and more of our coasts because of more to be aware of security for a minimum of risk against our port and installations concerned.

Owing to the fact of the ISPS Code, have to be implemented in ports, the autonomous Port of Dakar was one of the first ports in Africa to apply the provisions of the ISPS Code (International Ship and Port Facility Security Code 2004). Even if the implementation was not immediate in Dakar's port due to the organization, decision-making, and tasks for different structures, the ISPS Code maintains that the first measure of security in a port or a ship remains the control of access. It enables us to deal with terrorist threats and cases
of theft. Dakar's port made much improvement regarding the security inside the port and the access to the facilities. The reason why Dakar's port remains a benchmark concerning security, so much so that the USCG has chosen it as its operating platform.

Most often security and safety issues have an interconnection. Protecting a port against incidents also means avoiding accidents. Consequently, this hypothesis joins the incident that happen in the port of Beirut on August 04, 2020 with two violent explosions shook in the capital, a first explosion was heard in Beirut, followed by another very powerful which caused a gigantic mushroom in the sky (CNN NEWS). According to the authorities, these explosions were due in particular to the explosion of some 2,750 tons of ammonium nitrate, stored "without precautionary measures" in the port of Beirut, a substance which is used in the composition of certain fertilizers but also explosives (Ouest France 2020). The government is pointing the finger at a cargo of ammonium nitrate stored "without precautionary measures" at the port. A source within the security services said the ammonium nitrate was seized from a broken down boat six years ago and stored in hangar number 12 in the port, "without any follow-up." By preventing incidents, accidents can be avoiding.

However, this lack of prevention and preparation in the face of such a security situation is also likely to occur at the port of Dakar. Indeed, in Senegal, the Port of Dakar is also under the threat of this chemical used as fertilizer which is also used in the manufacture of explosives. In the figure 2 the presentation of these two pictures provides the place where the nitrate of ammonium is stored in the port and the danger we are facing like what occur in the port of Beirut.
Currently 3,050 tons of ammonium nitrate are stowed at Berth 3 of the Port of Dakar. Beirut is the typical example for all the port stocking nitrate of ammonium to be more alert about the danger. The disposal of the hazardous product is subject to approval from the Ministry of the Environment. Previously 350 tons were evacuated from the port of Dakar for Mali who is the owner of this product (Senego news 2020).

As well enough aware of the gravity of an explosion of these 3050 tons caused by recklessness or poor storage, the current research effort work more on the security of the port of Dakar, but also to better make the port a hub of the maritime economy in Africa and in the world.

Almost all of Senegal's hydrocarbon imports pass through the Port of Dakar, which is equipped with specialized traffic. The maritime area includes the Resolute bench, the sea lines of Total gas and SAR, and ICS and materialized by mooring boxes for Tankers. It also has a sheltered bay for the secure anchorage of ships. Concerning security, the hydrocarbon area is also one of the most sensitive areas of the port. In the same wake has the hydrocarbon zone, in figure 3 describing oil and gas are stored in the north area of the port of Dakar (Portdakar.sn). This area, which is also difficult to access for vehicles that
come to refuel, presents some security problems such as the access. Just as the risk incurred by ammonium nitrate, non-compliance by users of this hydrocarbon zone is more significant due to the flammable products stored there and the risk of explosions if they do not follow the safety and security instructions of the book. (ISPS Code, n.d.)

For instance, the Declaration of Conformity was issued in December 2014 by the Designated Authority, the National Agency of Maritime Affairs (NAMA) and the National Port Security Authority. Dakar port is very important for the economy of the country. Nearly 80% (Port of Dakar, P. A. 2016) of goods and raw materials relied upon by the Senegalese people transit through this port. Senegal import most than he exports reason why I can say that the port of Dakar is the lung of the Senegalese economy.

Despite general compliance, there remains a significant number of non-conformities with the requirements of the ISPS Code in the port of Dakar.
1.3 Aims and objectives

The first aim is to pinpoint the main threats and security vulnerabilities in the port of Dakar Senegal. Additionally, to make an identification of the actual threats to those critical assets and infrastructures in order to prioritize security measures. Also an identification of port facility vulnerabilities and other areas within the port that may be a likely target will be done. And then the examination and recommendation of various strategies that can be used to overcome security vulnerabilities for the port of Dakar will be realized.

1.4 Research questions

This research will seek to answer the following questions.

1. What is the level of conformity with the ISPS provisions in port of Dakar?

2. What are the main vulnerable zones in the port of Dakar? Do they comply with the ISPS Code? If not what must be done to achieve full implementation.

3. How to improve the situation in the port of Dakar and especially the measures needed?

1.5 Methodology

This research is based first on a systematic literature review of reliable and up-to-date information in relation to the ISPS Code and the actual security measures currently implemented in the port of Dakar. Identifying the main and probable threats facing security of the port of Dakar which is the major port in Senegal therefore carrying the most risks and vulnerabilities is an important aim.
Secondly, collecting data related to the security breach in Dakar's port through PFSO and security guard has been made. It is also integrated input by PFSO and security guard in the format of questions asked using anonymity to make them freer about the answers they will provide.

Collecting data was a considerable challenge because of the COVID 19 pandemic. It was complicated to find an appropriate interlocutor for an interview because of this enormous change.

As Senegal’s secondary port, it is also included in the research effort the same relevant question about the ISPS in these ports and any way to make an exemplary implementation of the ISPS Code in these ports even if they are called secondary.

Comparison between the security incidents happening in the country of West Africa ISPS and Senegal has been made to look at what we should expect in terms of risks and how to prevent those risks touching our neighbors’ security.

The challenge will be to take part of this implementation of the ISPS code in Senegal because maritime security will be the issues in the future if it is not well structure because as we know the terrorism and piracy are very close as they are already in the GOG and are coming closer to our Senegalese coast. So we have to be aware of all the risk and danger that can be involve because of these dangerous factors of non-instability.

Dakar port never has never been impacted by a terrorist incident, this indicate why the maritime security level 3 has never been activated but it doesn’t mean that terrorist attack will never happen in the country. Always remembering that the risk Zero doesn’t exist can help to be more ready and alert about security situation. Even before in 2001, USA more powerful country at this time face the terrorist attacks who changed to perception about security. Since the ISPS Code is actually the most occupation of all the sector in the maritime security.

In the USA, MARSEC is an acronym for maritime security and refers to the three security levels used by the USCG (U.S Coast Guard 2013) consistent with the NTAS of department
homeland Security (DHS). The commandant of the USCG sets MARSEC levels. MARSEC levels may be adjusted according to the nature of the risk, the nexus of the maritime domain, and the consultation with the secretary of homeland security (Kenneth Christopher 2015).

In the Senegal the National Maritime Affairs Authority (ANAM) has been designated as the sole competent authority responsible for the implementation of the ISPS Code and for monitoring port security regulations at the national level, it decides which Security we should apply and in collaboration with all the actors involved in the DAKAR port security will deter to avoid any incident minor or major in the port of Dakar.

The author could not travel to Senegal to collect data because it will be more comfortable and helpful to be on the field and see by itself what was happening in Dakar's port and work on how to have a better implementation of the ISPS Code in the port. Moreover, the lack of time and mostly COVID 19 situations worldwide was another limitation for the author to be able to have a better view on the topic and interact with people on the field, the port facilities, and the CCTV rooms. However, the based information limitation was compensated for by carrying out a questionnaire with different managerial personnel. Furthermore, there were some difficulties in collecting data about security breaches and measures on maritime security as we know port security is reliable to confidentiality and, in this case, a little challenging to have access to some information.
Literature review

The purpose of this literature review is to identify the current states of affairs of the security in the port of Dakar which is the question 1 of the research question, and also to pave the way to answer the questions 2 and 3. SOLAS Convention, which is the focus of analysis within the current chapter, also includes the International Safety Management Code (ISM) and the International Ship and Port Facility Security Code (ISPS); with the first one dealing with risk mitigation concerning the safety domain and ISPS dealing with the various contemporary security threats, a useful regulatory framework to avoid safety and security incidents during shipping operations is created Dalaklis (2012). There is a real gap of literature review related to the ISPS code in Senegal expected one specially talking about the control access of the port of Dakar (DIENG 2017).

According to UNCTAD (2019), world seaborne trade slowed down due to several reasons, but total volumes reached 11 billion tons, with an estimated projection of an annual average growth rate of 3.4% 2019-2024. Accounting for 90% of global trade by volume is carried by sea, making every voyage susceptible to maritime terrorism, piracy, and other maritime crimes.

For instance, "They [PFSP] may exist in paper form but are rarely pulled off the shelf to test their effectiveness. The key to successful port security management in terms of the FSP is to understand it as a living document. (...) The FSP should not be written as onetime effort, but should truly be a working document that addresses the security threats facing the port facility twenty-four hours a day, seven days a week. This means that the
FSP, like the security function itself, must be continually updated and tested to be certain that it mitigates the threats identified is risk assessment”

-Kenneth Christopher (2009)

Concern regarding maritime security have grown heavily during the previous ten years due to the increase in the terror attacks around the world, as pointed out by Christopher K. (2009), who said that “the evolution of organized security process in the maritime sector can be understood as a product of increasing governmental and commercial concerns about the criminal exploitation of seaport, [...] and also the rising threat of global terrorism”.

The maritime industry is now one of the bigger financial system in the world. Indeed, all the system have to be protect against threats who can put him down. Ports are more hugest, more developed and more vulnerable.

Namely, a port acts as a hub of transit for the products and goods leaving one country to be delivered to another country by sea. Historically, ports were not an overly protected place, but nowadays, ports are bastions of security because they are the economic lifeblood of an entire country. The interface between a port and a ship is very important because it facilitates the exchange of goods and raw materials between two or more countries which takes place on a given territory.

In monthly variation, the upward trend, recorded 11.5% at 450,900 tons in November 2019 against 404,400 tons a month earlier. This situation is due in large part to phosphates whose shipments increased by 95.1% to 120,000 tons against 61,500 tons in October 2019. In terms of seafood, we note an increase of 8.4% with an achievement hovering around 17,400 tons compared to 16,000 tons in October 2019. However, a 4.1% decline was recorded in the shipment of general cargo which went from 326,800 tons in October 2019 to 313,500 tons a month later. In monthly change, merchandise landings increased by 6.8% to 1.480 million tons compared to 1.386 million tons (APA news 2020). It is a well-
known fact that the terminal 3 of the Dakar port south zone is dedicated to Mali. So all the merchandises going to Mali and belonging to Mali pass thru this zone and the total amount is 2,266,524 tons per year (PAD 2019).

2705 is the number of ship calls at the port of Dakar, which shows the importance of this port but also its economic vulnerability (PAD 2018). The import and the export also represents a huge weight on the Senegalese economy, reason why the port of Dakar has to be secure to provide and maintain the breath of the country. This is why the figure 4 below is showing the amount of traffic in the port of Dakar only for 2019.

![Figure 4: the port of Dakar in number in 2019](source: portdakar.sn)

After the terrible event of September 11, 2001, the security of world ports has taken a new turn. Terrorism most often has an objective of wide scale disruption and chaos, and therefore, places of exchange and transit are primary targets due to the substantial role they play in global economics.

In 2004, following the tragic event of the 11th of September 2001, IMO established a set of maritime security regulations with the objectives of improving maritime and port security in the entire world. These provisions are established in the new Chapter XI-2 of the SOLAS CONVENTION (Safety of life at Sea Convention), compromising the International Ship and Port Security Code (ISPS Code). The part A of the ISPS Code establishes the mandatory provision, while the not mandatory (recommended) part B covers the guidelines about how to comply with the mandatory requirements established
in part A. However, implementation and the compliance of the International Ship and Port Security Code and submission of related information in always mandatory for Contracting Government to the Safety of Life at Sea 1974 Convention. The International Maritime Organization relies on market force and regarding economies to ensure compliance of the ISPS Code and then, there is no penalty mechanism for Contracting Government States that are not in compliance with the ISPS Code requirements (official website IMO, SOLAS). Almost after 17 years of the ISPS Code implementation, the market and economic factors' force was not sufficiently strong to lead to full compliance in many countries around the world. One of these is Senegal, where, at the time when this thesis was conducted, serious deficiencies were detected.

In today’s the maritime environment talk a lot about maritime security. The International Maritime Organization (IMO) declared "the International Ship and Port Facility Security Code (ISPS Code) is a comprehensive set of measures to enhance the security of ships and port facilities, developed in response to perceived threats to ships and port facilities following the September 11 attacks in the United States ".

Aware of the vital aspects of security in an international context where terrorism is on the rise, the Autonomous Port of Dakar has taken the necessary measures to comply with the ISPS Code.

Nordfjeld (2018) explained that in the port of Mexico, the findings concerned serious deficiencies in the implementation and compliance of the ISPS Code, in this regard, the reporting of incidents security and its reassessment with the PFSA and the respective amendments to the PFSP, the weak exercise of the authority of SEMAR representatives to CUMARs to fulfill their obligations and responsibilities in terms of port and maritime security; and the identification of necessary legal amendments to national legislation, as well as the remarkable improvement in the reporting of security incidents following the implementation of the “transparent security incident reporting tool,” which enables the investigation of security incidents port / maritime and can also be used to identify the
problem of the area; help to put in place strategies for the development of national maritime safety policy, as well as the instrument itself, are some of the most relevant contributions of this thesis.

In comparison, the port of DAKAR has the same shortcomings ranging from a lack of responsibility for non-compliance with measures to relaxation in relation to the security that does exist at the port. At certain time it is easier to get inside the port others because the shift is not respected sometimes or there are no good accommodations to allow security guards to be in good conditions. Also, port security assessment should at all times be carried out by persons with the necessary skills and include the identification and assessment of critical assets and infrastructure that are important to protect against any vulnerabilities. The identification of threats must be made to the infrastructure in order to determine the security measures to be taken and to prioritize them. Identify, select and prioritize measures and procedural changes and their level of acceptance to reduce the vulnerability of the facility.

Furthermore, the risk assessment gaps, including human factors, policies, and procedures, must be identified in infrastructure. Peripheral protection, access control, and staff security control requirements for access to restricted areas of the port are essential, for example, access to the facility should be restricted, and access should be on the presentation of an accessible document.

Identifying the port's perimeter and identifying measures to control access to the port at different security levels is essential. The fences are a means of delimiting and separating the port facility from the rest of the port used by users. Knowing the nature of the expected traffic arriving or leaving the port (i.e., passengers, crew, type of ship/cargo) is significant for Security in a port. At the port of Dakar, although efforts are being made, there is still much improvement to comply with Security regarding the rest of the ports, which are at the top level of Security.
The lighting of a port facility results in security because the traffic in a port is more intense at night than during the day. So the platform lighting is essential.

A risk assessment must be reviewed at all times, as each time unexpected changes are noted. Which brings us back to saying that risk zero can never be reached. Change and improvement in security will never stop, all the time.

In a book chapter under the title “Enhancing Maritime Security in Mexico Privatization, Militarization, or a combination of both” the authors discussed improving the maritime security framework in Mexico and ensuring compliance with the International Code ISPS. The findings of this research effort showed inconsistencies in the data from necessary security incidents or even their complete absence. The skills and inadequate training of port facility security officers (PFSOs) also stand out. Another important issue was the use of different procedures among the ports under investigation to deal with exactly the same security issues. The conclusion that was said to be clear was that after twelve years of implementing the ISPS Code, Mexico, which heads the Inter-American Port Commission of the Organization of American States (OAS), is not meeting the requirements of the ISPS Code to an acceptable level. The lack of a national maritime security policy has resulted in an impoverished maritime security culture, despite the serious security challenges that the country faces. It is also true that Mexico is currently discussing the reorganization of its maritime security apparatus, with positive results. Tools and recommendations to improve the operational framework of Mexican maritime security are therefore envisaged, as well as potential areas.

Senegal for its part has almost the same problems as Mexico, if not identical. The people concerned are not really trained for good security management. People are appointed in place but do not receive adequate training in security which is a huge gap for the management and proper implementation of security. Their certifications and conditions
remain to be seen. How to cover the gap, how to prevent risks and how to carry out security at the port of Dakar are the key points of this thesis.

The problem of the implementation of the ISPS Code in the port of Dakar can be examined by making an analysis of the port with regard on my field experience. As a security officer working in the Senegalese maritime administration, the analysis about the security that will be made evaluation of the port of Dakar can be divided into three points:

- Lack of awareness of maritime security: Senegal is a country whose national official language is French, security and safety in French are most of the time confused by even in the high level of decision. For a good implementation of the ISPS code, it can be knowing exactly what security means. Security Consists of preventing all that is voluntary acts. Security concerns all the human, organizational and technical resources brought together to deal with spontaneous or thoughtful acts aimed at harming or harming, or with the aim of psychic or / and financial profit.

- Common practice for decades: Most of the time or in general people only concern themselves with security issues when a few things are happening or after an incident. The lack of consideration of small details related to security always leads us to big loopholes that could be well and truly avoided if everything were taken into account and in a good way. Unauthorized people penetrate inside the facilities looking for collecting remaining rice, cereal from bulk carriers continue to come to the port facilities until now because they are familiar to the guards or people in the area and this even during this time, where these lines are being written. The author of this dissertation was personally witnessed a scene at the port of Dakar in 2019 where vendors of art objects entered the quay where a cruise ship was docked because he says since 1993 he is used to the area when tourists disembark in Dakar which is a
real risk for security of the port and also the passengers coming from different countries on board the vessel.

- Lack of means and financial investment for the proper implementation of the ISPS code: recently by discussing by phone call with one of the port security guards whose I have had supervised his training by a Recognized Security Organization he told me that Due to the lack of barrier in the hydrocarbon area, intruders enter inside port facility to steal certain materials etc. Because of the absence of cameras, fences and lighting, the implementation of security cannot be in its heyday because security requires means for a good implementation.

Another important issue raised was that the security guards have to abandon their positions if they want to go to the bathroom or buy food due to the fact that conditions are not reunite for a good performance of their tasks. Security requires human and financial resources. These breaches are still relevant at the port of Dakar even in 2020 more than 15 years after the start of the ISPS code. Faced with all the threats that are looming on the horizon staying vigilant, alert and prepared for all scenarios related to security is the only possible means of protecting oneself protecting port buildings and even the entire economy of a country.

All the person involve in the good implementation of the ISPS Code in the port of Dakar should have a good information and training to be aware of the reality of the threats and the complexity of the Security. Put the port of the minimum level of standard regarding the fences, gates, light etc. will be the first step of a good way into the implementation.

In her PHD research effort on the title Building a National Maritime Security Policy NORDJFIELD points out "Regrettably, the ISPS Code is mainly focused on terrorism and leaves up to each government to determine the extent to which PSO/PFSO/SSO shall
reflect threats related to armed robbery; drug smuggling; stowaways; illegal migration; and the security of dangerous goods, into the evaluation of risks in the PSA/PFSA/SSA and their consequent implementation into the respective security plans (International Maritime Organization, 2012). However, for many countries these are threats with a much higher probability factor of occurrence than terror attacks.” For example, Senegal never had a terrorist attack but those factor highlighted by NORDJFIELD in the citation above are higher than a terrorist attack. But at the same times preventing all those threats can help to avoid terrorism in the port.

On the fact of a daily routine, the security measures that must be applied according to the ISPS Code are unfortunately not respected by actors and users. Nevertheless, in Senegal, we never learn from our lessons related to security in the past.

In its official journal (J.O. N° 6559), December 4, 2010 the State of Senegal mandated the implementation of the ISPS code in all Senegalese ports. Furthermore, law No. 2010-09 which came into force on April 23, 2010, defined sanctions and enforcement actions that can be taken against those who did not comply with the requirements of the ISPS code. Many changes in national law and regulation have been made over the years for improvement of implementation and adaptation to perceived threats. (Anam.sn 2015)

To further ensure the effectiveness of the implementation of the ISPS Code, the State of Senegal through the Ministry of Fisheries and Maritime Economy has adopted Presidential Decree No. 2015-91 of January 21, 2015 regulating the security of ships and port facilities.

In addition, the National Maritime Affairs Authority (ANAM) has been designated as the sole competent authority responsible for the implementation of the ISPS Code and for monitoring port security regulations at the national level.
The full implementation and compliance of the ISPS Code in Senegalese ports will benefit the country and help boost the economy. Through this research effort, it seeks to examine, determine, and analyze how the ISPS Code can be better implemented in Dakar's port and how threats and weaknesses can be deterred and eliminated in Senegal by taking appropriate and efficient measures for maritime security.
ISPS Implementation in West Africa

3.1 Area of concern

A port can be defined as "a haven of peace" for a ship against threats/risks linked to navigation, meteorological condition, and security. Therefore, it is the responsibility of the port facilities to offer the best possible protection to the ship against threats to maritime security. Ships calling at port facilities also have a role to play in port security by being safe from security threats. Although port facilities receive ships perpetually, it is often the case that security personnel at port facilities do not clearly understand the issues associated with ship security. Some or even a minimum of knowledge of ship security on the part of the personnel operating in port facilities can go a long way in understanding the threats that ships face and countermeasures employed by them against these threats. Likewise, knowing a ship's security measures and those of the port facility will help it understand the maritime security challenges and the preventive measures taken by the port facility, offering in the even wake to the ship the assurance of its safety while in port. The dialogue that such an interaction generates is, in itself, a valuable means of constructively assessing each other's maritime security situation.

The ISPS Code requires that ships and ports of contracting governments interact on security matters with the need to be at least aware of the security levels maintained by each of them. They propose to respond to the need for a better understanding that the port facilities' security personnel have to be trained to obtain first-hand knowledge of the security measures. This will be followed by the tabletop simulation in which injections
will be introduced on the interfaces with the ships to obtain the participants' responses at ships, port facilities, and shipping companies. The vessel's benefit is that its drills requirements under the ISPS Code are also met with this exercise. Each drill depends on the types of treat facing, the reason why in the following part of this research the discussion of various security threat in West Africa will be discussed.

3.2 Piracy

The port of Dakar since the advent of the ISPS Code is improving in terms of security and the implementation of this Code called ISPS. Indeed, the port of Dakar do not have issues regarding the piracy. However, all the countries in the Golf of Guinea are located close to the Senegalese territorial have faced the problem of piracy in these water (Africa-Piracy, 2018) Among them some are more critical than others, a brief comparison between the ISPS event in the west Africa can help to understand the area and the measures can be taken for prevention.

In 2019 the US blacklisted ports of Nigeria because of some armed robbery of vessels and the none reactivity the of Maritime Administration and Safety Agency (NIMASA) and the Nigerian Port Authority (NPA) when armed thieves unleashed terror on ships docked at various port terminals in Nigeria.

Disclosing this in writing on its website, the group said that "the USCG's sanctions against Nigeria must have come as a brutal shock to the relevant Nigerian authorities. They are shocked that Nigeria is among the 19 countries that have performed poorly in the implementation of the ISPS code. Other African countries on the list include: Cote d'Ivoire, Equatorial Guinea, The Gambia, Guinea-Bissau, Liberia, Libya, Madagascar, and Seychelles. Afterwards following that, “In February 2018, a USCG delegation led by
Lieutenant Commander Jacob Hopper of the International Port Security Liaison (IPS) for the USCG in West and Central Africa and Europe visited in Nigeria. For two days, the delegation visited some of Lagos’s port terminals and noted that the security architecture of the country's ports has improved significantly. Lt. John Hopper had commended NIMASA, the Designated Authority (DA) for the implementation of the ISPS Code in Nigeria, for the achievement it had achieved in implementing the Code” (U.S. Coast Guard, 2019)

Barely three months after the visit of the U.S. Coast Guard, there was a spate of armed robbery attacks on ships at berths in various port terminals across the country. In the space of three months, more than nine ships were attacked at their anchorages, and their crews were robbed. NIMASA, the arrowhead of ISPS Code implementation in Nigeria and the Nigerian Ports Authority (NPA), simply watched as these attacks took place one after the other, without doing anything meaningful to arrest the ugly situation perpetrated in these ports (hellenicshippingnews.com). However, after all this praise and warning, the ax of sanctions still fell on Nigeria as well as 18 other countries. Then those Nigerian port was blacklisted by the USCG (U.S. Coast Guard, 2019).

In Ghana piracy is reported as one of the most serious threats in the respective territorial waters. Pirates attack ships to steal both personal effects as well as goods, and in some cases crew members are taken away by pirates for ransom money. The local authorities have put in place several measures, including that the anchorage areas of the two main ports (Tema and Takoradi) are regularly patrolled by security officers from the Ghana Ports and Harbors Authority (GPHA) and that the territorial waters are more or less patrolled by the Ghana Navy. Regular GPHA and Navy patrols will deter pirate activity in the area. Also the deployment of armed guards on ships is not considered compulsory (depending on the area). In the event that ship-owners wish to have an escort or an armed guard from the local armed forces on board, a formal request must be made through the shipping agent (U.S. Coast Guard, 2019)
In Togo until late 2019, reports of piracy cases in Togolese coast were rare. However, two recent incidents have highlighted that the waters off Togo also represent a risk for ships trading in this area (U.S. Coast Guard, 2019).

Security measures have been tightened up and include a requirement for all ships in Togolese waters to have navy armed guards on board until the ship berths. The service is currently offered at no charge for ship owners. Additional armed guards are also recommended but this is not a mandatory requirement (hellenicshippingnews). All those example of the security incidents in the West African shows what are the treats of the port of Dakar can expect as he is in the same region and how to deter those threat according to the examples of his neighbors. In the following part the port of Dakar will be present as shortcomings.

### 3.3 Port of Dakar

The autonomous port of Dakar is divided into two distinct zones (north and south), separated by a fishing port, ship repair shops and a military zone.

In the southern area we have berths 1, 2, 3 and the international ferry terminal. We have the fishing port for all that is fishing activities in the port and the northern area where moles 4, 5, 8 of the private facilities of DP WORLD and the hydrocarbons area or the oil wharf are located. Apart the port facilities inside the port, Dakar have 3 sea line located outside the port at almost 500 meters of the ports shore. SEA LINE 901 SNDKR receipt the Crude Oil, Fuel Oil, GAS Oil Receivers. It is exploited by the AFRICAN SOCIETY OF RAFFINAGE (SAR), with a length of 280 M and a depth of 18 meters. The SEA LINE 902 SNDKR is dedicated for product like Phosphoric Acid. This SEA LINE is exploited by the CHEMICAL INDUSTRY OF SENEGAL (ICS) with a depth of 14 meters. The last SEA LINE 903 SNDKR is receiving butane gas and is exploited by SAR
with a length of 120 meters and a depth 8.5 meters. Thereby, the figure 5 below is providing a better view of the port of Dakar.

![Map of Dakar Port](image)

**Figure 5: Map port of Dakar**  
Source: Google MAP 2020

### 3.3.1 Risk Assessment in the South Zone

The southern zone, which is more located on the city side, has more traffic, more user entry and due to the presence of the ferry terminal more daily traffic. The population of Goree Island and tourists who always take the rowboat to rally the capital can be in vulnerabilities because of the lack of securities measures inside this ferry terminal. Although it is equipped with metal detection means, the ferry terminal is the most
vulnerable of the installations in the southern zone. Currently in 2020 almost all of the metal detection equipment of the scanners is broken due to the breach of the Security contract between the port and the French company G3S. For more than 2 years Security has been on standby, leaving the ferry terminal vulnerable. Although the LEVEL SECURITY 2 visible in the last pictures of the figure 6 below, has been continuously adapted for more than two years it is not applied to it because no reinforcement is done. “Governments are responsible for of setting security levels and communicating changes rapidly to those who need to be informed, including port and port facility operators (subsection 2.6). This requires Government, usually through their Designated Authorities, to compile and maintain an accurate set of contact details. In turn, this requires operators of ports and port facilities to promptly communicate changes in contact details” Section 3.3 of the ISPS Code.

There is no additional patrol no increase in personnel no functional camera even if in the MARSEC Level 2 is a heightened level for a time period during a security risk that has become visible to security personnel. Appropriate additional measures will be conducted during this security level. Only the entrance to the area (See figure 6 below) is controlled by the Gendarmerie on presentation of a national identity card. Travelers and users of the marina use the same entrance. This is a big risk for the port because of the ease of access to the facility. As there is yet no incidents regarding the security the surveillance of the access is not complete sometimes depending to the time of the day, which could impact of Security measures. The ferry terminal, already equipped with good infrastructure must increase its security measures.

The routine first enemy of the security must not lead to a let go which could lead to an incident which could lead to disaster in the event of a terrorist attack. Prevent terrorism will help to avoid easy access and protect the port facilities as well as travelers and users.
For platforms 1, 2 and 3, only one entrance is available for cars, which is the door to berth 2. The door to mole 1 serves as an exit door for cars and an entry and exit door for cars, pedestrians. The leading to the portal of berth 2 provides access to all berths. Access control to port facility 2 the only entrance by the south zone is managed by the maritime gendarmerie which just controls the identity of people entering the port area. Access within the port does not guarantee access to the port facilities there.
This area is frequented by thousands of people and vehicles per day and who in principle must have an access ticket depending on the area. This place of economic convergence can be a point of qualified threats and terrorist attacks given its vulnerability.

This observation allows us to say that judicious filtering of entries could be an essential point for optimizing the security of the Port of Dakar.

However, the question arises as to whether access control at the entrance to each area as well as at port facilities is carried out in accordance with the provisions of the ISPS Code. Fences; light barriers are not required by the ISPS Code for just a decoration but they are used to avoid and prevent security incident. The south zone including the berth 1, 2 and 3 are sometimes easy to access. Due to a lack of hardening some none authorized peoples can get inside in the table below that unauthorized access in a restricted area is security incident.

The port of Dakar is facing an important threat, similar to Beirut on August 04, 2020. The Berth 3 at the autonomous port of Dakar is dedicated to Mali which uses it to transport all materials intended for Mali. There are exposed 3050 tons of ammonium nitrate that we say belong to Mali which struggles to collect them because of the current situation of the country which is in political crisis after a putsch. As at the port of Dakar, in Beirut for six years, nearly 2,800 tons of ammonium nitrate, a component at risk, remained stored in a cracked warehouse in the port of Beirut, despite the multiple warnings and the odors that emanated from it. It is this warehouse which, exploding on Tuesday, caused an explosion of incredible violence, felt as far in Cyprus. These explosions left at least 137 dead and 5,000 injured.

The Lebanese incident is used as an example because of the fact that the port is running the same risks. Same The various port authorities reject the responsibility, as is the case each time after a major incident.
Port authorities, customs and security services were all aware of hazardous chemicals being stored at the port but have shifted responsibility to each other, security sources said.

In June 2019, state security launched an investigation into this cargo, after repeated complaints about foul odors emanating from the hangar. She had reported that the warehouse contained "hazardous materials that must be moved" and indicated that the walls of the warehouse were cracked and recommended that it be repaired.

The Director General of Lebanese Customs, had alerted "six times, between 2014 and until recently", the justice on the danger posed by the storage of more than 2,700 tons of ammonium nitrate in the port. Certain anonymous sources mentioned that the explosion were intentional for just breaking the Lebanese government (BBC International)

The port management, which was aware of the dangerous nature of the products, finally sent workers a few days ago to patch up the cracks in the warehouse. These works, according to security sources, were at the origin of the tragedy, according to the authorities.

For port of Dakar, it is the same similarity. Unauthorized people enter the area to steal the nitrate which it uses as fertilizers in agriculture. This unauthorized access by its people who take advantage of the security breaches of the port to enter it poses a risk to the entire port as well as to the capital. Remember that half of the Lebanese capital was destroyed by this explosion of rare violence.

Maritime security has been defined as ‘'the state of being free from the threat of unlawful acts such as piracy, armed robbery, terrorism, or any other form of violence against ships, crews, passengers, port facilities, offshore installations, and others targets at sea or in coastal areas’’ MEJIA (2007)

As it is observed, port security is incorporated into the different areas of maritime security. If access control is not sufficient in a port, all the threats can be a fact if the security measures are not taken. Below this kind of approach, port security can be understood as
the state where a port facility, including also its terminals, personnel, and related infrastructure, as a terminal berth and navigations channels, vessels at the port, its crew, passengers, service providers in operations in the port. Customs Maritime Units and in general, customers usually coming in the port are free from any unlawful act such terrorism, sabotage illegal transportation of drugs and weapons, armed robbery among others fact of violence. The south zone of the port of Dakar is the most dynamic, and in table 1 below, the presentation is made in detail to give a better understanding of the area.

The difference between ‘port security’ and ‘maritime security’ can be two different case study areas for the purpose of this thesis. However, even in the concept of the both involve different types of risks or threats, in practice they are interdependent. This research effort will mainly be focus on the side of the port security.

<table>
<thead>
<tr>
<th>SOUTH AREA</th>
<th>LENGTH(m)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mole 1</strong> Container/General Cargo (11 to 17,112 )</td>
<td>150 – 448</td>
</tr>
<tr>
<td><strong>Mole 2</strong> Roro Terminal</td>
<td></td>
</tr>
<tr>
<td>21-22</td>
<td>450</td>
</tr>
<tr>
<td>23</td>
<td>150</td>
</tr>
<tr>
<td>213-223</td>
<td></td>
</tr>
<tr>
<td><strong>Mole 3</strong> Container/General cargo ‘’MALI AREA’’ (31,32)</td>
<td>200</td>
</tr>
<tr>
<td>Gare Maritime Internationale de Dakar Cardinal Hyacinthe THIANDOUM (TERMINAL FERRY)</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: South area port of Dakar

Despite the lesson of the terrorist attack of the world trade center in September 11th 2001 it is useful to notice that terrorist is more equipped and have high level of training and coordination requiring aviation and Maritimes target. Even if the land-based infrastructure
represents a really high security risk and probably a factor than a terror attacks in a port industry as bomb threats or another scenario like sinking vessels in navigation channels or also using a weapon against a terminal oil or port facility among others these are not maybe possible. Neither is a fact of using a vessel to smuggle drugs or weapons is a high probability.

3.3.2 Risk assessment in the north zone

The north zone of the port of Dakar have a bigger perimeter than the southern area. In the north zone we have berth 4, 5, and 8, also we have the private facilities of DP WORLD and the hydrocarbons area or the oil wharf. The northern zone, like the southern zone, is coveted by users, day laborers and dockworkers, but generally tank trucks and container trucks are more visible in the zone because of the container terminal, the oil terminal and the bulk carriers that are unloaded there, being difficult to access because of its north side of the capital. The area is the site of numerous thefts, offenses or attempted illegal immigration by ships. Many shortcomings which have direct impacts on security are noted there. In the northern area only the container terminal has full ISPS Code compliance. As a private concession, the container terminal operated by the DP WORLD group fulfills the conditions set by the ISPS code. It stands out from the rest of the installations in the northern zone because of its complete set of security measures ranging from access control to the facility to 24/7 surveillance of the entire platform. Although the container terminal as a private concession has seen a significant advance in security, the rest of the port facilities in the northern zone are no less.

The hydrocarbon zone, an oil terminal in the northern, is a platform which must be subject to protection because of its vulnerability to oil theft and others attacks. The terminal supplies Mali with energy through the terminal port of Dakar oil terminal. Therefore, according to NORDJFIELD (2018), opins “Unlawful actions related to theft of
hydrocarbons represent a security threat not only for the affected oil terminal, but also for the whole port facility and even for the whole community and marine environment of the port, in the case of explosions caused by such crimes. However, this risk will be assessed from a strict security perspective, including the risk of hiring personnel that passes confidential information to criminal organizations, leaving out risks connected to safety and marine environment. It is important to highlight that the Government has not been able to determine how much oil or oil products have been stolen from the different oil facilities, including port terminals.”

The port of Dakar is facing the same situation of oil theft but not in this level as describe NORDJFIELD in her thesis about the Security in MEXICO. An explosion can be a disaster in the hydrocarbons zone due the theft of oil. Theft of oil as mentioned is not related to security but can lead to a security incident. The table 2 below is presenting all the details regarding the north zone of the port of Dakar.
<table>
<thead>
<tr>
<th></th>
<th>NORTH AREA</th>
<th>LENGTH(m)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mole 4</strong></td>
<td>Cereals/General cargo (41 to 44)</td>
<td>100 to 200</td>
</tr>
<tr>
<td><strong>Mole 5</strong></td>
<td>Genacar (51, 52)</td>
<td>160 – 200</td>
</tr>
<tr>
<td><strong>Mole 5</strong></td>
<td>Extension TAC/ Container terminal</td>
<td>424</td>
</tr>
<tr>
<td><strong>Mole 6</strong></td>
<td>Containers (61, 62)</td>
<td>424</td>
</tr>
<tr>
<td><strong>Mole 6</strong></td>
<td>Oil (64)</td>
<td>150</td>
</tr>
<tr>
<td><strong>Mole 8</strong></td>
<td>General cargo</td>
<td></td>
</tr>
<tr>
<td><strong>TVS BERTH</strong></td>
<td>Sulphur/gencar (81, 82)</td>
<td>325</td>
</tr>
<tr>
<td><strong>TVS BERTH</strong></td>
<td>Sulphur/gencar (83)</td>
<td>150</td>
</tr>
</tbody>
</table>
| **Mole 9**     | Hydro-carbon  
|                | 91 Closed for work rehabilitation             |           |
|                | 92 Closed for work rehabilitation             |           |
| **Mole 9**     | 1                                             | 100       |
| **Mole 9**     | 2                                             | 100       |
| **Mole 9**     | 910                                           | 170       |

Table 2: Description of the North zone of port of Dakar.

Like the southern zone, the northern zone receives thousands of people and services per day. This rush in sometimes not well controlled and this lack of regulation of the access is a threat to security. Large trucks present are 24/7 to refuel oil and also transporting container trucks that go to container terminals for their rotations. This unorganized drive towards the northern zone obstructs the passage and even sometimes prevents firefighters from reaching the zone when there is an accident in the zone. The organization of the northern area is a bit complex which makes the security deficient. The major problem in the northern area is the presence of unauthorized people in the area. Even if there is the gendarmerie which takes care of the grain at the entrance of the port, people still find the
means to enter the port facilities without any document certifying that they can be there or allowing them to remain in this area which is said to be restricted. This is a big gap compared to security and access control is one of the main points of the ISPS Code. The presence of unauthorized persons in the port allow to make the conclusion that the person with bad intentions indeed can easily harm the port facility and cause enormous damage. As a reminder that the major objective of the ISPS Code is to prevent terrorism.

Even in the northern zone, the PFSOs are struggling to do their job because of the promiscuity that reigns there. Difficult to access, the hydrocarbon zone is the most sensitive zone in this zone. Due to lack of means, the patrols which had to be done there for the good security of the platform hardly be made. The bulk carriers who unload toxic products there, although regulated by the IMDG code, is a source of risk for users and the port.

In contact with two anonymous PFSOs in the port of Dakar, they said that it is very difficult for them to accomplish the missions they do not have materials to do the job of port facility officer as it should be among other things he underlined the lack of training of guards and PFSOs. The main challenge they have is the security equipment (fence, gate, gatehouse), it has raised among other things an absence of means of communication (radio to protect, video surveillance system, computer). The insufficiency of cars for patrolling and the reinforcement of the capacity of the personnel of security having tasks related to this work, is thus required as well as the updating of security plans and assessments. A PFSO in charge of protecting a facility without means or adequate training reflects a vulnerable port and not up to standards. Another guard told me that few months ago they had a huge problem with some stowaways who were trying to hide inside a vessel for an illegal immigration. He explains to me that because of a hard shift (working 14 hours/day) they are not able to do their job properly and the private company who hired them didn’t pay them much. The main problem of these easy access to the port facility have to be corrected because the oil terminal in the north zone is a really sensitive area.
and if never someone with bad intention get in for destroy the port even the capital it will be an easy task for him because of the loopholes inside the security of the port.

Stealing oil is not related to security but the fact they have access to steal it can be a security problem it can lead to an explosion.

"The development and revision of the Port Facility Security Plan (PFSP) is the responsibility of the facility's PFSO, having regards to the approved PFSA. Guidance on the preparation and content of PFSPs is provided in subsection 3.7. Section 2

Designated authorities are responsible for establishing policies and procedures to be included into the PFSP regarding declarations of security and security incidents that may be brought to their attention, as well as for planning such reports. Additional guidance on Declarations of Security can be found in Subsections 2.7 and 3.4.

When completed, the draft PFSP should be submitted to the designated authority who should then proceed to its assessment and approval." ISPS Code 2012

The main target of the ISPS Code is to prevent terrorism. But there is a lot of loopholes who can be a breach of a future terrorist attack. It’s good to have a better view and anticipated everything regarding the security inside a port but without good and adequate infrastructures the implementation of the ISPS will be just a project. Finally, according to the PFSOs with the highlighting of lack of equipment certain port facilities in the north zone, the figure 7 below can confirm the security gaps existing in some port facilities.

Most of the time trucks hit the fence and damage the gates, barriers. In addition, unauthorized people looking for an access in the port facilities for stealing break the fence, create loopholes who will be at the same time a security breach for the facility. The gate in controlling 24 hours’ fact that truly representing a security breach
Figure 7: Security situation of the south zone
Additional Security challenges in Senegal

4.1 Ports in Senegal.

In all over the world, all the major maritime powers, such as Germany, Norway, the Netherlands have many ports which are a major engine of the country's development. Having a single port even if it is competitive and in standards does not allow the country to develop with such a limited amount of exchanges with countries. Senegal has a major port which is Dakar located in the capital and subject of this research. The port of Dakar although being the focal point on this thesis has a relation with the other ports which are called Secondary port and its number of two, the port of Kaolack located in the center of the country and the port of Ziguinchor located in the extreme south of the country. Implementing the ISPS code in those port will be a lever for development by starting bringing international security standards up to date. These ports even if they don’t comply yet with the ISPS Code are in relation with the port of Dakar because of the exchanges they have.

4.1.1 Port of Kaolack

Maritime traffic takes place at the port of Kaolack and its annexes: Lyndiane and Diorhane. The main products exported there were salt from Diorhane, peanut oil and cakes from Lyndiane. 2005 was marked by a general decline in the activities of the port of Kaolack. This decrease is reflected in a sharp drop in the number of vessels providing traffic. This number fell from 46 units in 2004 to 29 units in 2005, a decrease of 37%. This situation is well in line with the fall in export activities, which went from 87,305 tons’ in
2004 to 57,520 tons in 2005, and a zero import activity volume in 2005. (NASD Senegal). Since 2005, the port of Kaolack has not hosted vessels, only small activities ranging from the transport of salt from KAOLACK SALINS and also peanuts. The port is moreover left stranded. Recently in 2018 Senegal acquired 5 ships (1 dredge, 2 tugs and 2 barges) called the Saloum, the Niombato, the Bettenty, the Mbossé and the Lagandong which will do the necessary work to make the arm of the sea more navigable. and accommodate the largest boats. In his conduct, the Head of State officially launched the dredging works to revive maritime activities in the central zone.

The dredging of inland waterways and other parts of the coastline. The ships will contribute to good river and sea navigability while making it possible to open up the central and southern regions of the country. Maritime safety will also be ensured. In addition to maritime safety, dredging will allow the port to become economically competitive again and will be able to take over from certain activities of the autonomous port of Dakar. At the moment no project for the implementation of the ISPS code is indicated there as the port does not represent a great economic importance at this time for protection against any external risk. In the future the ISPS Code will be implemented in this port since the project is underway and an internationalization of the exchanges will make that the security will be an essential point. With normal traffic and security, the port of Kaolack can help to reduce the problems of the Malian trucks by operating directly from kaolack fact that will reduce the traffic jam and the security problems bringing sometimes by Malians. In the figure 8 below the picture of the port of Kaolack is presenting.
4.1.2 Port of Ziguinchor

The port of Ziguinchor is the second most dynamic port in Senegal after the port of Dakar. The Ziguinchor - Dakar - Ziguinchor rotation has greatly contributed to opening up the southern region of Senegal. It thus favored a better circulation of people and goods. Which has the direct consequence a sharp increase in shipments, the number of which rose from 88 in 2004 to 180 in 2005, an increase of 104.5%.

This sharp increase in shipments was felt above all in the volume of imported goods, which rose from 38,929 tons in 2004 to 83,052 tons in 2005, an increase of 113.3%. This very clearly contributed to the positive trade balance of 54.6% despite the 33.6% drop in the volume of exported goods. (NASD). Goods traffic noted a reversal in 2014, after the slowdown in 2009. After a decline of 35.9% in 2008, trade in goods increased by 4.2%,
from 80,241 tons in 2008 to 83,602 tons in 2009. According to the report, this development is driven as much by the increase in shipments as by the increase in landings (NASD).

The port has been dredged, in addition to the dredging, there is the rehabilitation of the commercial port. And its imminent extension, because needs have increased and there is a certain enthusiasm around this port which constitutes an obvious potential for the development of the region. Because it contributes to opening up, therefore, access to the market. The ships, now weighing 4,000 tons, can dock, up from 1,000 tons a few years ago.

According the above information, the region is inevitably heading towards a better future. With the cashew nut campaign with the flow of ships that have ended up shipping more than 35,000 tons to the port of Dakar to date. Another port facility will be created, the oil terminal with a storage capacity of 16,000 tons, will contribute to the development of the commercial port. The idea is to ensure that the port is up to standard with a much larger berth so that products from the natural casamance region can be marketed. In this context, the need to relocate part of the activities on the other side of the port is a necessity to allow the smooth running of the extension work.

The port of Ziguinchor receives more than 15,000 people each month from Dakar via the ferry terminal by the three passenger ferries as one of them can be seen in figure 9 below that connect the two destinations. Although protected and delimited by a perimeter, many changes must be made to make the port more secure. The Dakar ferry terminal has a direct link with that of Ziguinchor. So bringing the port of Ziguinchor into compliance with the ISPS code is a recommendation that must be taken into account if the port aspires to be up to standard.
4.2 Security Status

Back to Dakar from the previous years the former director general of the port, had strengthened security at the port, the author of this dissertation has witnessed the strengthening of security with the establishment of a corps of 450 officers trained under the ISPS code. In addition to strengthening the access perimeter of the port, managed by the maritime gendarmerie by a decision setting the new access conditions. Naval means for maritime surveillance (patrol boats and two zodiac video surveillance vessels at port level) and others for ground surveillance (patrol vehicles, video surveillance of port facilities (PI) and dykes have been put in place and the port authority scrupulously ensured the conformity with the weights for the control of the overall tonnage, the respect of the
provisions of the regulation 14 of the UEMOA and the traffic police. But since his replacement and the cancellation of the contract between the port and the company of private security G3S security is at a standstill at the port of Dakar. MARSEC 1 is applied to all port facilities except the international ferry terminal which has been at Security 2 for more than 2 years without explanation. Barriers, fences camera protection walls are mostly damaged or out of order. The port is currently vulnerable and security is not the main focus of the Senegalese authorities.

In the port of Dakar, a lot of security measures against all treats have been taken by the authorities to prevent and avoid all acts against the port and its facilities. Dakar is on the MARSEC 1. Therefore, even if there is control more improvement have to be done regarding some security breach. “Port of Dakar Authorities have reminded vessels of the security measures concerning watchmen and access, that must be followed when vessels are in port, with respect to illegal emigration, Steamship Mutual P&I Club informed citing information provided by Club Correspondents Budd. All personnel boarding and disembarking from vessels must be identified and counted; Any failure to meet the above requirements will be sanctioned, in accordance with current legislation: the port warned” (safety4sea, 2018)

In recent years, permission to disembark stowaways who boarded in Senegal has usually been granted, and this is still the case. However, it is now even more important than the vessel to be able to demonstrate that the security regulations were strictly applied.

Vessels which have not fully complied with the security measures, and then found stowaways from Senegal onboard, are likely to face long delays and heavier sanctions, including large fines, from the authorities than vessels which met the security regulations but nevertheless need to disembark stowaways from Senegal. It is expected that fines will be smaller in the latter case. Even if they took a lot of measures in the ports to avoid the threats related to the security, stowaways is still a problem in Dakar port. Where a stowaway can penetrate the port for imminent illegal immigration, a terrorist can also get
in and blow up the port easily. This research effort is conducting to facilitate the understanding that the security level of the port of Dakar is not at the necessary level.

4.2.1 Statistics of incidents

The security of a port is of paramount importance not only because of their sensitive transport functions but also because of their specific role and control of the regional, national, and international security points. Port security can be defined as a cornerstone for the implementation of the new maritime transport security regime.

During the effort of this research, after anonymous questions and discussions with some PFSOS's and security guards in the port, security incidents happened in the port of Dakar were collected. Table 3 below shows different securities incidents, the comment that the most common vulnerability of the port of Dakar is unauthorized access, and the stowaways can be mentioned. Compared to other incidents, unauthorized entry and stowaways who concern control access are serious problems. Even if the port is not facing piracy or terrorist attack, those security breaches can be used as a window by intentionally bad people to target the port. As it is known, control of access to Port Facility premises is the first step of security measures imposed by all Port Facilities. The security afforded by reasonable access control affects all aspects of port operations, from personnel and equipment safety to the cargo's security and even to that cargo's bonded status. The access control considers the perimeter security and personnel and vehicle/vessel checks upon entry/exit. The integrity of access control measures depends on the control measures put in place, the maintenance of the measures, and the personnel's quality according to the training and experience, manning and maintaining them.
4.2.2 Analysis

The USCGs visits the port of Dakar each year as the operation platform is a motivation for improving Security in Dakar's port. As a world power and collaborating with the port of Senegal in matters of exchange of goods and services via the sea, the USCG requires compliance with Dakar's port if the state of Senegal wishes a partnership with the USA. If it were not for this little pressure, Security at Dakar's port would not experience small improvements over time. The USA put on a blacklist all the ports with no conformity with the ISPS Code. The Security, from frequent audits and visits from USCGs, was improved. At the Port of Dakar, the control of access at the port entrance is carried out by Companies of Gendarmerie Maritime, which is responsible for manually identifying access tickets according to the area, validity, and period.
The national gendarmerie is present at all entrances to the port leading to the port facilities. It receives all decisions or circular notes that emanate from the port authority and that deal with safety and security for the execution of their daily activities. The user, for his part, must present his access ticket to the Gendarme and comply with safety and security standards. A random search of the trunk of vehicles is possible. In the Port of Dakar, the wearing of the badge must be compulsory and apparent, something which is not always respected due to the presence of certain unauthorized individuals or even workers and users who have lost their access title.

The creation of the Polyvalent Operational Center (COP), has given an evolution linked to management (diversity of tickets according to port areas, organization of access to port facilities, reinforcement of staff) and ticket control (regular control in the 'port enclosure) by PFSO patrols. Indeed, the port authority has made available to the Security Service Access and Traffic Control Agents responsible for regulating congestion and controlling access tickets within the port of Dakar. The Safety and Environmental Protection Department also carries out night patrols to control the titles, but unfortunately for lack of resources and the laxity of the leaders everything has gone back to square one.

At the port facilities, security guards are responsible for registering and filtering entry and exit access to IPs. Confronted with accommodation problems most of the time (no toilets, 14 hours of work per day) the mission given to them seems impossible at times because of the lack of consideration of the port and their employers.

There is no point in repairing barrier walls, fences, and gates when the USCGs have to come for a visit or audit, knowing that we cannot protect or prevent ourselves against the smallest security risk prohibited from letting the unauthorized person get in an area.

Protecting a port against one significant vulnerability can help to protect against others' threats.

The ISPS Code was brought to fight the terrorism do to the main even of 11-09. The main target of the ISPS code is terrorism. Nevertheless, at the same time preventing all the threats which can lead to a terrorist attack. It is such a complicated thing because many
parameters have to be taken into consideration for a better understanding of a situation. Many examples can be shown as little threats that can lead to a big disaster.

Piracy and stowaway are not the main target of the ISPS code as we are hardening the defense against the terrorism obviously we are preventing stowaways, piracy and smuggling. As the increase in acts of piracy has become, in recent decades, a significant obstacle to the competitiveness of African ports, the preparation for piracy for terrorism, which is not yet reported in the port of Dakar, must be taken into account. Not only do these attacks increase the cost of shipping to Africa, but they also directly affect port traffic flows, as ships avoid routes considered risky. Their impact has been significantly negative in reduced traffic to and from African ports located between the Red Sea and the Indian Ocean, near the Somali coast and in the GOG.

An exemplary implementation of the ISPS Code at the port of Dakar is just an aid to Senegal's maritime sector's perfection. Due to its geographical position, Senegal has a significant and irrefutable advantage vis-à-vis the ports of the neighbors of West Africa. With a little will, the security can be remarkable if not perfect.

The piracy in the region even if it's not actually a biggest threat is part of the preventing facts we should take against terrorism. If peoples can get easily inside the area of the port or port facilities that is mean that the port of Dakar is really vulnerable. The privates port facilities inside the port have a really good compliance with the ISPS Code and the only reason is the invest for a good security. Figures 10 and 11 below show the difference between the entrance in the port of Helsingborg in Sweden and the entrance of Dakar's port. What is explained here on these pictures is the excellent security of a port mean investments on it.
Figure 10: Entrance port of HELSINborg (Sweden)
Source: By the author

Figure 11: Entrance port of Dakar south zone (Senegal)
Source: By the author
4.3 Security threats

According to Pinto and Talley, in their book titled "The Security Incident Cycle of Ports," the port security incident cycle consists of four phases: prevention, detection, response, and recovery. There have been significant improvements in the securing (prevention and detection) of ports since September 11, 2001, but few investigations into the response and recovery of a security incident once it has occurred product. In this article, a study of a port's security incident cycle is presented through an examination of how ports and governments have approached port-security incident prevention and detection and response and recovery. The risks related to security in ports are diverse, and depending on the area, certain are more frequent in some ports than others. Table 4 below shows the different security risks that can be perpetrated in a port. According to the anonymous questions with certain security actors in the port, the main problems are unauthorized access, thefts, smugglings, and stowaways. Even though they do not have problems related to terrorism, those threats are a severe security breach.

<table>
<thead>
<tr>
<th>Types of security Threats</th>
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<tbody>
<tr>
<td>Attack</td>
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<td>Bomb warnings</td>
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<tr>
<td>Hijack</td>
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<td>Armed robbery against a ship</td>
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<tr>
<td>Discovery of firearms</td>
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<tr>
<td>Discovery of other weapons</td>
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<tr>
<td>Discovery of explosives</td>
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<tr>
<td>Unauthorized access to a restricted area</td>
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<tr>
<td>Unauthorized access to the port facility</td>
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<td>Media awareness</td>
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Table 4: Types of incidents relate to the Security
Source: ISPS CODE 2012 EDITION
Conclusion & Recommendations

In this dissertation separated in five chapter, each of them have a specific role in this research effort giving explanations about the ISPS Code implementation in the port of Dakar.

The chapter 1 which is introduction is providing presentation of Senegalese maritime status, additionally of aim and objectives, the methodology of this research was discussed in this first party.

Secondly in the chapter 2 systematic literature review with all documents, articles books regarding the security and the ISPS Code implementation in some country as Mexico as an example has been made.

However, the chapter 3 of this research provides a presentation of the security incidents taking place in some countries of west African for the goal to show the threats that can run the port of Dakar in relation to the security.

The chapter 4 describes the security challenges in Senegal regarding the ports called secondary for a future implementation in addition to develop the ports in Senegal and update them on the ISPS standard.

The chapter 5 last chapter, is for to make a conclusion for the research and also given recommendations in fact to help on the improvement of the ISPS Code implementation in Senegal.

Additionally, a critical analysis of the implementation and compliance of the ISPS Code in Dakar's port, with a particular focus on port security, was conducted in this dissertation. It identifies several breaches concerning compliance with this international set of security
regulations, potential risks, and security threats for port administrators, terminal operators, oil platforms, ship-owners, charterers, and neighboring countries. However, it also provides possible and practical solutions, identifying the necessary amendments and decrees to harmonize the national legal framework with international legislation.

Likewise, an exemplary implementation of the ISPS Code in the port suggests investments to upgrade physical security at the port and increase the surveillance to cope with threats connected to drugs and stowaways’ smuggling.

The described situation of the security in the port of Dakar in the research is quite serious, but it is already under improvement. The improvements opportunities of the security in Dakar is facing limited maritime regime and resources because as it is well known security investment is quite expensive and sometimes the port cannot afford it.

Another issue of the improvement of the security is the limited cooperation between these institutions in charge and involve in the ISPS Code. Therefore, it is necessary to build a strong cooperation in addition to solve and improve the security inside the port.

The findings of this dissertation are highly valuable for the required amendments to the maritime regime in Senegal. Simultaneously, the instrument for reporting security incidents and its related applicability for the development of a National Maritime Security Policy represents a significant contribution not only for Senegal but also for Africa and worldwide.

This research effort examining the implementation of the ISPS Code in Dakar’s port was for a better understanding of the port and the improvement that should be done for a better implementation of Dakar’s port.

As to improve the security and ensure an exemplary implementation of the ISPS Code in the port of Dakar, the following recommendations are provided.
❖ Install adequate CCTV cameras inside the port and all port facilities, the gates, and the port's strategic point for a better view and control.

❖ Repair all damages fences and gatehouses in the port facilities to avoid unauthorized access inside the port.

❖ Provide new materials and equipment for security agents to use while patrolling, i.e., the surveillance in the port and around its premises.

❖ Put a sufficient number of security guards well trained on ISPS' standards.

❖ Repair all the detection materials in the passenger terminal, which is very vulnerable to attacks.

❖ Equip the main gate of the port facility with adequate housing for security guards.

❖ Make the wired fence at the level of its maritime fringe over a distance of about 100M to delimited the port's restricted access through the sea.

❖ Repair and put stiff fences with wires to protect the fuel and oil storage area against unauthorized people to avoid theft and security incidents.

The above recommendations for this research effort will help highlight the port's needs regarding the security according to the gaps already founds. Most of the terminal access is not in conformity with the ISPS code regarding the security and how they control those access getting directly inside the port. It is noted that the facilities are surrounded by street restaurants, open markets, and much underground parking and car repair.

Install surveillance cameras on this entrance and powerful light projectors to illuminate the entire facade for better night visibility and be able to have a look 24/7 on all the port. Dakar's port operates 24/7, and security has to be always taken as an obligation for a better standard in the maritime.
REFERENCES


D. Dalakis, “Piracy in the Horn of Africa: Some good news, but a lot of work has still to be done”, Maritime Security Review-MSR in Depth, No.9, December 2012.


https://www.researchgate.net/publication/329427158_Assessing_the_need_of_implementing_ISPS_Code_instruments_to_Maritime_Customs_Units


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