PORT SECURITY COMPLIANCE: SAFEGUARDING NIGERIA'S CRITICAL MARITIME INFRASTRUCTURE

AYOOLA BABATUNDE FADOLA
WASHINGTON COLLEGE OF LAW, AMERICAN UNIVERSITY
ayoolafadola@gmail.com, af3980a@american.edu

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ABSTRACT
This paper explores the significance of port security as a crucial factor for Nigeria's national and economic stability. Given Nigeria's strategic maritime position along the Gulf of Guinea and the vital role its ports play in facilitating trade and the oil and gas sector, securing these facilities is essential for safeguarding economic interests and national security. The discussion delves into the multifaceted threats and challenges facing Nigeria's port security, including piracy, smuggling, infrastructural limitations, cybersecurity vulnerabilities, and corruption. Nigeria's existing legal and regulatory framework, which aligns with international standards like the ISPS Code, sets the foundation for port security but faces gaps in implementation and enforcement. Through the lens of systems theory, the article analyzes how interconnected elements—such as infrastructure, stakeholder collaboration, technology, and regulatory measures—are integral to achieving robust port security. Recommendations for strengthening Nigeria's port security are provided, including enhancing inter-agency collaboration, investing in modern infrastructure, combating corruption, adopting advanced technology, and improving legal frameworks. By addressing these areas, Nigeria can fortify its maritime security, foster economic resilience, and maintain its position as a regional maritime hub.

Introduction

Maritime security is critical for sustainable growth of global commerce conducted along ocean passages or naval domains. About 90% of goods supporting the global economy are transported through the oceans. The ocean contains numerous resources that support the livelihood of present and future generations (Randrianantenaina, 2013). Port security is essential to any nation's overall security strategy, as ports serve as critical gateways for international trade and commerce. For Nigeria, which boasts one of the largest maritime industries in West Africa, port security is vital for national defense and safeguarding its economic interests. As the country continues to expand its role as a major hub for oil exports, imports, and regional trade, ensuring the security of its maritime infrastructure has become a top priority. Effective port security compliance is critical to protect Nigeria's ports from a range of threats, including piracy, terrorism, smuggling, and cyberattacks.

Several terrorist attacks and piracy have plagued the world ocean in recent history; notable among them include attacks on the USS Cole in 2000 and the M/V Limburg in 2002, executed through the use of explosive-laden

speedboats, attack at U.S controlled oil facilities at Basra by Iraqi insurgents resulting in deaths of three American servicemen in 2004, and in addition piracy around Southeast Asia waters by Jemaah Islamiah & Abu Sayyaf terrorist groups (Raymond & Morriën, 2008). The catastrophic events of 11th September 2001, when a sequence of synchronized terrorist attacks was made on the World Trade Center and Pentagon in the United States of America by the extremist Islamic group called Al-Qaeda became a watershed in global approach to maritime security policies formulation and administration. Specifically, more integrative and stringent security policies were introduced to prevent and suppress terror and other criminal acts around maritime infrastructure (seaports, terminals, jetties, etc.), territorial waters, and high seas.

Nigeria possesses extensive maritime endowments, including over 853 nautical miles of coastline and a network of ports and inland waterways that provide vital access to international shipping (Atakpa, 2023). The African Atlantic Countries include Nigeria, Morocco, Mauritania, Senegal, Gambia, Cape Verde, Guinea, Guinea Bissau, Sierra Leone, Liberia, Côte d'Ivoire, Ghana, Togo, Benin, and Cameroon. Given the strategic position of Nigerian ports, any breach in security can have significant consequences, not just for Nigeria but for the broader global maritime industry. The country's ports are integral to its oil and gas exports, which form the backbone of its economy. In this context, ensuring the protection of these assets against evolving threats is crucial for economic stability. Port security compliance involves adhering to both international standards and local regulations designed to mitigate risks and enhance the resilience of the country's ports.

However, despite the tremendous wealth generation enabled by maritime assets, Nigeria's coastal waters and adjoining Gulf of Guinea (GoG) now face intensifying threats from piracy, hijacking, kidnapping, and oil theft which incur major economic losses alongside reputational damage (Ogbonnaya & Igwe, 2019). Therefore, maintaining port security in Nigeria presents unique challenges. The nation's extensive coastline, coupled with its geographical location, makes it vulnerable to a range of maritime crimes. To address these vulnerabilities, Nigeria must not only strengthen its security protocols but also ensure that all stakeholders, from government agencies to private sector operators, work in tandem to safeguard the country's maritime infrastructure. This paper will explore the key issues surrounding port security compliance in Nigeria and outline the necessary steps to protect its critical maritime assets.

Conceptual Clarification

Port Security

Port security refers to the protective measures, regulations, and protocols put in place to safeguard maritime infrastructure, cargo, vessels, and personnel from security threats. These threats can range from physical attacks, such as piracy or terrorism, to illegal activities like smuggling, human trafficking, and cyberattacks on port systems. Ports are nodal points for every intermodal logistical supply chain (Robinson 2002), and therefore are crucial elements in securing the maritime transport system and the supply chains, as indicated also by several policies and measures undertaken by international and regional organizations and countries. Ports are vital nodes in the global supply chain, handling the movement of goods and resources that are critical for economic stability. Ensuring their security is crucial to maintaining uninterrupted trade flows, national defense, and the safety of maritime stakeholders.

As defined by Ng and Gujar (2008), port security includes all security and counter-terrorism activities that fall within the port's domain, including the protection of port facilities and the coordination of security activities when ship and port interact Ng and Gujar (2008). The scope of port security extends beyond the physical protection of infrastructure. It also encompasses the regulation of access to ports, the security of vessels docked or anchored nearby, the monitoring of cargo and personnel movement, and the use of technology to detect and respond to threats. Compliance with international frameworks, such as the International Ship and Port Facility Security (ISPS) Code, is critical to achieving global port security standards. The ISPS Code, developed by the International Maritime Organization (IMO) (IMO, 2002a), sets guidelines for governments, port authorities, and shipping companies to collaborate on maintaining port security by implementing risk assessments and preventive measures.

Port security is an aspect of maritime security that is very essential in facilitating safe and secure maritime transport. Port security

measures are employed to safeguard seaports from terrorism and other criminal activities (Marine Insight, 2010) and should be structured to provide effective and efficient landside operations, patrols of the harbors, anchorages, and waterways of ports (U.S Department of Transportation, 2017). In today's interconnected world, ports have also become targets for cyber threats, which can disrupt digital systems that control shipping, logistics, and port operations. As ports continue to modernize and integrate more digital solutions, cybersecurity has become an integral aspect of port security. Moreover, with ports playing a pivotal role in the economy, their security is not only a national issue but also a global concern. The concept of port security, therefore, hinges on coordinated efforts between national agencies, international organizations, and private sector actors to protect maritime assets and ensure the safety and efficiency of global trade.

Safeguarding

According to Abubakar (2019), safeguarding refers to the proactive measures and processes put in place to protect valuable assets, people, and systems from harm, loss, or exploitation. In a broader sense, safeguarding involves creating a secure environment where risks are minimized, and vulnerabilities are addressed before they can be exploited (Abubakar, 2019). It encompasses physical protection, regulatory frameworks, risk management strategies, and the implementation of policies aimed at ensuring safety and resilience.

At its core, safeguarding is about prevention and preparedness. This includes identifying potential threats and vulnerabilities, assessing the risks they pose, and establishing safeguards to mitigate or eliminate these risks. Whether applied to infrastructure, data, or individuals, safeguarding efforts typically involve monitoring, surveillance, access control, and contingency planning to ensure a prompt response in the event of a threat (Ayotebi, 2022). The goal is not only to prevent harm but to enable systems, organizations, and individuals to operate safely and securely without fear of disruption.

In the context of critical infrastructure, such as ports, safeguarding becomes even more critical due to the potential for large-scale economic and social consequences if security measures fail. Safeguarding maritime infrastructure, for example, involves securing port facilities, cargo, personnel, and data from threats like piracy, terrorism, theft, and cyberattacks. It also requires compliance with national and international standards to ensure consistent protection across all levels of the supply chain (Ayotebi, 2022). Effective safeguarding measures also hinge on collaboration. In complex environments like ports, where multiple stakeholders are involved from government agencies and private operators to international shipping companies coordinated efforts are essential. This cooperation ensures that risks are anticipated and mitigated comprehensively, ultimately fostering a culture of resilience and protection across the entire system.

Maritime Infrastructure

Maritime infrastructure refers to the physical and organizational structures that support the operations and services related to maritime activities, including the transportation of goods and people by sea. This infrastructure plays a critical role in global trade, economic development, and the connectivity of nations. It includes key assets such as seaports, shipping lanes, docks, terminals, shipyards, navigation aids, and the vessels themselves. Additionally, it involves the systems, logistics, and technologies that facilitate the smooth and efficient movement of maritime commerce.

The European Union, for instance, defines a critical infrastructure as "an asset, system, or part thereof […], which is essential for the maintenance of vital societal functions, health, safety, security, economic or well-being of people, and the disruption or destruction of which would have a significant impact […], as result of the failure to maintain those functions" (Kristof, 2018).

Seaports, as a core component of maritime infrastructure, act as the entry and exit points for goods transported by sea, serving as hubs for importing and exporting goods, refueling, maintenance, and trade-related services. These ports are often interconnected with other forms of transportation, such as railways, highways, and airports, forming part of a larger global logistics chain. This interconnectedness makes maritime infrastructure a critical backbone of international commerce, with significant economic implications for countries that rely heavily on sea trade. The five types of maritime infrastructure are often included in the discussion. First, shipping: Often considered as

part of the transport sector, this infrastructure includes port facilities, the installations used for transport, such as LNG terminals, but also the more invisible shipping lanes, traffic separation schemes, lighthouses, and navigational zones required for maritime safety Kimberley (Peters, 2019). Also ships, their construction and maintenance can be included in this type. Second, energy: This comprises of fixed installations at sea, such as oil and gas platforms, windfarms and (planned) energy islands. It also includes the infrastructures through which energy flows to the land, such as underwater pipelines and electricity cables and their connecting points on shore. Since many energy resources, in particular fossil fuels are transported by ships there is a direct connection to the transport sector. Third, communication, that is the optic fibre cables laid on the ocean floor through which digital data flows and on which the internet is based, as well as the landing stations through which they connect to their terrestrial counterparts. Up to 90 percent of transcontinental data is transiting through cables, and countries without terrestrial connections, such as islands, are fully dependent on them (Christian, B. et al., 2022). Fourth, fishing can be seen as part of a 'food supply sector'. Here ports for fishing, fishing vessels, and aquaculture farms come into focus, as well as the management of fishery zones. Fishing can be a substantial industry in coastal regions or for small island states, often crucial in food security, and can hence likewise be seen as critical for societies. Fifth, marine biodiversity: Biodiversity, ecosystems, and 'nature' are not necessarily considered to be part of a separate sector in critical infrastructure protection strategies (USAID, 2016). (Ashley, 2012), Given that for many countries marine ecosystems are vital for the economy and the population (Connor, 2018), marine biodiversity can be included in an encompassing outline of critical maritime infrastructure. This dimension is moreover gaining in importance, given the heightened awareness of the importance of coastal areas and the seabed as a carbon sink and its potential for carbon storage, which are vital in climate change mitigation and the reduction of carbon emissions (Martin S. et al., 2020). If and how these five types of infrastructures are included in definitions of maritime infrastructure or potentially others (David, 2023), highly differ across countries and regions. In particular, in early debates on critical infrastructure protection, the focus has been on maritime transport and energy, especially ports. The two latter types, fishing and marine biodiversity, are less regularly included in the debate and many industrial states will consider these as marginal and prefer treating them with different policies.

Beyond the physical structures, maritime infrastructure also includes the digital and regulatory frameworks that ensure the safe and efficient functioning of maritime activities. The use of advanced technologies such as GPS navigation, port management software, automated cranes, and cybersecurity systems has become integral to modern maritime infrastructure. These technologies help enhance the efficiency of port operations and provide better safety and security measures to protect against threats like piracy, smuggling, and cyberattacks. The integrity of maritime infrastructure is vital to the functioning of the global economy, particularly for nations like Nigeria, where a significant portion of economic activity depends on maritime trade. This infrastructure is not only essential for trade but also for national security, as it helps protect a country's maritime borders and resources. As global trade continues to expand, the need to invest in and safeguard maritime infrastructure from physical and digital threats becomes more critical for ensuring the stability and growth of economies reliant on sea-based activities.

Theoretical Framework

Systems Theory

systems theory was developed in the 1950s against the backdrop of a need to have a set of systematical theoretical constructs to discuss the empirical world (Boulding, 1956; von Bertalanffy, 1951). "General systems theory is the skeleton of science in the sense that it aims to provide a framework or structure of systems on which to hang the flesh and blood of particular disciplines and particular subject matters in an orderly and coherent corpus of knowledge" (Boulding, 1956:208). Systems theory aims to explicate dynamic relationships and interdependence between components of the system and the organization–environment relationships. A system is established based on the structure and patterns of the relationships emerging from interactions among components. As a result of these emergent patterns and relationships, each system is different from another. In other words, unlike biological systems, components of social organizations have their wills and intended purposes (Boulding, 1956:315).

According to systems theory, components of each system are structured in a hierarchical ordering, and components are interdependent with one another in the system to the extent that one component cannot function without the support of other components. Components of a system can be tightly coupled, where the components are closely interdependent, or loosely coupled, where the smaller subsets of tightly connected components are loosely connected to one another. At the organizational level, the organizations and other organizations in the environment are also interdependent on one another. Underlying this interdependence are the permeable boundaries, both within and among organizations. Invariably, social organizations have to maintain permeable boundaries of a certain degree in order to receive materials or export products to survive.

Systems theory provides a valuable lens for understanding port security and maritime infrastructure by highlighting the interconnected nature of various components and the dynamic interactions within a complex system (Von Bertalanffy, 1951). In the context of port security, systems theory emphasizes that a port is not an isolated entity; rather, it is part of a broader network comprising interrelated subsystems such as physical infrastructure, regulatory frameworks, technology, human resources, and environmental conditions. Each of these subsystems influences, and is influenced by, the others, making port security a multifaceted challenge that requires a comprehensive approach.

Ports function as complex systems where various subsystems such as cargo handling, customs inspections, logistics, and surveillance work together to ensure the smooth operation and safety of maritime activities (Von Bertalanffy, 1951). For instance, when cargo arrives, it passes through multiple stages, including unloading, customs clearance, and transportation. Any security issue at one stage can disrupt the entire process. A breach in customs inspection, for example, can allow illegal goods to enter, threatening not only port security but also national safety. Systems theory underscores the importance of maintaining seamless coordination across all components of the port system to prevent disruptions and minimize vulnerabilities.

Moreover, systems theory emphasizes the interdependencies between stakeholders, including government agencies, private sector operators, international shipping companies, and regulatory bodies. Effective port security requires the collaboration of these stakeholders to manage risks and respond to threats in a coordinated manner (Boulding 1956). A failure by one stakeholder, such as weak cybersecurity measures by a shipping company, can impact the entire system's security. The theory thus supports the need for integrated security policies and information-sharing protocols that ensure all parties are aligned in safeguarding the port.

In applying systems theory to port security, a holistic risk management approach is crucial. Instead of addressing individual threats in isolation, systems theory encourages consideration of how different risks interact within the system. For example, a rise in cyber threats could indirectly impact physical security if port management systems are compromised. By viewing the port as a system with interconnected components, security planners can develop strategies that account for multiple risks, thereby reinforcing the entire system's strength rather than just isolated parts.

Overview of the Importance of Port Security for National and Economic Security

Port security is crucial for both national and economic security, as ports serve as critical gateways for the movement of goods, people, and resources. Ports facilitate the import and export of essential commodities, including food, energy supplies, industrial products, and raw materials that sustain the economy. Ensuring the security of these vital nodes helps protect national interests by preventing disruptions to the supply chain, which could have serious economic consequences. Furthermore, as ports are often the first point of entry into a country, robust port security measures are essential for preventing the smuggling of illegal goods, weapons, and even potential threats to national security, such as terrorism. The maritime sector of Nigeria's economy holds great potential for the growth of the country's economic development (Lloyd, Onyeabor, Nwafor, Alozie, Nwafor, Mahakweabba & Adibe, 2020). The sector boasts of numerous resources which cover both aquatic and marine spaces, including oceans, seas, coasts, lakes, rivers and underground waters. It is on this basis that the maritime sector is being repositioned by the Federal Government of Nigeria to take a lead as

one of the viable alternate sources of revenue for growing the economy (Salau & Falaju, 2018). Considering the enormous budgetary and legal provisions made over the years to secure and sustain the oil sector, for the potentials of the Nigerian maritime resources to be fully harnessed, there is also the need for the maritime sector to be secured and sustained. Abubakar (2019) noted that the hallmarks of a blue economy would not only establish pathways for the diversification of the Nigerian economy, as widely anticipated, but could, as well, help in addressing many socio-economic challenges in the country. Abubakar stated that achieving these, however, is contingent upon the establishment of and a commitment to a comprehensive legal and institutional framework, as well as the use of important enablers for sustainability like ecosystem-based management, Marine Spatial Planning, and innovative financing mechanisms. It is in line with said point that the Federal Ministry of Transport and the Nigeria Maritime Administration and Safety Agency (NIMASA) have been given the responsibility to coordinate and administer the maritime sector of the economy to ensure maximal benefits (Anozie, Umahi, Onuoha, Nwafor & Alozie, 2019).

Over the years, the maritime industry has been a harbinger of fortunes and an enabler of capacities for development and growth. The little beginnings of the maritime industry in the hands of the imperial and exploitative colonial administration have turned out to become a veritable source of massive revenue, industrial growth, manpower development, and the door for Nigeria to benefit from global trade and bilateral relationships (Jamoh, 2022). During the post-independence era, that is, to say, when Nigeria operated the regional system of government, agriculture was the main source of foreign earnings for the Country. Agricultural produce such as cocoa, groundnut, and palm oil were exported through maritime transportation. This implies that both oil and agriculture, being the major sectors of the Nigerian economy, could not have thrived without the maritime sector. The Nigerian maritime sector therefore should create a link between maritime transportation and economic development as the source provider of logistics (Lloyd, et al, 2020). Nigeria's total annual freight cost which is estimated at between $5 billion and $6 billion annually, places shipping at the heart of the Country's economic growth (Atoyebi, 2022). Economically, ports are significant drivers of growth, generating revenue through trade, taxes, and employment. In countries with large maritime industries, such as Nigeria, ports play a pivotal role in supporting industries like oil and gas, manufacturing, and agriculture. A breach in port security, such as a major theft or act of terrorism, can cause considerable financial losses, disrupt trade, and diminish investor confidence. Additionally, non-compliance with international port security standards can lead to sanctions, higher insurance premiums, and loss of trade opportunities, as international shipping companies may avoid ports perceived as unsafe or unreliable.

According to the United Nations Conference on Trade and Development, the value of international maritime trade is expected to increase by around 3.4% after a five-year period which will end in 2024. This growth will primarily be driven by especially rapid growth rates in containerized and dry bulk cargoes. Their compound annual growth rates over this same five-year period have been projected to be around 4.5% and 3.9% respectively. As might be expected of such a powerful and thriving industry, the maritime industry is a key driver of economic growth. Seaports and activities that take place within them add significant economic value to the countries in which they are located. These activities include the operation of maritime transport agencies, maritime and coastal water transport, storage of goods in seaports, and several other activities that support maritime transport. Some ships might even have to pay rent which is charged for the use of the ports as part of transit shipping routes; this rent also comprises part of the economic gain brought about by the maritime industry. The maritime domain, therefore, remains the dominant medium for global shipping and commerce and it holds the key for unlocking the streams of opportunities in the industry in such areas as renewable energy, fisheries, maritime transport, waste management, tourism, and marine biodiversity (Amechi in NIMASA, 2019). The nation's maritime industry employs thousands of Nigerians formally and informally. The industry is adjudged as next to oil in terms of revenue generation for the economy. Its annual revenue as of last year (2021) totaled N4trillion with the Nigeria Customs Service (NCS) leading the way with N2.3trillion (Ugwoke, 2022). Maritime experts believe that if the potential of the sector is harnessed, the industry could generate as much as N7 trillion for the national economy annually.

Nationally, port security is directly linked to the safety of maritime borders and the protection of a country's territorial waters. Ports are often targeted for illicit activities, including human trafficking, drug smuggling, and illegal fishing. Without proper security measures, these activities can undermine national law enforcement efforts and compromise public safety. Moreover, the strategic location of many ports means they could also be targets for geopolitical conflicts or terrorist attacks. Thus, securing port infrastructure not only protects economic interests but also strengthens a nation's ability to defend its borders and maintain sovereignty. The main transportation mode of most of the imports and exports across the world is through the sea and therefore maritime security is vital to all states. The security of the littorals is as important as any other dimension of national security and raises several issues and challenges for states. According to Payi (2015), maritime export plays a crucial role in Nigeria's economic development. Costs of insecurity in Nigeria could be in terms of direct loss of income from weakened hydrocarbon exports and fisheries.

Maritime insecurity negatively affects the cost of trade. As regions are increasingly threatened by piracy, trading channels are altered, protection premiums multiply, cargo shippers use alternative ports to pick up and deliver their goods (Bowden et al, 2010). The cost of piracy, which in 2020 was pegged at over $1.1b (Sackey, Lomotey, Sackey, Lee, Teye, Quarcoo & Bansah, 2022), is so enormous that such money could have been put into several other developmental uses. To confirm the significance of imports and the effect it may have on Nigeria, the Senior Special Assistant to President Goodluck Jonathan on Maritime Services Olugbenga Oyewole was quoted in the online Daily Independent Newspaper of February 2013, as saying that, 'should Nigeria be rated number one insecure nation in the world again, it won't be too long when they will take up the insurance again and Nigerians will pay more'. Nigerians pay not less than $15 million daily for goods that come into the country, which will ultimately impact market prices because of some obnoxious tag that our waters are not safe (Obi, 2013). This is one big negative impact of maritime security on the economy of the nation and calls for viable measures towards reversal.

The Nigerian Maritime Administration and Safety Agency (NIMASA) established the Deep Blue Project (DBP) for maritime security to combat piracy problems in the GoG region. Its operation focuses on the Nigerian anchorages forming part of the DBP jurisdiction. The setup also coordinates inter-agency information sharing between GoG nations regarding maritime security threats and concerns. The takeoff of the project has resulted in successes in the reduction of piracy and armed robbery in Nigerian waters. A look at the International Maritime Bureau (IMB) trend analysis for 2021 suggests a shift of illegal activities from the Nigerian waters since the inception of the Deep Blue project.

In an increasingly globalized world, the significance of port security extends beyond individual countries. The interconnected nature of global trade means that a disruption in one major port can have a ripple effect across international supply chains, leading to shortages, price hikes, and delays worldwide. Therefore, ensuring robust port security is not only a matter of national importance but also a global priority, as it contributes to the stability and efficiency of international commerce.

Nigeria's Maritime Landscape

Nigeria's maritime landscape is a vital component of the country's economy, serving as the main conduit for international trade and economic activities. Nigeria, located on latitude 9.0820° N and longitude 8.6753° E, is a country in West Africa along the Atlantic Ocean's Gulf of Guinea. Located at the extreme inner corner of the Gulf of Guinea on the west coast of Africa, the country occupies an area of 923,768 sq. km (356,669 sq mi), extending 1,127 km (700 mi) E-W and 1,046 km (650 mi) N-S (Folami, 2017). Its land borders are with Benin to the west, Cameroon and Chad to the east, and Niger to the north. With a population of about 216 million people, Nigeria is the most populous country in Africa, and the 6th in the world (United Nations Department of Economic and Social Affairs in Olatunji & Adejoro, 2022). It has a maritime area of 46,500 km^2 and an exclusive economic zone of 210,900 km^2 (Folami, 2017). Nigeria is advantageously placed to benefit maximally from maritime trade along the coast of West Africa and within the Gulf of Guinea region (Lloyd, Onyeabor, Nwafor, Alozie, Nwafor, Mahakweabba & Adibe, 2020; Ateme, 2020). As shown in Fig. 1, the coastal states in Nigeria are Akwa-Ibom, Bayelsa, Cross-Rivers, Delta, Edo, Lagos, Ogun, Ondo and Rivers. The Niger Delta comprises nine states of Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo, and

River States (Ringim, Muhammad & Lyakurwa, 2016).



Fig. 1: (a) Position of Nigeria in Africa, (b) Map of Nigeria showing coastal area of the Niger Delta, (c) Niger Delta States

Such a geographically strategic position promises a myriad of economic benefits to the states and the country in particular, with the Niger Delta states being blessed with an abundance of natural resources.

The maritime industry in Nigeria is particularly crucial for the country's oil and gas sector, which accounts for a significant portion of the national revenue. The country is one of the largest crude oil producers in Africa, and its ports play an essential role in the export of oil and liquefied natural gas (LNG). The Nigerian ports not only facilitate the export of these energy resources but also handle the importation of refined petroleum products, machinery, and industrial equipment, which are critical for sustaining oil and gas operations. This reliance on maritime trade underscores the need for robust port infrastructure and effective security measures to protect the industry from disruptions (Badejo 2014).

Apart from oil and gas, Nigeria's maritime landscape also supports a diverse range of other economic activities. The country is a major exporter of agricultural products such as cocoa, sesame seeds, and cashew nuts, which are shipped through its ports. Additionally, the importation of consumer goods, industrial raw materials, and vehicles further highlights the importance of efficient port operations for the country's economy (Ringim, Muhammad & Lyakurwa, 2016). The ports are also integral to Nigeria's inland transportation network, connecting to major highways and railways that facilitate the distribution of goods across the nation, contributing to economic development and regional trade.

However, Nigeria's maritime landscape faces several challenges, including piracy, smuggling, illegal bunkering, and infrastructural deficits. The Gulf of Guinea has been notorious for maritime piracy, posing a significant threat to commercial shipping and oil exploration activities (Badejo 2014). Furthermore, many of the country's ports have struggled with outdated infrastructure, congestion, and inefficiencies that hinder smooth operations. Efforts to modernize port facilities and improve security have been ongoing, with initiatives such as the Deep Blue Project, which aims to combat maritime crime and enhance surveillance in Nigerian waters.

Overall, Nigeria's maritime landscape is a critical driver of the economy, with the potential to significantly boost national development if challenges can be effectively addressed. The country's strategic location, coupled with its vast natural resources, presents opportunities for Nigeria to become a leading maritime hub in Africa, provided that investments in port infrastructure, security, and regulatory reforms are sustained.

Legal and Regulatory Framework for Port Security in Nigeria

The legal and regulatory framework for port security in Nigeria is established to ensure the safety and security of the country's maritime infrastructure, in line with international standards and national legislation. The framework encompasses a range of laws, regulations, and policies aimed at addressing security challenges in the maritime sector, safeguarding ports against threats such as piracy, smuggling, and terrorism, and ensuring compliance with global maritime security protocols. It involves various government agencies, legal instruments, and international conventions that collectively contribute to enhancing port security. The sea is a crucial medium through which human trade and commerce is conducted; it is also a means of voyage, a valuable source for mineral extraction and power generation and an essential source of the blue economy (Arif, A. 2017). It is of vital importance for Nigeria, as a coastal state located strategically on the west coast of Africa in the Gulf of Guinea, to have an effective maritime legal regime for the regulation and protection of sea activities. The legal framework for maritime protection in Nigeria includes the Constitution (1999 Constitution of the FRN), statutes and government regulations, case law, which provides binding judicial precedents, and international maritime conventions.

The 1999 Constitution of the Federal Republic of Nigeria (as amended) (the 'Constitution') vests ownership of minerals, mineral oils, and natural gas in the government of the federation. This extends beyond resources located in the land territory to those located in the territorial sea, including the Exclusive Economic Zone of Nigeria (Ibid, s 44 (3). The Constitution also charges the state to improve and protect the air, land, water, forest and wildlife of Nigeria (Ibid, s 20). By this provision, it tasks the Nigerian government to make the environment safe and further prosecute any persons who pollute the environment through its activities, especially the oil and gas companies (Samuel C. D. et al., 2019). The Constitution confers jurisdiction on the Federal High Court to the exclusion of any other court in civil causes and matters relating to any admiralty jurisdiction, including shipping and navigation on the River Niger or River Benue and their affluents; on such other inland waterway as may be designated by any enactment to be an international waterway; all federal ports (including the constitution and powers of the ports authorities for Federal ports); and carriage by sea (The Constitution).

The Merchant Shipping Act 2007 generally regulates merchant shipping issues and other labour-related matters (Samuel C. D. et al., 2019). The Act established an Agency for Maritime Safety Administration, responsible for maritime safety, administration and security (Merchant Shipping Act, 2007 s 2). All ships operating commercially in or from the waters of Nigeria are required to obtain a certificate of license under the Act (Ibid s 5 (1)). The Minister **(**The 'Minister' Act**)** may by notice exempt generally or specifically from registration under this Act, a licensed Nigeria ship or a class of Nigerian ship when operating outside the waters of Nigeria (The Merchant Shipping Act, 2007 s 5 (2).

The Merchant Shipping Act is the principal legislation governing collision, including liabilities in collision cases in Nigeria (The Merchant Shipping Act, 2007, ss 338–344). Section 340 of the Act provides for rules as to the division of loss as follows:

1. Where, by the fault of two or more ships, damage or loss is caused to one or more of them, or to their cargo or freight, or to any property on board, the liability to make good the damage or loss shall be in proportion to the degree in which each ship was at fault

    a. if, having regard to all the circumstances of the case, it is not possible to establish different degrees of fault, the liability shall be apportioned equally;

b. nothing in this section shall operate so as to render any ship liable for any loss or damage to which her fault has not contributed; and

c. nothing in this section shall affect the liability of any person under a contract of carriage, or any contract, or shall be construed as imposing any liability upon any person from which he is exempted by any contract or by any provision of law, or as affecting the right of any person to limit his liability in the manner provided by law.

2. This section shall apply to Nigerian Government ships as it applies in the case of other ships.'

The Merchant Shipping Act further provides for limitation of actions in Nigeria for maritime claims or lien against a ship or its owners in respect of any damage or loss. Proceedings in respect of such damage or loss are to be commenced within two years from the date when the damage or loss or injury was caused or the salvage services were rendered (The Merchant Shipping Act, 2007 s 5).

At the core of Nigeria's port security framework is the International Ship and Port Facility Security (ISPS) Code, an international standard developed by the International Maritime Organization (IMO) to enhance maritime security worldwide. Nigeria adopted the ISPS Code in 2004, making it mandatory for all port facilities to implement security measures such as access control, surveillance, risk assessments, and emergency response protocols. The Nigerian Maritime Administration and Safety Agency (NIMASA) is the designated authority responsible for the implementation and enforcement of the ISPS Code in the country. NIMASA works in conjunction with port operators, the Nigerian Ports Authority (NPA), and other security agencies to ensure compliance with the ISPS Code across all port facilities. The Nigerian Maritime Administration and Safety Agency (NIMASA) Act 2007 provides for the promotion of maritime safety and security, protection in the marine environment, shipping registration and commercial shipping, maritime labour, the establishment of the Nigerian Maritime Administration and Safety Agency and related matters. Its objective is to develop indigenous commercial shipping in international and shipping trade (The Merchant Shipping Act, 2007).

The NIMASA Act applies to all ships, whether small ships or crafts that are registered in Nigeria, and to all other ships flying a foreign flag in the Exclusive Economic Zone, territorial and inland seas, inland waterways and the ports of the country (The Merchant Shipping Act, 2007). The NIMASA is given the right under the Act to make regulations with approval of the Minister with regards to dumping of ship or generated waste into the Nigerian waters (The Merchant Shipping Act, 2007).

Section 22 of the Act provides for the functions and duties of the NIMASA. These functions and duties include: administering the registration and licensing of ships; regulating and administering the certification of seafarers; pursuing the development of shipping and regulatory matters relating to merchant shipping and seafarers; establishing maritime training and safety standards; regulating the safety of shipping as regards to the construction of ships and navigation; providing directions and ensuring compliance with vessel security measures; providing search and rescue services; carrying out air and coastal surveillance; controlling and preventing marine pollution; providing the direction on qualification, certification, employment and welfare of maritime labour; establishing the procedure for the implementation of conventions – the International Maritime Organisation, the International Maritime Labour Organisation and other international conventions to which Nigeria is a party on maritime safety and security, maritime labour, commercial shipping and for the implementation of codes, resolutions and circulars arising there from among others.

Nigeria's legal and regulatory framework also aligns with international maritime conventions, such as the United Nations Convention on the Law of the Sea (UNCLOS) and the Suppression of Unlawful Acts (SUA) Against the Safety of Maritime Navigation Convention (Hodgkinson, 2013). These conventions provide guidelines for the protection of maritime domains, the

prosecution of maritime crimes, and the promotion of safe and secure shipping practices (Hodgkinson, 2013). By adhering to these conventions, Nigeria enhances its maritime security efforts and ensures that its legal framework aligns with international standards, facilitating cooperation with other nations in combating maritime threats.

Despite these regulations, challenges persist in the implementation and enforcement of port security measures due to issues such as inadequate infrastructure, corruption, and limited resources. Continuous efforts are needed to strengthen the legal and regulatory framework, improve coordination among security agencies, and ensure compliance with security protocols across all levels of port operations.

Port Security Threats and Challenges

Port security in Nigeria faces a range of threats and challenges that undermine the safety and efficiency of its maritime infrastructure. These threats not only pose risks to the economic stability and national security of the country but also affect global maritime trade, given Nigeria's strategic position along key shipping routes. Addressing these security concerns is crucial to ensuring the smooth operation of ports and protecting the country's vital maritime interests. The challenges range from criminal activities such as piracy and smuggling to infrastructure limitations and regulatory issues.

Piracy and Armed Robbery, are among the most significant threats to port security in Nigeria, particularly in the Gulf of Guinea. The region has gained notoriety as a global hotspot for maritime piracy, where criminals often target commercial vessels, oil tankers, and offshore installations. For instance, in Nigeria, the Bonga Floating Production, Storage and Offloading (FPSO) vessel has a total production capacity of 225,000 barrels of oil per day and 150 standard cubic feet of gas export per day. Since production began in 2005, Bonga alone had produced over 880 million barrels of oil. The attack in 2008 by militants on this deep sea installation which lies 120 kilometres off the coast of the country, almost grounded oil business in Nigeria, as it cut the country's oil output by a tenth and raised fears of a new campaign against deepwater installations (Tattersall, 2008). Attacks can involve hijacking ships, kidnapping crew members for ransom, and stealing cargo, especially crude oil. Piracy remains one of the most frequent threats observed in Nigeria and the Gulf of Guinea, although measures are in place to reduce it (Liwång, 2017).

Smuggling and Trafficking, including illegal trade in drugs, arms, and human trafficking, also present substantial risks to port security. Criminal networks exploit gaps in port security measures, such as inadequate cargo inspection and corruption, to move contraband through Nigeria's ports. According to International Maritime Bureau (IMB) (2022), the smuggling and trafficking-prone areas in Nigeria are Lagos/Apapa, Bayelsa, Brass, Bonny Island and Port Harcourt. IMB further reported that robbers and traffickers are often well-armed armed, violent and have attacked and hijacked/robbed ships, kidnapped crews along/far from the coast, rivers, anchorages, ports, and surrounding waters. Incidents have also been reported up to about 212nm from the coast. This illegal activity not only threatens public safety and law enforcement but also affects the integrity of trade and customs regulations. Some of them are listed as indirect and grouped under transnational organized crime and include: Money laundering, illegal deals in arms and drugs, trafficking, Illegal oil bunkering crude oil theft, human trafficking, smuggling, maritime pollution, IUU fishing, illegal dumping of toxic waste, maritime terrorism, hostage-taking and vandalism of offshore infrastructure (The Yaounde Code of Conduct, 2013).

Infrastructure Limitations, present another significant challenge. Many of Nigeria's ports suffer from outdated infrastructure, inadequate surveillance systems, and insufficient fencing and lighting, which can hinder effective security management (IMB, 2022). Congestion at port facilities, partly due to limited space and aging equipment, can also make it difficult to monitor cargo and vessel movements accurately. These limitations affect the capacity to implement comprehensive security measures, allowing criminal activities to go undetected or security incidents to escalate rapidly.

Cybersecurity Threats are becoming increasingly relevant as ports adopt digital technologies to improve operations. The use of automated systems for cargo handling, navigation, and port management introduces new vulnerabilities that cybercriminals can exploit. Cyberattacks on port infrastructure can

disrupt operations, cause data breaches, and potentially compromise safety systems (Jamoh 2022). Given the growing reliance on technology in port operations, addressing cybersecurity threats is essential to maintaining the integrity and resilience of Nigeria's maritime infrastructure.

Corruption and Regulatory Challenges, further complicate port security efforts. Corruption within customs, immigration, and port authorities can facilitate illegal activities, such as smuggling and unauthorized access to secure areas Jamoh (2022). Regulatory gaps, inconsistencies in the enforcement of security standards, and a lack of coordination among different security agencies can create vulnerabilities that criminals exploit. Strengthening the regulatory framework, improving transparency, and enhancing inter-agency cooperation are necessary steps to address these challenges (Sanni, 2022).

Together, these threats and challenges highlight the need for a comprehensive approach to port security in Nigeria, combining enhanced physical security measures, improved regulatory enforcement, investment in infrastructure, and the adoption of modern technologies. Addressing these issues is critical not only for safeguarding Nigeria's maritime interests but also for ensuring the country's continued participation in the global maritime trade network.

Conclusion and Recommendations

Port security is a critical component of Nigeria's national and economic security, as the country's ports serve as essential gateways for international trade, oil exports, and regional commerce. Ensuring the safety of these vital maritime assets is paramount for protecting the economy, maintaining stable trade operations, and safeguarding national borders. While Nigeria has made significant strides in developing a legal and regulatory framework for port security, numerous threats and challenges persist, including piracy, smuggling, outdated infrastructure, cybersecurity risks, and corruption. These issues not only pose risks to the country's maritime industry but also affect its reputation in global trade and compliance with international security standards.

Addressing these challenges requires a holistic and coordinated approach that involves all stakeholders, including government agencies, port operators, and the private sector. There is a pressing need to enhance security measures, upgrade port infrastructure, and implement stringent regulatory enforcement to effectively combat the evolving threats. Additionally, leveraging technology and international partnerships can help to reinforce port security, reduce vulnerabilities, and build resilience within Nigeria's maritime landscape. Without a concerted effort to address these concerns, the country's ports may continue to face security challenges that could disrupt trade, endanger lives, and weaken the national economy. The following are specific recommendations.

Enhance Inter-Agency Collaboration and Training: Strengthening collaboration among the various security agencies, including NIMASA, the Nigerian Ports Authority, the Navy, Customs, and the Marine Police, is essential to improving port security. Regular joint training exercises, intelligence sharing, and coordinated response protocols should be implemented to ensure a unified approach to security threats. Enhanced cooperation with international partners can also support capacity-building efforts and provide access to best practices in maritime security.

Invest in Modernizing Port Infrastructure: Upgrading port facilities is crucial to addressing infrastructural limitations that hinder effective security management. Investments should focus on modernizing cargo inspection systems, surveillance technologies, fencing, and access controls to meet international standards. Developing automated and digital systems for port operations can also help reduce congestion and increase monitoring capabilities, but must be accompanied by robust cybersecurity measures.

Strengthen Anti-Corruption Measures: Corruption within the maritime sector undermines security efforts and facilitates illegal activities. Establishing stringent anti-corruption protocols, conducting regular audits, and holding officials accountable can help reduce corrupt practices. A transparent system for reporting and investigating incidents of corruption should also be put in place to restore confidence in port security processes.

Adopt Advanced Technology for Cybersecurity and Surveillance: Given the increasing reliance on digital systems, adopting advanced cybersecurity practices is vital. Ports should implement comprehensive cyber defense strategies, including regular vulnerability

assessments, data encryption, and real-time monitoring of networks. Additionally, the use of drones, artificial intelligence, and automated identification systems (AIS) for surveillance can enhance the detection and prevention of security threats.

Improve Legal and Regulatory Frameworks: There is a need to continuously review and update the legal and regulatory frameworks governing port security to address emerging threats and incorporate new international standards. Strengthening penalties for maritime crimes, streamlining the enforcement of security regulations, and closing regulatory gaps can improve compliance and deter criminal activities.

Promote Community Engagement and Awareness Programs: Local communities around port areas can play a role in enhancing security through information sharing and reporting suspicious activities. Community engagement initiatives and awareness programs should be developed to educate stakeholders about the importance of port security and encourage their participation in securing maritime infrastructure.

By implementing these recommendations, Nigeria can enhance the security of its ports, protect critical economic interests, and establish a safer and more resilient maritime environment.

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