Maritime transport and port services in Algeria: Assessment and development opportunities within the framework of the blue economy

Rachid ANNANE[*]
National Center of Research and developement of Fisheries and Aquaculture - Algeria
r.annane@cnrdpa.dz

Mouloud HACHEMANE
Faculty of Economics and Management sciences
University Alger3 - Algeria
Hachemane@hotmail.com

Received: 14/07/2024 Accepted: 27/09/2024 Published: 15/12/2024

Abstract:

The maritime transport sector in Algeria is evolving with investments aimed at modernizing fleets and port infrastructure. Despite this, only 3% of the national fleet is dedicated to imports. In 2021, trade in transport services reached $9.7 billion, mainly thanks to international trade which totaled $72.7 billion. Algerian ports welcome nearly 10,000 ships per year, transporting more than 20 million tons of goods, excluding hydrocarbons. However, they only capture 10% of Mediterranean traffic, thus limiting the potential for economic development. The maximum contribution of port services to GDP is 0.2%. Despite modernization efforts, challenges persist, particularly in terms of inadequate infrastructure and insufficient logistics coordination. Nevertheless, this sector offers development opportunities within the framework of the blue economy. To strengthen the contribution to national growth, additional investments in modernization and training of personnel, as well as better coordination between actors, are necessary.

Keywords: Maritime transport; Ports; Development; Services; Logistics.

Jel Classification Codes:N70, O10.

[*] Corresponding author.

1. Introduction:

Algeria's geographical advantage as a coastal nation along the Mediterranean Sea offers direct access to global maritime trade routes. However, despite this strategic position, the country's shipping sector and port services grapple with a range of challenges that impede their optimal functioning. Traditionally pivotal for international trade, Algerian ports face issues such as congestion, outdated infrastructure, and operational inefficiencies, posing obstacles to their competitiveness on the global stage.

This comprehensive study delves into the current status of Algeria's maritime sector and identifies key opportunities for growth, with a keen focus on leveraging the principles of the blue economy. Embracing ocean-related economic activities, the blue economy concept presents a vast reservoir of untapped potential for sustainable job creation and economic development in Algeria. By integrating sustainable practices and innovative technologies into maritime operations, Algeria can enhance its environmental stewardship while fostering economic prosperity.

Furthermore, the modernization of port infrastructure and the adoption of efficient logistics systems are crucial steps in enhancing Algeria's competitiveness in the maritime sector. Investing in state-of-the-art equipment, implementing streamlined processes, and enhancing connectivity within the transport network can significantly reduce transit times and costs, attracting more international shipping traffic and boosting trade volumes.

Moreover, the development of maritime skills and expertise through targeted training programs and capacity-building initiatives is essential for ensuring a skilled workforce capable of meeting the demands of a rapidly evolving industry. Collaboration between government entities, private sector stakeholders, and international partners is also vital in creating a conducive environment for investment and innovation in the maritime sector.

The overarching objective of this study is to unlock the latent potential of Algerian ports and catalyze the nation's economic growth trajectory. By identifying and addressing key challenges while capitalizing on emerging opportunities, Algeria can position itself as a dynamic player in the global maritime arena, fostering economic resilience and prosperity.

2. Methodology:

The methodology adopted for this report on maritime transport in Algeria was comprehensive. We began by collecting statistical data from relevant institutions, allowing us to obtain a precise and up-to-date view of the sector's situation. Simultaneously, we conducted an in-depth bibliographic search to explore previous work on the subject, providing an enriching historical and comparative perspective.Our approach then extended to a prospective analysis, evaluating current trends and anticipating future developments in maritime transport in

Algeria. This involved examining the challenges and opportunities faced by the sector, with a particular focus on economic and environmental aspects.

An essential aspect of our methodology was the comparison with the practices and performance of developed countries in the maritime domain. This comparative approach enabled us to identify good practices and effective strategies used elsewhere, as well as extract valuable lessons to guide recommendations for the development of maritime transport in Algeria.

Concurrently, we developed a diagnosis of the current state of the sector, examining relevant macroeconomic indicators such as trade volume, utilization of port infrastructure, and goods flows. This finding provided us with a solid foundation for assessing the performance and specific challenges confronting maritime transport in Algeria.Finally, within the context of the blue economy, we explored the sustainable development opportunities offered by the maritimesector, this includes promoting environmentally friendly practices and creating new jobs.

3. Maritime transport in Algeria:

Algeria's maritime transport sector, encompassing commercial and passenger transport, is presently undergoing modernization and expansion. Investment plans include acquiring new vessels for commercial transport, constructing anti-pollution vessels and mooring boats, and opening new shipping lines. National shipping and passenger transport firms are diversifying their activities to meet established objectives. This sector is pivotal for Algeria's foreign trade, constituting 95% of its international trade.

However, it's worth noting that Algeria heavily relies on foreign ships for importing essential goods and raw materials. The national fleet accounts for only a small portion, approximately 3%, of Algeria's maritime freight market, as estimated. Over the past decade, the Algerian maritime transport of goods market has averaged around $12 billion, with foreign shipowners dominating 97% of it.(Fodil, Youcef, & Nacer, 2021).

Trade in transport services in Algeria reached $9.7 billion in 2021, with the national flag fleet currently numbering 114 vessels (including charter vessels). Total international trade stands at $72.7 billion, with maritime freight transport (CNAN North and CNAN MED) employing 1,434 people (Conférence des Nations Unies sur le commerce et le développement (CNUSED), 2021).

The maritime transport fleet in Algeria is mainly composed of three sectors:

- The fleet of CNAN Med and CNAN NORD which has 14 vessels, currently in a very difficult situation[2]
- The Algeria Ferries fleet consists of four ferries and two water buses, with a combined capacity of 6,112 passengers and 1,650 vehicles. It employs over 1,231 crew members and managers.

[2]Ministry of Transport

- The Hyproc[3] Fleet, operated by the HYPROC Shipping Company, specializes in maritime transportation of hydrocarbons and chemicals. It comprises 14 vessels, including 6 for LPG transport, 5 for LNG transport, 2 for Bitumen, and 1 for refined petroleum products. This sector employs over 1,729 executives and crew members.

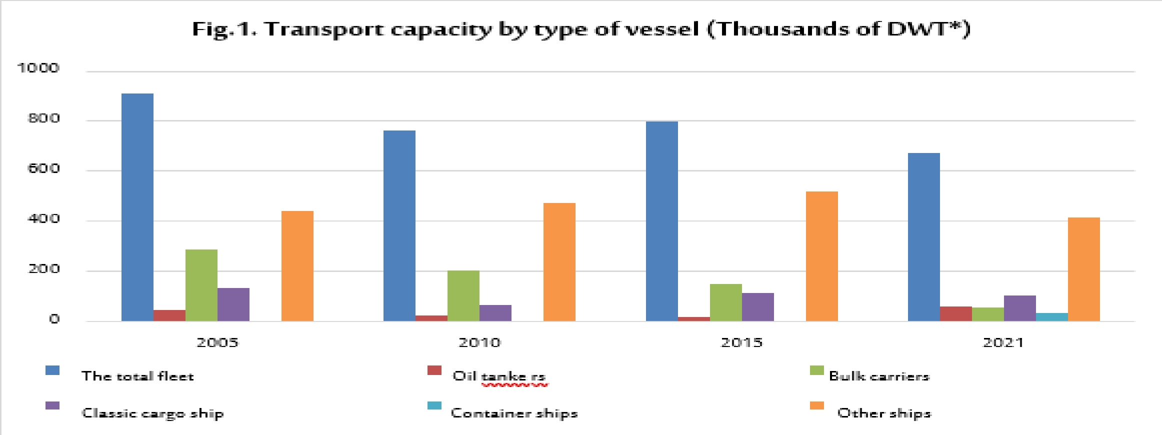
The maritime transport sector is undoubtedly crucial for the Algerian economy. However, achieving greater independence in this area remains a significant challenge. Algerian maritime freight companies heavily rely on chartering foreign vessels to meet their contractual obligations, due to the absence of a sufficient and efficient domestic maritime fleet. Consequently, foreign shipowners are often tasked with transporting goods, allowing Algeria to delegate the management of maritime sales contracts to foreign suppliers or importers. While this practice facilitates the importation of finished and semi-finished products, it also favors the foreign maritime industry and its stakeholders, including shipowners, insurers, and cargo handlers, who are paid in hard currency by Algeria(Fodil, Youcef, & Nacer, 2021).

The situation of passenger maritime transport in Algeria is showing signs of improvement, notably with the introduction of the Badji Mokhtar III ship in 2021. According to Algeria Ferries statistics, the turnover generated by this sector reached $55 million in 2018. However, with the anticipated recovery of maritime traffic and the rise in vehicle imports, this figure is projected to double by the end of 2023. This progress underscores the growing significance of maritime passenger transport for the Algerian economy,necessitating continued investment to provide high-quality services and enhance regional competitiveness. By enhancing safety, comfort, and punctuality in maritime connections, Algeria could also attract more tourists and stimulate growth in its tourism sector.

In general, the maritime transport sector in Algeria represented 0.5% of GDP in 2019. However, this figure has significantly declined since 2020, following the health crisis, currently estimated at less than 0.2%. Nonetheless, it provides around 4,500 direct jobs. The cost of maritime freight represents an average rate of 11.4% of the total value of imports, according to the UNCTAD database in 2015. Considering the dependency on imported shipping services, the trade balance for this activity results in a deficit of $8 billion per year.

Analysis of the evolution of maritime transport capacity indicates a notable decrease in total volume capacity. The following graph illustrates this variation during the period 2005-2021:

[3] Algerian marine transport company



* Deadweight tons: unit of measurement of maritime freight transport capacity.

Source:developed by the author using data from CNUCED site[4]

Total maritime transport capacity witnessed a decrease of 26.24%. This decline encompasses an 81% reduction in bulk carrier capacity, while the oil tanker category experienced a 32% improvement. Despite slight progress in maritime transport of hydrocarbons and passengers, the overall sub-sector has faced a significant downturn, largely attributed to the challenging situation in goods transportation since the start of 2023. Nonetheless, given its potential to contribute to economic growth and offset foreign exchange losses, it is crucial to develop it as a strategic activity.

4. Port services in Algeria:

The SERPORT group plays a crucial role in the management and development of Algeria's ports. As a public company, it is responsible for overseeing various aspects of port operations, including infrastructure maintenance, vessel handling, cargo management, and implementing security measures. The group's activities encompass a wide range of services aimed at facilitating maritime trade and ensuring the efficient functioning of port facilities. In addition to this, Algeria's commercial ports offer a diverse

range of services to accommodate the needs of different types of vessels and cargo. These services include berthing facilities for ships of varying sizes, cargo handling and storage capabilities, transit services for goods in transit, ship servicing and repairs, as well as administrative support for customs clearance and documentation. Additionally, the ports managed by the SERPORT group also contribute to maritime safety and security through their surveillance and control measures[5].

While the precise contribution of the port services sector to Algeria's GDP and employment figures may be challenging to ascertain accurately, data from reliable sources such as the Algerian Ministry of Transport and the official SERPORT website provide valuable insights. The sector comprises a network of 10 commercial ports, 45 fishing and recreational ports, and 7 maritime stations, collectively offering approximately 215 berths for vessels.

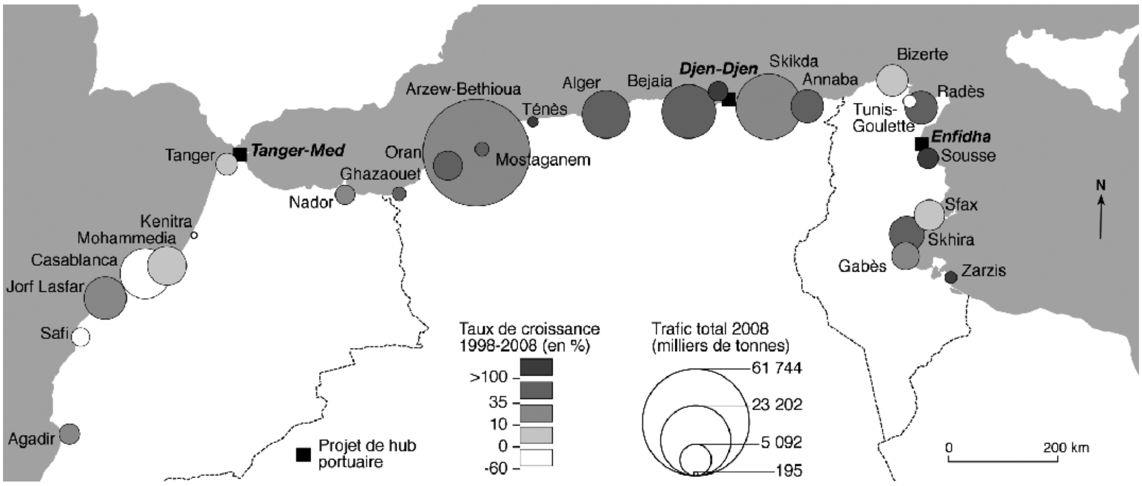
[4] https://unctadstat.unctad.org/countryprofile/maritimeprofile/fr-FR/012/index.html

[5] Ministry of Transport and the official SERPORT website https://g-serport.dz/

Moreover, the public port services sector in Algeria is managed through 11 SPA subsidiaries under the SERPORT group, which oversee various aspects of port operations and logistics. Furthermore, the economic service and logistics subsidiaries associated with SERPORT directly employ around 16,000 workers, highlighting the significant employment opportunities generated by the port services sector[6].

Overall, the involvement of more than 50 public and private companies in port services underscores the sector's importance in facilitating maritime trade, supporting economic activities, and contributing to employment generation in Algeria's coastal regions.

Fig.2. Mapping of Algerian ports



Source: (Setti, Mohamed-Cherif, & Ducruet, 2011)

Algerian ports play a vital role in facilitating trade and commerce, with an average annual traffic of 10,000 ships. These vessels are responsible for transporting over 20 million tons of diverse goods, excluding hydrocarbons, reflecting the nation's active engagement in international trade. This substantial volume translates to approximately 2 million TEU[7], showcasing the significant scale of maritime activities handled by Algerian ports.

Furthermore, the infrastructure of Algerian ports is robust, featuring 4 container terminals with a combined capacity exceeding 6 million TEU. This infrastructure supports the efficient handling and processing of goods, contributing to the smooth flow of trade operations. Additionally, Algerian ports serve as key hubs for hydrocarbon exports, with an annual volume exceeding 75 million tons, highlighting the critical role they play in the nation's energy sector and economic landscape.

Despite facing challenges such as those posed by the COVID-19 pandemic, Algerian ports remain resilient and adaptive. The turnover of the port services group (SERPORT) reflects this resilience, reaching 62 billion DA in

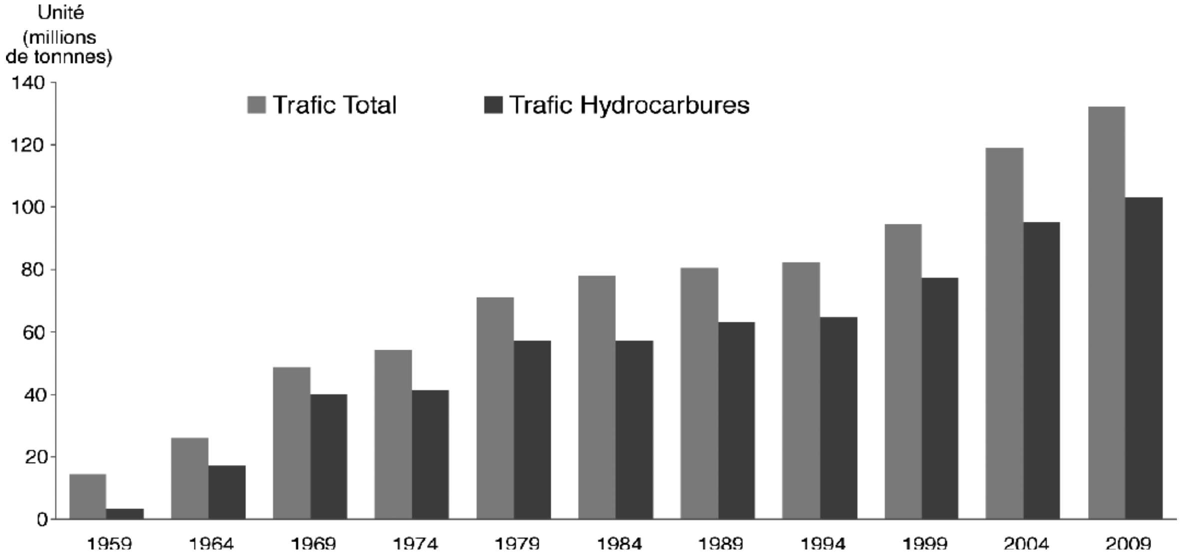
[6] https://www.pagesjaunes-dz.com/companies/products/3166006/ports-maritimes-et-services-portuaires

[7] Twenty Foot Equivalent: Unit of measurement to express transport capacity.

2019 and 61 billion DA in 2020. These figures, shared by Mr. M. Achour Djelloul, CEO of SERPORT, underscore the significance of port services in Algeria's economy and their ability to weather external disruptions[8].

Overall, Algerian ports serve as dynamic gateways for international trade, contributing significantly to the nation's economic growth and development. Their continued evolution and adaptation to changing circumstances ensure their continued relevance and importance in facilitating global commerce.

Fig.3. Evolution of traffic in Algerian ports 1959-2009



Source: (Setti, Mohamed-Cherif, & Ducruet, 2011)

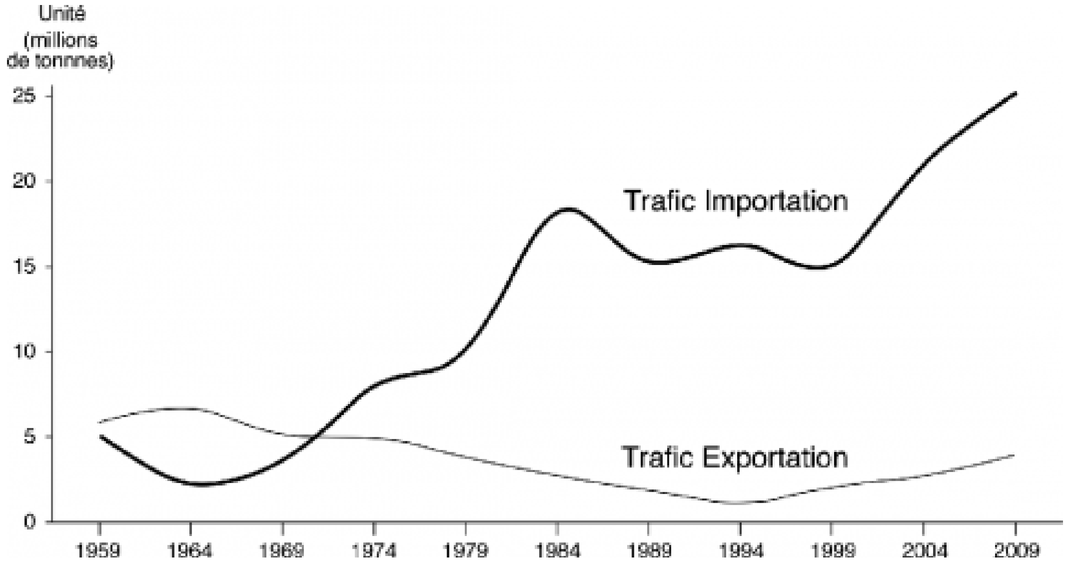
The challenges encountered by Algeria's port infrastructure in keeping pace with the demands of global maritime trade, driven by the forces of globalization, have been well-documented (Setti, Mohamed-Cherif, & Ducruet, 2011). As the dynamics of trade continue to evolve at a rapid pace, the limitations faced by Algerian ports in adapting to these changes have become increasingly evident.

This predicament underscores the pressing need for a comprehensive modernization effort aimed at upgrading port infrastructure to align with the evolving economic landscape, both domestically and within the realm of international maritime trade. The modernization imperative extends beyond mere physical upgrades; it encompasses a strategic overhaul that integrates technological advancements, operational efficiencies, and regulatory reforms to enhance the overall competitiveness and functionality of Algeria's port system.

Moreover, the imperative for modernization transcends the confines of domestic economic exigencies, extending to the imperative of fostering seamless integration with global maritime trade networks. By embracing modernization initiatives, Algeria stands to bolster its position as a key player in the international maritime arena, capitalizing on emerging trade opportunities and reinforcing its economic resilience in an increasingly interconnected world.

[8] Interview appeared on the Journal ELMOUDJAHID on 12/12/2020.

Fig.4. Evolution of foreign trade flows through Algerian ports 1959-2009



Source: (Setti, Mohamed-Cherif, & Ducruet, 2011)

Algerian ports reported a significant total traffic volume of 128,213,639 tons in 2008. However, a staggering 75% of this traffic comprised hydrocarbons, underscoring the nation's heavy reliance on this sector. Among the non-hydrocarbon traffic, the port of Algiers/Dellys emerged as a pivotal hub, handling approximately 26.3% of the total volume. Additionally, the ports of Bejaïa, Annaba, and Oran made substantial contributions to this traffic, accounting for 19.3%, 17%, and 14% of the total respectively (Ducruet & Mohamed-Chérif., 2014). These ports play vital roles in facilitating trade and commerce, serving as crucial gateways for imports and exports, and highlighting their strategic significance within Algeria's maritime infrastructure.

Algerian ports are struggling to accommodate the growing scale of foreign trade, expected to surge by over 50% due to the economic development program focused on importing raw and semi-finished materials for industrial production, and expanding exports beyond hydrocarbons. However, existing port facilities have only managed to attract a mere 10% (10,502 ships annually) of the vessels traversing the Mediterranean. Considering that approximately 3,000 ships cross this sea daily, this figure underscores the significant gap in Algeria's port capacity compared to the immense maritime traffic passing through the region (Hayet, 2021), thus, valuable opportunities for wealth creation and economic development exist through services and maintenance, although they remain unrealized due to our inability to effectively manage traffic.

In terms of macroeconomic significance, while numerous articles in the literature highlight the challenges in port management and its limited economic role, they often lack precise quantification of this macroeconomic impact. Conversely, data on this matter are abundant for developed countries. To address this gap, we utilize available turnover data to estimate the added value.

Studies by various international institutions indicate that the added value rate in port services turnover can range from 10% to 30%, depending on activities and country contexts. However, this rate is influenced by factors such as port infrastructure quality, sector competition, trade regulations, and global market trends.

Considering a hypothetical 30% added value rate in port services turnover, their current maximum contribution to GDP is estimated at 0.2% (excluding taxes and customs duties). nevertheless, their indirect impact on other economic sectors far exceeds their direct GDP contribution. Port services are intertwined with numerous sectors, including logistics, transportation, manufacturing, fishing, and aquaculture.

Many experts specializing in port economics and international trade argue that Algeria's commercial ports suffer from poor management and insufficient capacity, marked by inadequate infrastructure and under-equipped facilities. This deficit in port space not only falls short of modern maritime logistics standards but also imposes significant financial burdens (Chalabi, 2022).

The deficiencies in port management are multifaceted, affecting various aspects of port operations, from cargo handling to logistics efficiency. Inadequate infrastructure limits the ports' ability to accommodate larger vessels and efficiently handle growing cargo volumes. Furthermore, outdated equipment hampers productivity and increases turnaround times, leading to congestion and delays in port operations. Addressing these challenges requires comprehensive reforms and significant investments in port modernization and infrastructure development. Upgrading port facilities to meet international standards is crucial for enhancing competitiveness and attracting more maritime traffic. Additionally, improving management practices and implementing advanced technologies can optimize port operations, streamline processes, and increase overall efficiency.

Furthermore, aligning port development strategies with broader economic objectives can leverage the maritime sector's potential to drive economic growth and development. By fostering collaboration between public and private stakeholders, promoting innovation, and enhancing connectivity with global supply chains, Algeria can unlock the full potential of its maritime infrastructure and bolster its position as a key player in international trade.

Despite the efforts made by the SERPORT group to modernize port facilities and enhance service quality, significant challenges persist in meeting both current and future demands of international trade. Investing in the modernization of port infrastructure, process automation, and staff training is essential to align with the requirements of global markets. Furthermore, improved coordination among various stakeholders in the logistics chainincluding transporters, shippers, customs authorities, and port operatorsis vital for enhancing the efficiency and competitiveness of Algerian ports. By fostering better collaboration and communication among these key actors, Algerian ports can streamline operations, reduce delays, and enhance overall performance, thus positioning themselves more effectively in the global maritime trade landscape.

5. Development Opportunities:

Shipping serves as the predominant global transportation mode for raw materials, consumer goods, essential foodstuffs, and energy, making it pivotal in global trade, economic expansion, and employment, both at sea and on land. Forecasts indicate that international maritime trade volumes could double by 2030, with port volumes anticipated to quadruple by 2050 (Wold Bank, 2017).

The maritime transport sector in Algeria presents significant growth opportunities due to its intricate operations, substantial investments, and substantial contribution to international trade and global logistics. However, these opportunities have not been fully capitalized on, resulting in substantial losses in added value estimated at nearly $3 billion. The government has responded by adopting a new sectoral policy to improve the situation and address lingering weaknesses, notably the lack of modern infrastructure and congestion[9]. To this end, Algeria has initiated several projects aimed at enhancing port capacity and infrastructure.

In October 2020, Algeria introduced a new sectoral policy focused on securing the country's supplies of strategic products, actively participating in goods transportation to and from Algeria, and reducing currency transfers associated with maritime services conducted abroad(ANNANE, 2024). Despite boasting eleven commercial ports such as Algiers, Oran, and Annaba, these ports face various weaknesses, including outdated infrastructure, congestion, high service costs, and limited logistics integration. Algeria has embarked on several projects to tackle these challenges, including port capacity development, the construction of maritime highways[10], and the enhancement of land transport infrastructure.

Key projects include the Mostaganem to Valencia maritime highway, railway network modernization, and the central port project of El Hamdania in Cherchell, which presents a significant opportunity to catalyze the development of maritime transport companies. Maritime transport accounts for 95% of Algeria's foreign trade, predominantly focused on the Euro-Mediterranean area. With the annual growth rate of global maritime trade expected to reach 2.4% over the period 2022-2026, according to UNCTAD[11], it is imperative for Algeria to seize the opportunities offered by the maritime transport sector and implement robust development strategies to strengthen its competitiveness and fully exploit its economic potential(CNUSED, 2021).

This necessitates an investment plan aimed at modernizing equipment, training sailors, investing in research and development, and promoting technological innovation. Such an approach would enable Algeria to

[9] Shipping congestion refers to a situation where there is excessive congestion of ships in ports or on major shipping lanes. This can cause significant delays in port operations, delivery times and the smooth flow of international trade.

[10] The term «maritime highway» is a term used to refer to a regular maritime route for the transport of passengers and goods.

[11] UNCTAD: United Nations Conference on Trade and Development, is a permanent intergovernmental organization established by the United Nations General Assembly in 1964. It is based in Geneva, Switzerland.

reduce its dependence on foreign shipowners, strengthen its economic sovereignty, and stimulate job creation and the growth of related industries, such as shipbuilding and logistics services.

Despite facing challenges during the COVID-19 pandemic, including disruptions to port operations and humanitarian crises affecting seafarers, the shipping sector demonstrated remarkable resilience, experiencing a significant rebound in late 2020. This resilience underscores the viability of the sector as an investment opportunity, despite adversity(ANNANE, 2024).

Despite grappling with challenges during the COVID-19 pandemic, such as disruptions to port operations and humanitarian crises impacting seafarers, the shipping sector showcased remarkable resilience, rebounding significantly in late 2020. Despite these adversities, the sector swiftly adapted to the evolving circumstances, implementing innovative solutions to mitigate the impact of the pandemic on its operations.

One key aspect of the shipping industry's resilience was its ability to quickly adjust to changing demand patterns and supply chain disruptions. With lockdowns and travel restrictions affecting global trade flows, shipping companies demonstrated agility by rerouting vessels, adjusting schedules, and implementing strict health and safety protocols to ensure the continuity of operations while safeguarding the well-being of crew members.

Furthermore, the pandemic underscored the critical role of the shipping sector in maintaining the flow of essential goods and commodities, including medical supplies, food, and energy resources, across borders. As governments and industries worldwide grappled with supply chain disruptions, the shipping industry emerged as a reliable and indispensable lifeline, ensuring the uninterrupted delivery of vital goods to communities in need.

The resilience displayed by the shipping sector amid the challenges posed by the pandemic highlights its robustness and long-term viability as an investment opportunity. Despite the temporary setbacks caused by the crisis, the underlying fundamentals of the industry remain strong, driven by increasing global trade, growing demand for maritime transportation, and ongoing technological advancements.

Investors recognize the essential role of the shipping sector in facilitating global trade and commerce and understand its potential for delivering stable returns over the long term. As economies continue to recover from the impacts of the pandemic and global trade volumes rebound, the shipping industry is poised to benefit from renewed demand for its services, presenting lucrative investment prospects for forward-thinking investors(ANNANE, 2024).

On the other hand, environmental sustainability is an increasingly pressing issue in the maritime sector. With regulations tightening, such as those set forth by the International Maritime Organization (IMO) to curb greenhouse gas emissions, maritime companies are compelled to adopt cleaner technologies. This involves transitioning to low-sulfur fuels, harnessing renewable energy sources like wind and solar power, and exploring the use of electric and hydrogen-powered vessels. Algerian companies must invest in these eco-friendly solutions to maintain competitiveness and meet regulatory standards.

Port services in Algeria represent a significant avenue for economic development. Drawing lessons from Mediterranean counterparts such as Spain, Turkey, and Greece, which have successfully transformed their ports into vital logistics hubs, Algeria can foster foreign investments and public-private partnerships to enhance port infrastructure, upgrade services, and elevate port competitiveness. Moreover, port development initiatives can spur job creation and stimulate local economic growth. Despite facing challenges, Algerian ports present opportunities for development and modernization to bolster their competitiveness. By prioritizing commercial strategy and expanding port activities, a balance between imports and exports can be achieved, leading to increased fleet profitability and reduced costs associated with import delays.

Furthermore, the surge in traffic at Algerian ports presents an opportunity to upgrade port infrastructure and provide advanced logistics services to meet evolving demands. The transition of multifunctional ports into modern logistics hubs offering a diverse range of services can enhance their appeal to international vessels and bolster overall competitiveness.

Algeria boasts significant potential for the expansion of its port infrastructure, owing to its strategic geographical location along the Mediterranean Sea. This analysis explores the development prospects in this domain and underscores their economic benefits.

A pivotal opportunity lies in the modernization of existing ports to enhance operational efficiency and accommodate escalating maritime traffic. This endeavor may entail dock expansion, procurement of state-of-the-art handling equipment, optimization of logistics systems, and adoption of advanced technologies for port management. By investing in the modernization of current ports, Algeria can elevate its competitiveness in maritime trade and attract greater foreign investment.

In addition to revamping existing ports, the construction of new port facilities presents another promising avenue to address the mounting demand for maritime trade and cargo transportation. This initiative would alleviate congestion at current ports and enhance regional connectivity. By establishing new ports, Algeria can solidify its position as a pivotal maritime trade hub in the Mediterranean region.

The development of special economic zones (SEZs) near ports presents a promising avenue for Algeria. These zones, delineated geographically, offer tax incentives, customs benefits, and regulatory advantages to companies operating within their boundaries. By establishing SEZs in close proximity to ports, Algeria can attract foreign investment, foster job creation, and stimulate economic activities. This would bolster the competitiveness of Algerian ports, positioning them as dynamic commercial and logistics hubs.

Another key opportunity lies in promoting regional maritime transport. Algeria can forge partnerships with neighboring countries to drive the development of regional maritime transport networks. This initiative could involve the establishment of regional shipping lines, the enhancement of port cooperation, and the creation of efficient logistics corridors to facilitate cross-border trade. By fostering regional maritime transport, Algeria can strengthen economic ties with its neighbors and catalyze economic growth across the region.

Moreover, the development of specialized terminals represents a significant opportunity for Algeria. By concentrating on specific sectors such as containers, hydrocarbons, chemicals, or agricultural products, Algeria can create terminals tailored to the unique needs of these industries. These specialized terminals would attract targeted investments and bolster the competitiveness of Algerian ports in these strategic sectors.

It's crucial to underscore that maritime transport remains a preferred solution in international trade due to its cost-effectiveness, capacity, and minimal CO_2 emissions impact. Motorways of the Sea (MoS) exemplify this trend, integrating the benefits of road transport with short-distance maritime connections. (MoS) streamline customs procedures and enhance pre- and post-transport maritime links, aiming to facilitate a modal shift from road to maritime transport, thereby reducing pollution and alleviating road congestion.

A tangible example of collaboration between Algeria and the European Union is the inclusion of the port of Bejaïa in a Motorways of the Sea (MoS) project linking Marseille and Barcelona. The port of Bejaïa has received technical and financial assistance through the Meda Mos I and II programs, underscoring recognition of its potential and pivotal role in Algeria's MoS development. In this context, an analysis was conducted to assess the significance of MoS initiatives on Algeria's economic growth and commercial competitiveness, with a specific focus on the port of Bejaia. This study utilizes port performance metrics to compare pre- and post-MoS implementation periods starting from 2015. The findings aim to provide insights into the impact of MoS on Bejaia port performance, serving as a foundational framework for future strategic planning and decision-making processes. (MERZOUG, 2020).

In the same vein, the research conducted by S. Merzoug underscored the synergy between Motorways of the Sea (MoS) and short sea transportation, emphasizing the significance of an integrated approach to port infrastructure development. The enhancements witnessed since the implementation of MoS in 2015 highlight the benefits of this system. These enhancements encompass reduced waiting times, expedited customs procedures, enhanced reception capacities, and improved efficiency in quayside operations and container transit. These outcomes underscore the efficacy of MoS in enhancing port performance and facilitating trade.

Anticipated is a substantial surge in trade volume and containerized traffic in the forthcoming years (MERZOUG, 2020).

As part of the future development of Motorways of the Sea (MoS), enhancing the port information system emerges as a pivotal aspect. An effective information system would facilitate superior management of port operations, heightened traceability of goods, and seamless communication among the diverse stakeholders in the logistics chain. Algeria can fortify the competitiveness of its ports and optimize trade fluidity by investing in cutting-edge technologies and fostering interoperability among systems.

In the maritime economy, various sectors are intricately intertwined. The burgeoning aquaculture industry, maritime transport, and naval industry present opportunities for port construction and service optimization.

The burgeoning aquaculture sector in Algeria and North Africa holds the potential to propel demand for port services, encompassing inputs supply, transportation of aquaculture products to domestic and international markets, and exportation of aquatic commodities. Consequently, the construction of specialized ports equipped with facilities tailored for handling and storing aquatic products becomes imperative.

Moreover, the growth of maritime transport is symbiotically linked to port construction endeavors. Investments in port infrastructure are indispensable to meet the escalating demand for maritime transport services, thereby bolstering Algeria's competitiveness in the global marketplace. Simultaneously, the naval industry stands to gain from enhanced port services, as ship construction, repair, and maintenance necessitate suitable port facilities. By investing in adequate port infrastructure, Algeria can attract investments in the naval industry sector and foster local employment opportunities. Furthermore, the availability of top-notch port services will streamline ship repair and maintenance operations, thereby augmenting the competitiveness of the Algerian naval industry.

6. Conclusion:

In a global context where maritime trade serves as the lifeblood of the economy, Algeria stands at the precipice of a transformative journey, leveraging its strategic maritime assets to chart a course toward unprecedented economic prosperity. Despite grappling with formidable challenges such as port congestion, outdated infrastructure, and escalating service costs, Algeria recognizes the untapped potential inherent in its geographic nexus along the Mediterranean Sea.

At present, Algerian ports record an average annual traffic of over 10,000 vessels, facilitating the transportation of more than 20 million tons of non-hydrocarbon goods, equivalent to approximately 2 million twenty-foot equivalent units (TEUs). However, this bustling activity is tempered by inefficiencies stemming from inadequate infrastructure, hindering the nation's capacity to fully capitalize on its maritime prowess.

The modernization and expansion of port infrastructure emerge as linchpins in Algeria's quest for enhanced competitiveness. With an eye toward the future, the nation embarks on ambitious initiatives aimed at bolstering port capacity and efficiency. Noteworthy projects include the construction of specialized terminals tailored to handle specific cargo types, with investments reaching upwards of $2.5 billion over the next decade.

Furthermore, Algeria's strategic alignment with the Motorways of the Sea (MoS) initiative underscores its commitment to optimizing maritime transportation. By establishing seamless maritime corridors linking Algerian ports with key European counterparts, the nation endeavors to streamline trade flows and mitigate the strain on terrestrial transportation networks. Preliminary projections anticipate a 30% reduction in road congestion and a 20% increase in trade volume within the next five years.

Moreover, the establishment of Special Economic Zones (SEZs) adjacent to ports holds promise as a catalyst for economic revitalization. Leveraging favorable tax incentives and regulatory frameworks, these zones are projected to attract over $1 billion in foreign direct investment (FDI) and create upwards of 50,000 new jobs by 2030.

As Algeria charts its maritime course, collaborative regional partnerships emerge as vital conduits for shared prosperity. By fostering closer ties with neighboring Mediterranean nations, Algeria seeks to capitalize on synergies in maritime transport, trade facilitation, and port development, positioning itself as a linchpin of regional economic integration.

Algeria's maritime activities represent a beacon of hope in an increasingly interconnected world. With steadfast determination and strategic foresight, the nation must stand poised to harness the boundless opportunities afforded by its maritime domain, ushering in a new era of sustainable growth and prosperity.

7. List of references:

1. ANNANE, R. (2024). La diversification de l'économie Algérienne par le développement de l'économie bleue. Thèse de doctorat. Algérie: Institut supérieur de gestion et de planification.
2. Chalabi, B. (2022, Octobre 24). Infrastructures portuaires : Vers une nouvelle stratégie de gestion sur fond de constat de carence. REPORTERS quotidien national d’information. Retrieved Janvier 13, 2023, from https://www.reporters.dz/infrastructures-portuaires-vers-une-nouvelle-strategie-de-gestion-sur-fond-de-constat-de-carence/
3. CNUSED. (2021). Etude sur les transports maritimes. Genève: Nations Unies .

4. Conférence des Nations Unies sur le commerce et le développement (CNUSED). (2021). Profil Maritime Algérie. UNCTAD STAT. Retrieved from https://unctadstat.unctad.org/countryprofile/maritimeprofile/fr-FR/012/index.html
5. Ducruet, C., & Mohamed-Chérif., F. Z. (2014). L'insertion des villes portuaires maghrébines dans la circulation maritime mondiale: le cas des hydrocarbures. (D. Labaronne, Ed.) Villes portuaires au Maghreb, 17-33. Retrieved from https://shs.hal.science/halshs-01069189
6. Fodil, T., Youcef, B., & Nacer, D. A. (2021). La pratique de l'affrètement maritime et coût du fret, Cas de l'Algérie : Etat des lieux et contraintes. Revue Organisation & Travail, Volume 10(N°2).
7. Hayet, G. (2021). Les ports : Le maillon faible de la chaine logistique en Algérie. Revue de l'économie financière & des affaires, 5(4), 371-389.
8. MERZOUG, S. (2020). LES AUTOROUTES DE LA MER EN ALGERIE : QUELS INTERETS ET QUELS OBSTACLES ? CAS DU PROJET PILOTE AU PORT DE BEJAIA. Revue des reformes Economique et intégration dans l'économie mondiale, 14(1)(104-113). Retrieved from https://www.asjp.cerist.dz/en/article/115327
9. Setti, M., Mohamed-Cherif, F.-Z., & Ducruet, C. (2011). Les ports algériens dans la mondialisation: la fin du paradoxe ? Méditerranée(116), 85-93.
10. Wold Bank. (2017). THE POTENTIAL OF THE BLUE ECONOMY. United Nations.