



DRY PORTS AS A SOLUTION FOR MARITIME SECTOR INEFFICIENCIES: THE CASE OF ALGERIA

Aissa Benabbes^{1*}, Tarek Ouahabi²

1 Ecole supérieure de commerce Koléa, Algérie a_benabbes@esc-alger.dz

2 Ecole supérieure de commerce Koléa, Algérie, t_ouahabi@esc-alger.dz

Date of Reception: 05/03/2025 ; Date of revision : : 15/03/2025 ; Date of acceptance : : 20/05/2025

ABSTRACT

The global maritime industry's growth has led to challenges in port infrastructure and operations. Dry ports have emerged as an innovative solution, functioning as seaport extensions and offering numerous advantages to maritime and logistics industries. This study examines dry ports' status and policies in Algeria, focusing on their contribution to the country's intermodal logistics network. Benefits include shorter transit times, cost reductions, enhanced intermodal capacity, improved inland accessibility, reduced delays, and lower customs-related costs. Dry ports also help mitigate externalities associated with traditional transportation methods. Algeria's maritime sector faces challenges such as limited port capacity, reliance on road transport, and operational inefficiencies. Implementing dry ports offers a promising solution to these issues. The research emphasizes the need for regulatory reform, infrastructure investment and strategic planning to fully realize the benefits of dry ports in Algeria.

Key words : Intermodal logistics, Dry ports, Maritime sector, Logistics performance, Algeria

JEL Classification :

1. Introduction

The global maritime industry has experienced substantial growth due to population expansion and increased economic activity, resulting in a significant increase in container transport.

In response to the growing demand for container shipping and the benefits from economies of scale, the shipping industry responded by employing larger ships. For instance, as of January 2025, the largest containership in the world, MSC Irina, has a capacity of 24,000 Twenty-foot Equivalent Units (TEU). While these larger vessels offer economies of scale for shipping companies, they also pose significant challenges for port infrastructure and operations despite investments in container terminal capacity.

Seaports currently face two major challenges: insufficient terminal space and increased congestion on access routes. These challenges have led to a growing focus on optimizing port operations and logistics. Thus, the efficient handling and distribution of cargo to and from the hinterland has become critical for the overall performance of seaports and the entire supply chain (Khaslavskaya & Roso, 2020).

Dry ports have emerged as an innovative solution to address these issues and have garnered, as an academic concept, significant attention in recent years, as evidenced by (Khaslavskaya & Roso, 2020) who note that publications on this concept increased *"From just two journal publications in 2007, to over 100 publications a decade later"*.

These advanced intermodal terminals function as extensions of seaports and provide numerous advantages to maritime and logistics industries. Dry ports contribute significantly to overall port competitiveness and enhance a country's logistical capabilities by mitigating seaport congestion, enhancing transport efficiency, improving supply chain performance, and reducing transportation contribute significantly to overall port competitiveness and to the enhancement of a country's logistical capabilities.

This study aims to define the concept of dry ports based on recent international academic literature and examine the status and policies of dry ports in Algeria, considering geographical, economic, and regulatory factors. This research focuses on the following question: What constitutes a dry port and what is the current state of dry ports in Algeria, including their contribution to the nation's intermodal logistics network?

The following hypotheses substantiate this research question:

- The strategic implementation of dry ports in Algeria will mitigate maritime sector inefficiencies by decoupling cargo processing from congested urban seaports, facilitating modal shift to rail, and optimizing customs operations.
- Dry port implementation in Algeria enhances non-hydrocarbon export competitiveness by reducing empty container repositioning costs and enabling regional cargo consolidation through improved hinterland connectivity.

2. Conceptual Framework

Before delving further into the concept of dry ports, it is essential to define several underlying concepts that are fundamental to their comprehension.

2.1. Intermodal Freight Transport System

Analogous to ports, dry ports function as hubs in freight transportation systems. These systems are characterized by sequential transfers of goods between points of origin and destination, which are generally defined as nodes. Activities such as consolidation, sorting, storage, and transshipment between vehicles and traffic modes were conducted within the nodes. (Roso et al., 2009)

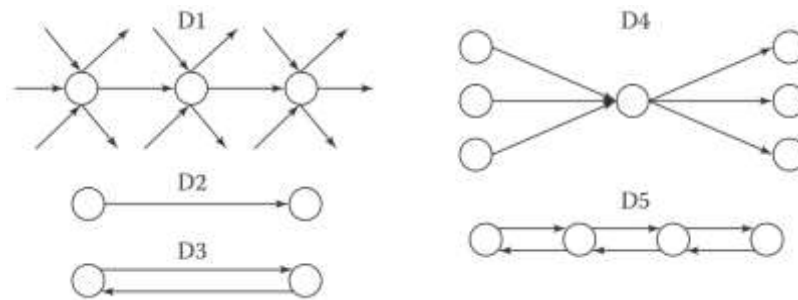
A node can be classified as a source, sink, or transshipment node based on the transport assignment. Links represent transport and transfer activities connecting nodes, and these links constitute the transportation network in conjunction with nodes. Links and nodes are abstract terms utilized for modeling. (Roso et al., 2009)

Based on the quantity and modalities of transportation and freight units utilized, three distinct categories of freight transport systems, composed of nodes connected by links, can be identified in international trade:

- Single-modal transportation, which refers to the transportation of freight utilizing a single mode of transportation.
- Multimodal transportation, which is, according to the United Nations Conference on Trade and Development (2003), the transportation of freight utilizing a minimum of two distinct modes of transportation, by virtue of a single contract, from a location in one country where the operator assumes responsibility for the goods, to a designated delivery location in a different country.
- Intermodal transportation is the movement of goods in a single freight unit through two or more successive modes of transport, without handling freight during transportation (Agamez-Arias & Moyano-Fuentes, 2017). While intermodal transportation systems yield favorable outcomes in terms of expenses and duration, the selection of transport mode combinations should align with the requirements of the specific logistics environment they serve.

Based on this, intermodal freight transport systems have been categorized into five distinct design types that connect two or more nodes via links, each with their respective advantages and disadvantages: (D1) hierarchic network, (D2) direct connection, (D3) shuttle train, (D4) hub-and-spoke network, (D5) transport corridor.

FIGURE 1: INTERMODAL FREIGHT TRANSPORT SYSTEMS DESIGNS



SOURCE: (WOXENIUS & BÄRTHEL, 2008)

2.2. Dry Ports: Definition and Classification

A dry port is an intermodal logistic terminal that serves as a crucial hub within a freight transportation system, facilitating the seamless transfer of goods between different modes of transport such as rail, road, sea, and air. These inland facilities are equipped with specialized infrastructure and handling equipment to efficiently manage the loading, unloading, and storage of standardized cargo units like containers. Acting as an extension of a seaport, a dry port is located away from the coast and provides services typically found in or complementary to a traditional seaport. A direct connection to the seaport, usually via road or rail, is essential for efficient transportation of goods between the port and inland destinations. This infrastructure enables smooth cargo movement across various transportation networks, effectively extending the reach and capabilities of the associated seaport while enhancing overall logistics efficiency.

Adopting the comprehensive definition for a dry port introduced by (Roso et al., 2009) provides a solid foundation for understanding this concept. They stated that "A dry port is an inland intermodal terminal directly connected to seaport(s) with high capacity transport mean(s), where customers can leave/pick up their standardized units as if directly to a seaport." This definition encapsulates the essential elements of a dry port, emphasizing its inland location, intermodal nature, and direct connection to seaports.

The literature on the subject offers various definitions and approaches to studying dry ports, reflecting the complexity and evolving nature of this concept. Researchers have proposed numerous classifications for dry ports, each highlighting different aspects of their functionality and development. For instance (Roso et al., 2009) categorized dry ports based on their location relative to seaports, distinguishing between close, midrange, and distant dry ports. This classification helps in understanding the spatial relationship between dry ports and their associated seaports, which can influence factors such as transportation costs and service efficiency.

Another classification approach, proposed by (Wilmsmeier et al., 2011), focuses on the development direction of dry ports. They introduced the concepts of "outside-in" and "inside-out" development, which describe whether the initiative for establishing a dry port comes from coastal areas (outside-in) or inland regions (inside-out). This perspective sheds light on the driving forces behind dry port development and the potential stakeholders involved in the process.

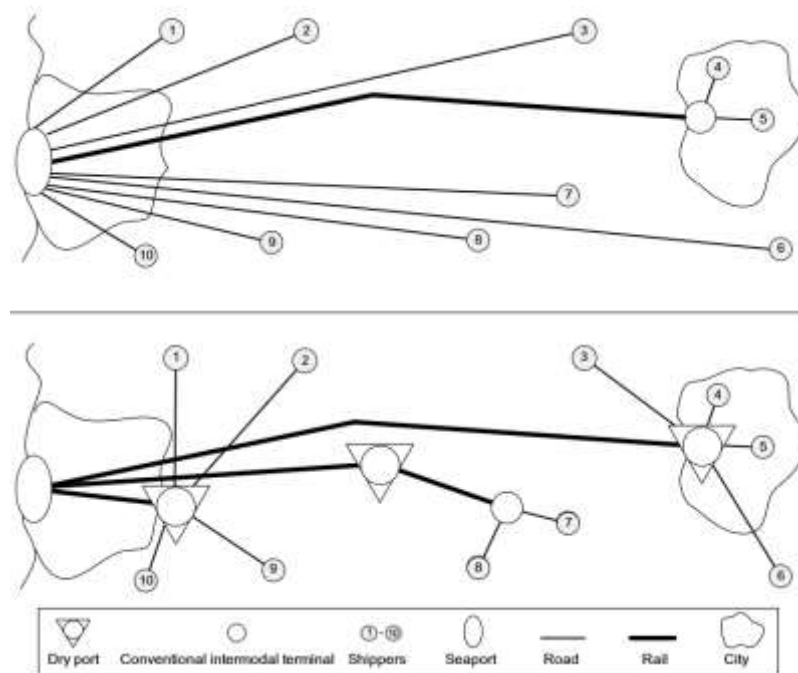
Furthermore, (Bask et al., 2014) explored the concept of dry port maturity levels, identifying three distinct phases: pre-phase, start-up phase, and growth phase. This classification provides insights into the evolutionary stages of dry ports, helping to understand the challenges and opportunities associated with each stage of development.

Studying dry ports based on their benefits will be more advantageous for this research than delving into the concept's various classifications. This approach will provide a more focused and practical understanding of dry ports, aligning closely with the study's objectives.

3. Benefits of Dry Ports

The implementation of a dry port introduces significant systemic advantages by enhancing the complexity of the transportation network. It transforms a simple system design such as a direct connection, a shuttle train or a transport corridor, into a more sophisticated hierarchical network or hub-and-spoke system, as illustrated in Figure 2. This increased complexity stems from the dry port's fundamental role as an inland intermodal logistics terminal.

FIGURE 2 : TRANSPORTATION NETWORK WITHOUT AND WITH A DRY PORT



SOURCE : (ROSO ET AL., 2009)

The enhanced network structure provides logistical and trade actors with a broader range of options for managing their trade routes. This expanded flexibility allows for more efficient and strategic decision-making in supply chain operations.

In their comprehensive literature review, (Khaslavskaya & Roso, 2020) have compiled an extensive inventory of utility-generating benefits associated with dry ports. These benefits, extracted from a wide range of literature on the subject, have been systematically categorized into social, economic, and environmental dimensions. The authors note that while the benefits span across these three categories, the majority of the identified advantages are primarily economic in nature. This classification provides a structured framework for understanding the multifaceted impact of dry ports on various stakeholders and the broader transportation ecosystem.

This comprehensive analysis of dry port benefit provides a solid foundation for understanding the potential impact of these facilities. Building on this theoretical framework, it is important to examine how these benefits translate into practical advantages in real-world logistics operations.

The implementation of dry ports offers a multitude of advantages for transportation and logistics systems, revolutionizing the way goods are moved and processed. These inland facilities serve as crucial nodes in the supply chain, optimizing logistics operations and streamlining the flow of cargo. By strategically positioning dry ports, stakeholders can achieve significantly shorter transit times for goods, reducing the overall duration of transportation from origin to destination. This time efficiency is coupled with substantial cost reductions, making the entire logistics process more economically viable for businesses and consumers alike.

One of the key strengths of dry ports lies in their ability to enhance intermodal capacity. These facilities act as seamless transfer points between different modes of transportation, such as rail, road, and sometimes even inland waterways. This intermodal integration not only improves the flexibility of cargo movement but also allows for more efficient utilization of various transportation networks. Furthermore, dry ports significantly boost inland accessibility, extending the reach of seaports into interior regions and facilitating better connectivity between coastal and inland areas.

A major challenge in international trade has been the delays and costs associated with border crossings and customs procedures. Dry ports address this issue head-on by offering customs clearance services at inland locations. This strategic placement of customs operations away from congested seaports results in reduced border transit delays and lower customs-related costs. By processing customs documentation and inspections at dry ports, the pressure on seaport infrastructure is alleviated, effectively eliminating or greatly reducing port congestion.

The benefits of dry ports extend beyond the immediate logistics operations. These facilities play a crucial role in mitigating various externalities associated with traditional transportation methods, particularly those related to road congestion. By shifting a portion of freight traffic away from roads, dry ports help reduce traffic congestion, lower the risk of accidents, and minimize wear and tear on highway infrastructure. This shift not only improves road safety but also contributes to smoother traffic flow in urban and port areas.

From a financial perspective, dry ports offer significant advantages to stakeholders in the supply chain. They help eliminate or reduce various fees and charges that are often incurred in traditional port operations. These include forwarding fees, which are typically charged for coordinating the movement of goods, demurrage charges for extended use of containers or vessels, and late documentation fees. By streamlining these processes

and providing more efficient handling of documentation and cargo, dry ports contribute to an overall improvement in service quality for all parties involved in the logistics chain.

The impact of dry ports on the efficiency and sustainability of transportation networks cannot be overstated. These facilities play a pivotal role in increasing the throughput and capacity of seaports. By handling a significant portion of cargo processing and storage inland, dry ports allow seaports to focus on their core functions of loading and unloading ships. This increased efficiency at seaports stimulates and facilitates international trade, enabling ports to handle larger volumes of cargo and accommodate bigger vessels.

Perhaps one of the most significant contributions of dry ports is their positive impact on environmental sustainability. By facilitating the shift of freight traffic from roads to more environmentally friendly modes of transport, such as rail or inland waterways, dry ports play a crucial role in reducing CO₂ emissions. This modal shift not only decreases the carbon footprint along major road corridors but also helps in decongesting seaport areas, leading to reduced emissions in these often densely populated coastal regions.

The environmental benefits of dry ports extend beyond emissions reduction. By promoting a more balanced use of different transportation modes, these facilities contribute to a more sustainable and resilient transportation system. This balanced approach helps in reducing the over-reliance on road transport, which is often associated with higher levels of pollution, noise, and energy consumption.

4. Algeria's Logistics Sector

The World Bank's most recent logistics performance report, "Connecting to Compete 2023," places Algeria in the 98th position with a score of 2.5 out of 5. This ranking is based on the Logistics Performance Index, which evaluates a nation's logistics perception using six key factors: infrastructure quality, customs efficiency, international shipping capabilities, logistics competence, cargo tracking ability, and the duration of border wait times for goods.

Given Algeria's geographical position and economic structure, it is not surprising that maritime routes play a crucial role in the country's international trade. According to (Setti et al., 2011) & (Algérie Presse Service, 2024b), maritime routes facilitate 95% of the country's international trade. This claim is further substantiated by data from the Ministry of Transport's 2021 statistical yearbook, which provides a comprehensive breakdown of goods transportation across different modes (Ministry Of Transports, 2021). The data reveals that sea shipping handled an overwhelming 123,095 thousand tonnes of goods, far surpassing other transportation methods. In comparison, railways transported 3,871 thousand tonnes, roads moved 11,821 thousand tonnes, and air cargo carried a mere 43 tonnes.

Considering the importance of maritime transport in Algeria's trade landscape, our main emphasis will be on this sector. The maritime sector's vital role in Algeria's international commerce, economic growth, and global connectivity underscores the need for a detailed examination. We will start with an overview of Algeria's port infrastructure and maritime transportation sector, highlighting the critical role of ports in the country's economy.

Regarding the logistical support infrastructure for maritime freight transport, this region comprises 10 commercial ports: three oil ports (Arzew, Skikda and Bejaia), four primary multipurpose ports (Algiers, Oran, Annaba and Djen Djen), one medium-sized port (Mostaganem) and two small ports (Ghazaouet and Tenes).

Furthermore, (Mohamed-Cherif, 2007) observed that the majority of Algerian ports were constructed as a series of compact, narrow basins with sheds situated in close proximity to the quays, separated by narrow breakwaters. (Setti et al., 2011) noted that Algiers, the country's primary general cargo port, lacks the capacity to accommodate a first-generation 1200 TEU (Twenty-Foot Equivalent Unit) vessel due to limitations in quay length (maximum 300 meters) and draft (approximately 11.5 meters). Generally, other ports, excluding those designated for hydrocarbons, have a draft of only 12 meters. Presently, only Djen Djen boasts a 14-meter-deep quay capable of handling vessels carrying over 6,000 containers, with ongoing efforts to extend its depth to 18 meters (Algérie Presse Service, 2024a). This constraint hinders large-scale container shipments, as big container ships cannot access Algerian ports. As a result, cargo must be transferred to smaller feeder vessels, with capacities between 300 and 800 containers, at external mediterranean intermediary hubs for further transportation.

Among the notable characteristics of Algerian ports, their location within urban centers is particularly significant. In Algeria, the majority of port terminals, with the exception of Djen Djen, remain confined within urban areas, limiting potential expansion and reducing the functionality of the port's surroundings. This limitation manifests in insufficient storage capacity to accommodate the flow of goods through these facilities. The warehouses and temporary storage areas, often consisting of low-capacity parcels of land, are limited and lead to saturation of disembarkation, embarkation, and storage zones for goods. Inadequacies in equipment also arise due to insufficient investments, hindering port operations and reducing their efficiency. In conjunction with the aforementioned issue of limited storage capacity, this creates port congestion, resulting in prolonged vessel stays in the roadstead and consequently increasing freight costs through demurrage.

Regarding the distribution of general port traffic, an imbalance persists between inbound and outbound flows. The predominance of outbound traffic is attributable to hydrocarbon exports from the ports of Arzew, Skikda, and Bejaia. In contrast, general cargo traffic exhibits an imbalance favoring inbound traffic. This disparity in traffic composition negatively affects transportation costs to Algeria, which remain elevated partially due to the limited volume of non-hydrocarbon exports. As a result, vessels depart with minimal cargo, forcing ship-owners to include the additional expense of this unproductive return journey into the freight rate.

Despite the connectivity between ports and the rail network, the utilization of rail for container transportation remains negligible (Ministry Of Transports, 2020, 2021). Therefore, port-related traffic relies heavily on road transport. Given the urban location of most Algerian ports, this dependence results in substantial road congestion and various associated externalities. Road congestion externalities extend beyond individual inconvenience, encompassing broader societal impacts such as increased air pollution, economic losses due to wasted time and fuel, and pressure on urban infrastructure. These negative effects can lead to diminished quality of life in affected areas, potentially influencing property values, public health, and overall urban habitability.

Considering these factors, the aforementioned issues create challenges within the maritime sector of Algeria:

- Large vessels cannot be accommodated by many ports, preventing economies of scale.
- Most maritime traffic requires transshipment through larger ports using smaller feeder vessels, increasing costs.
- Smaller ships face port congestion due to limited storage and operational inefficiencies, leading to demurrage costs.
- These ships often return with empty containers, further impacting costs.
- Dependence on road traffic in urban areas creates externalities, indirectly affecting international maritime trade costs.

These additional costs significantly impact Algerian international trade, increasing the prices of imported goods and reducing the competitiveness of exported products. Consequently, businesses may face higher operational expenses, and consumers may experience increased prices for goods, ultimately affecting the overall economy.

5. Dry Ports in Algeria

Having examined the challenges faced by Algeria's maritime sector, it is crucial to explore potential solutions that can address these issues effectively. One such solution is the development of dry ports. The following section will analyze how the implementation of dry ports could potentially resolve the problems afflicting Algeria's maritime industry, ultimately improving the country's trade competitiveness and economic growth.

The Algerian legislation formally defined dry ports through the 2011 Customs General Directorate Decision (Algerian Official Journal, 2011), characterizing them as "temporary depots outside seaports, considered natural extensions of maritime hubs." Legally, dry ports must adhere to strict criteria: they are restricted to handling imported containerized goods or containerized goods destined for export or re-export, require a minimum area of 25,000 m², and must facilitate customs control and commercial operations. Goods must be transported within 24 hours of unloading.

Thus, the main distinctions between the academic definition and the Algerian one are: in the Algerian case, the connection to a single port and the provision of customs clearing, with no intramodality obligation. Making this definition more restrictive.

To avoid ambiguity, the usage of the term "dry port" in the subsequent discussion will be based on academic literature definition rather than the restricted Algerian legislation definition.

When applied to Algeria's maritime sector, dry ports, when implemented effectively, can lessen challenges affecting the industry and boost its productivity, eventually benefiting the country's international commerce.

For example, dry ports, by handling a significant portion of cargo processing and storage inland, allow seaports to focus on their core functions of loading and unloading vessels, thus enhancing operational efficiency that currently hinders Algerian harbors. This, in turn, will decrease vessel processing time, consequently reducing demurrage charges.

As intermodal logistics hubs, properly implemented dry ports typically feature rail connectivity. If the link between seaport and dry port is rail-based, these facilities can ease road congestion, which is common near Algerian harbors, by diverting a portion of freight traffic away from highways, thus minimizing associated externalities.

By conducting customs documentation and inspections at dry ports, the strain on Algerian seaport infrastructure is lessened. Combined with an additional option for cargo transportation from seaports via rail connection, this will significantly decrease harbor congestion and related expenses.

Given that, in addition to customs clearance, dry ports can offer numerous complementary services to warehousing, such as storage, consolidation, depot, track and trace, and maintenance of containers (Roso, 2009), they also have the potential to create opportunities for improving overall logistics. This capability may have a positive long-term impact on the competitiveness of Algerian non-hydrocarbon exports by lowering freight costs and increasing operational efficiency.

Table 1 : Impact of dry ports implementation on Algeria's maritime sector

Maritime sector issues	Dry Port Benefit	Outcome/Impact
Port congestion due to limited storage/operational capacity in urban seaports.	Dry ports decentralize cargo handling/storage inland, freeing up seaport space.	Reduced vessel turnaround time, lower demurrage costs, improved seaport efficiency.
Over-reliance on road transport for hinterland cargo distribution (urban traffic).	Dry ports enable rail intermodality, shifting freight from roads to railways.	Reduced urban road congestion, lower accident rates, and decreased infrastructure wear.
Urban port locations hinder expansion and create land-use conflicts.	Dry ports are built in non-urban areas with room for growth (e.g., near rail hubs).	Sustainable land use, reduced urban pollution, and scalable infrastructure.
High demurrage costs from port delays and inefficient cargo processing.	Dry ports streamline customs clearance and documentation inland.	Faster border transit, reduced administrative delays, and lower penalties.
Low rail utilization for container transport (<1% of total freight).	Dry ports integrate rail networks into logistics chains (e.g., Oran-Algiers axis).	Increased rail freight share, balanced modal split, and reduced road dependency.
Environmental externalities (CO ₂ emissions, air pollution) from road congestion.	Dry ports promote rail/barge transport, reducing road freight.	Lower carbon footprint, alignment with Algeria's climate goals (e.g., NDC pledges).
Limited storage capacity at seaports causes cargo bottlenecks.	Dry ports provide large-scale warehousing and transshipment facilities inland.	Improved cargo flow, reduced seaport congestion, and enhanced inventory management.

Trade imbalance (empty containers returning due to low non-hydrocarbon exports).	Dry ports facilitate cargo consolidation, optimizing container reuse/redistribution.	Higher export competitiveness, reduced shipping costs for non-hydrocarbon goods.
--	--	--

The Algerian government appears to be aware of the sector's challenges and has consequently initiated a series of measures, including the implementation of dry ports, termed as logistics terminals, to address these issues. As such, Algeria's logistics modernization is anchored in two interconnected initiatives: rail network expansion and strategic dry port deployment. The Ministry of Transport 2020 action plan (Ministry Of Transports, 2020) outlines plans to develop rail-container transport via intermodal stations in Touggourt, Béchar, and Sétif, coupled with specialized railway vehicles. For example, the Djijel logistics platform exemplifies the potential of dry ports. Inaugurated in 2024 by the SNTF subsidiary Rail Logistique, it provides an integrated rail solution for cement clinker exports, connecting production facilities in Biskra to Djen Djen Port via a 450 km railway, thereby reducing road congestion and supporting Algeria's economic diversification agenda (El Watan, 2024).

At the same time, the government aims to establish "equitably distributed" logistics platforms. Sixteen dry ports were initially connected to major seaports (Skikda, Annaba, Algiers, etc.). These platforms aimed to decentralize cargo flows; however, their uneven regional distribution highlighted disparities in achieving territorial equity. The majority of these facilities lacked rail connections and were dependent on road transportation. Additionally, some were poorly situated within urban areas, replicating the same congestion issues they were intended to resolve.

However, the 2022 closure of all dry ports (Customs General Directorate, 2022a, 2022b) revealed systemic flaws. A national audit uncovered operational deficiencies, such as mismanagement of customs controls and inadequate infrastructure, driving the government to prioritize regulatory enforcement. This duality reflects the tension between rapid infrastructure implementation and the necessity for stringent oversight.

These closures underscore critical challenges in Algeria's dry port model. First, fragmented oversight and weak compliance mechanisms allowed inefficiencies to proliferate. Second, restrictive legal definitions — such as limiting dry ports to single seaport attachments — hinder scalability. Third, reliance on rail remains underdeveloped despite ambitious targets.

To address these issues, Algeria, whose focus is on "cost reduction and export support" (Ministry Of Transports, 2020) must adopt a global approach: revising regulations to enable multi-port connectivity, investing in rail infrastructure, and strengthening public-private partnerships.

6. Conclusion

In conclusion, the implementation of dry ports in Algeria presents a promising solution to the challenges faced by the country's maritime sector and enhance its overall logistics performance. This study has highlighted the potential of dry ports to alleviate port congestion, improve intermodal connectivity, and streamline customs

processes. However, the recent closure of dry ports due to operational deficiencies underscores the need for a more robust and well-regulated approach to their development and management.

Moving forward, Algeria must focus on several key areas to fully realize the benefits of dry ports as shown in (First Ministry, 2021):

1. Regulatory reform: Revising the legal framework to allow for more flexible and efficient dry port operations, including multi-port connectivity.
2. Infrastructure investment: Prioritizing the development of rail connections between dry ports and seaports to reduce reliance on road transport and its associated externalities.
3. Operational efficiency: Implementing strict oversight mechanisms and best practices to ensure effective management and customs control at dry ports.
4. Strategic planning: Ensuring equitable distribution of dry ports across the country to support balanced regional development and optimize the national logistics network.

By addressing these areas, Algeria can transform its dry port network into a powerful tool for enhancing its maritime sector's competitiveness, promoting exports, supporting economic diversification, and improving its position in global trade. The successful implementation of an effective dry port strategy will not only benefit the logistics and transportation sectors but also contribute significantly to Algeria's overall economic growth.

7. Bibliography

- Agamez-Arias, A.-M., & Moyano-Fuentes, J. (2017). **Intermodal transport in freight distribution: A literature review**. *Transport Reviews*, 37(6), 782–807. <https://doi.org/10.1080/01441647.2017.1297868>
- Algerian Official Journal. (2011). **Décision du 22 Rabie Ethani 1432 correspondant au 27 mars 2011 relative aux ports secs**. <https://www.joradp.dz/FTP/jo-francais/2011/F2011033.pdf#page=18>
- Algérie Presse Service. (2024a). **Jijel: Mise en service de la 1ère tranche du terminal à conteneurs du port de Djen Djen “fin juin prochain.”** <https://www.aps.dz/regions/168649-jijel-mise-en-service-de-la-1ere-tranche-du-terminal-a-conteneurs-du-port-de-djen-djen-fin-juin-prochain>
- Algérie Presse Service. (2024b). **Transport: L’importance du développement des infrastructures de base soulignée.** <https://www.aps.dz/economie/170167-transport-l-importance-du-developpement-des-infrastructures-de-base-soulignee>
- Bask, A., Roso, V., Andersson, D., & Hämäläinen, E. (2014). **Development of seaport–dry port dyads: Two cases from Northern Europe.** *Journal of Transport Geography*, 39, 85–95. <https://doi.org/10.1016/j.jtrangeo.2014.06.014>
- Customs General Directorate. (2022a). **Bulletin officiel des douanes algériennes (3ème trimestre 2022).** https://douane.gov.dz/IMG/pdf/boda_n3_2022_francais.pdf
- Customs General Directorate. (2022b). **Bulletin officiel des douanes algériennes (4ème trimestre 2022).** https://douane.gov.dz/IMG/pdf/boda_n4_2022_francais.pdf
- El Watan. (2024). **SNTF : Une première plateforme dédiée à l’export.** <https://elwatan-dz.com/sntf-une-premiere-plateforme-dediee-a-lexport>
- First Ministry. (2021). **Plan d’action du gouvernement pour la mise en oeuvre du programme du president de la republique 2021.** <https://amb-algerie.fr/wp-content/uploads/2022/04/Pland-action-du-gouvernement-pour-la-mise-en-oeuvre-du-programme-du-president-de-la-republique-2021-fr.pdf>
- Khaslavskaya, A., & Roso, V. (2020). **Dry ports: Research outcomes, trends, and future implications.** *Maritime Economics & Logistics*, 22(2), 265–292. <https://doi.org/10.1057/s41278-020-00152-9>
- Ministry Of Transports. (2020). **Ministère des Transports—Plan d’action 2020-2024.** <https://www.mt.gov.dz/doc/Presentation.pdf>
- Ministry Of Transports. (2021). **Bilan 2020 du secteur des Transports.** <https://www.mt.gov.dz/doc/Bilan%202020%20du%20secteur%20des%20Transports.pdf>

- Mohamed-Cherif. (2007). **Les ports algériens à l'heure du désengagement de l'Etat**. Revue Maritime, 480.
- Roso, V. (2009). **The emergence and significance of dry ports: The case of the Port of Goteborg**. World Review of Intermodal Transportation Research, 2(4), 296. <https://doi.org/10.1504/WRITR.2009.026209>
- Roso, V., Woxenius, J., & Lumsden, K. (2009). **The dry port concept: Connecting container seaports with the hinterland**. Journal of Transport Geography, 17(5), 338–345. <https://doi.org/10.1016/j.jtrangeo.2008.10.008>
- Setti, M., Mohamed-Cherif, F.-Z., & Ducruet, C. (2011). **Les ports algériens dans la mondialisation: La fin du paradoxe ?** Méditerranée. Revue géographique des pays méditerranéens / Journal of Mediterranean geography, 116, Article 116. <https://doi.org/10.4000/mediterranee.5410>
- Wilmsmeier, G., Monios, J., & Lambert, B. (2011). **The directional development of intermodal freight corridors in relation to inland terminals**. Journal of Transport Geography, 19(6), 1379–1386. <https://doi.org/10.1016/j.jtrangeo.2011.07.010>
- Woxenius, J., & Barthel, F. (2008). **Intermodal Road–Rail Transport in the European Union**. In R. Konings, H. Priemus, & P. Nijkamp (Eds.), The Future of Intermodal Freight Transport. Edward Elgar Publishing. <https://doi.org/10.4337/9781848441392.00008>