



# International Journal of Innovative Technologies in Social Science

e-ISSN: 2544-9435

Scholarly Publisher  
RS Global Sp. z O.O.  
ISNI: 0000 0004 8495 2390

Dolna 17, Warsaw,  
Poland 00-773  
+48 226 0 227 03  
editorial\_office@rsglobal.pl

---

**ARTICLE TITLE** THE IMPORTANCE OF DRY PORT IN THE ORGANISATION OF URBAN SPACE AND THE OPTIMISATION OF PORT ACTIVITY: A CASE STUDY OF THE CITY OF SKIKDA

---

**ARTICLE INFO** Amiour Amel, Boulehouche Allaoua. (2025) The Importance of Dry Port in The Organisation of Urban Space and The Optimisation of Port Activity: A Case Study of The City of Skikda. *International Journal of Innovative Technologies in Social Science*. 1(45). doi: 10.31435/ijitss.1(45).2025.3148

---

**DOI** [https://doi.org/10.31435/ijitss.1\(45\).2025.3148](https://doi.org/10.31435/ijitss.1(45).2025.3148)

---

**RECEIVED** 24 November 2024

---

**ACCEPTED** 10 January 2025

---

**PUBLISHED** 17 January 2025

---

**LICENSE**



The article is licensed under a **Creative Commons Attribution 4.0 International License**.

---

© The author(s) 2025.

This article is published as open access under the Creative Commons Attribution 4.0 International License (CC BY 4.0), allowing the author to retain copyright. The CC BY 4.0 License permits the content to be copied, adapted, displayed, distributed, republished, or reused for any purpose, including adaptation and commercial use, as long as proper attribution is provided.

# THE IMPORTANCE OF DRY PORT IN THE ORGANISATION OF URBAN SPACE AND THE OPTIMISATION OF PORT ACTIVITY: A CASE STUDY OF THE CITY OF SKIKDA

*Amiour Amel*

*University of Constantine 1 - Brothers Mentouri - Faculty of Earth Sciences, Regional Planning Department, Constantine, Algeria*

*Boulehouché Allaoua*

*Regional Planning Department, Mentouri University, Constantine, Algeria*

---

## ABSTRACT

Dry ports are essential for efficient maritime port operations and can contribute to economic growth. Skikda, a city on the Mediterranean coast, is a significant hub for international trade and transportation, with its port playing a significant role in the country's economy. However, the closure of Skikda's dry port has had negative consequences on the city and the region, leading to job losses, reduced port efficiency, and hindered local business growth. Dry ports are essential for efficient logistics operations, improving connectivity, reducing transportation costs, and creating jobs.

A comprehensive logistics strategy is essential to address the challenges faced by Algerian ports, particularly through the development of dry ports and supporting infrastructure. This strategy should evaluate the economic impact of dry port closures, the potential benefits of reopening facilities like Skikda's dry port, and their role in multimodal transportation. Additionally, it should consider the effects of globalization and containerization on port operations, as well as the specific challenges Algerian ports face, such as aging infrastructure and bureaucratic inefficiencies. Reopening Skikda's dry port could yield significant benefits, including job creation, improved logistics, and economic growth.

---

## KEYWORDS

Port of Skikda, Dry Ports, Supply Chain, Logistical Challenges, Port-Hinterland, Interconnection Multimodal Transport, Port Extension, Development Corridors

---

## CITATION

Amiour Amel, Boulehouché Allaoua. (2025) The Importance of Dry Port in The Organisation of Urban Space and The Optimisation of Port Activity: A Case Study of The City of Skikda. *International Journal of Innovative Technologies in Social Science*. 1(45). doi: 10.31435/ijitss.1(45).2025.3148

---

## COPYRIGHT

© The author(s) 2025. This article is published as open access under the **Creative Commons Attribution 4.0 International License (CC BY 4.0)**, allowing the author to retain copyright. The CC BY 4.0 License permits the content to be copied, adapted, displayed, distributed, republished, or reused for any purpose, including adaptation and commercial use, as long as proper attribution is provided.

---

## 1. Introduction.

The globalization of the world economy and the evolution of the structure of global maritime traffic, as well as the affirmation of containerization as the main mode of maritime transport for goods, make the old ports unsuitable, encouraging the city to allow the port to expand along the coast. This approach is carried out either in urban areas, on land adjacent to the port of origin or in the suburbs of the city (Jeanne-Hélène Jugie, 2014).

Among the many particularities of the Algerian ports, their narrowness within urban organizations is most significant. As noted by Mr. Côte (1996).

In the 1990s, faced with logistical shortcomings and wishing to boost its foreign trade, Algeria invested in the establishment of dry ports that are land extensions of maritime ports, providing storage space, Customs clearance and distribution of goods. These infrastructures reduce congestion in commercial ports and facilitate connectivity with the hinterland, that is, the economic areas inland served by the port. In Algeria, where commercial ports play a crucial role in foreign trade, dry ports are even more essential to ensure efficient operations and reduce logistics delays.

These facilities, initially perceived as engines of economic growth, have nevertheless encountered growing difficulties over time, illustrating the structural challenges facing the sector.

This complex duality is particularly evident in Algeria, where dry ports, designed to overcome these difficulties, have themselves encountered obstacles

"Although these ports play a crucial role in the country's trade, their development has been significantly hindered by poor state management and insufficient investment, as noted by Mohammed-Cherif (2007)."

In response to these challenges, the Algerian authorities have undertaken a restructuring operation aimed at modernizing the dry port sector. However, this initiative has not been without controversy, notably with the closure of several companies operating in the sector, raising concerns about its economic implications.

The decision to close dry ports, particularly Skikda, in order to improve port infrastructure efficiency and facilitate trade, has had a major impact on the economy and logistics.

In addressing this topic, we have adopted a descriptive-analytical approach to describe and analyze the specific case of Skikda, an important port city on the coast of Algeria. The port of Skikda is strategically located as a key hub for international trade and oil transportation on a global scale. Its dual role as an internationally renowned commercial port and oil terminal makes it a crucial part of the regional and global economy.

In this complex context, a central question: what is the overall impact of the closure of dry ports in Algeria, and what are the viable alternative solutions to mitigate these adverse effects? The possibility of reopening the dry port of Skikda is a crucial aspect of this issue, offering potential benefits in terms of trade and economic development, but also posing challenges to overcome.

"To further clarify our contribution to the topic of Skikda's dry port, this article is organized around two main axes. First, we examine the geographical location of Skikda and its transport network to understand how these factors contribute to economic growth at both local and international levels. Second, we highlight the strategic importance of the dry port of Skikda, focusing on its unique position at the crossroads of geography and economy." How does the geographical location of Skikda and its transport network contribute to economic growth at both local and international levels?

How do the communication channels associated with Skikda contribute to consolidating its key position in global trade? The next part of the article will highlight the dry port of Skikda, a key hub for local economic activity. We will focus on how it influences local employment growth and business dynamism. How does the dry port of Skikda contribute to the growth of employment and the dynamism of economic activities in the region? We also venture into the meanders of associated transport infrastructure.

## **2. Dry ports conceptual framework.**

Traditionally, the term port only applies to a location linked to a maritime environment, but recent developments have led to the emergence of what called the dry port, which differs from other facilities where transport services provided.

Therefore, a dry port differs from other facilities where transport services provided.

### **2.1 Dry port definition.**

The need for dry ports has emerged with the evolution of port activity and the use of containers, which have become the key element of international trade

"A dry port is a multimodal inland facility that facilitates connections between various modes of land transport, including rail, road, and river. It provides services similar to those of a seaport, such as handling, storage, and customs clearance of goods. The term 'dry port' reflects its resemblance to a seaport in terms of the services it offers (Mohamed Chérif F.Z). Additionally, a dry port includes infrastructure designed specifically for container and bulk goods handling. It also requires intermodal transport connections and promotes the geographical clustering of companies and specialized organizations, such as consignees and freight forwarders."

Around the world, dry ports are developing along development corridors. They are of great importance for landlocked countries (dry port of Bobo Dioulasso in Burkina-Faso, Bamako in Mali...), but also for metropolitan areas located inland (dry port of Delhi in India). China has arguably the largest dry port network in the world, which acts as an interface between its seafront, its network of industrial cities in the interior, and its partners in Europe and Asia via the new silk roads (Claverie 2024).

In Algeria, the customs law imposed the organization of port facilities called "dry port".

"In accordance with the executive decree N°09-183 of 12 May 2009, as indicated in article 2:" the dry port constitutes a temporary extra-harbour depot considered as a natural extension of the maritime ports it can only be attached to one single port"

According to article 02 of the decision of 27 March 2011 on dry ports, a dry port is a temporary warehouse located outside the port, which is the natural extension of sea ports and can only be connected to one port".

## 2.2 Completing and linking the multimodal transport chain.

Seaports play a crucial role in the transport chain, serving as a connection point between land, sea, and air transportation modes. They facilitate the movement of goods between these modes, contributing to industrialization, storage, and transit processes. This role enhances the efficiency and resilience of international multimodal transport systems. (Ourida, E., & Ali, A.)."

## 2.3 The supply chain.

The supply chain is a key concept in logistics and operations management.

The supply chain can be defined as all integrated processes and activities aimed at effectively managing the flow of goods, information and services from their point of origin to the end consumer. It relies on strategic coordination involving various actors, such as carriers, warehouses, suppliers and distributors, in order to ensure optimal delivery while minimizing costs.

Thus, the supply chain extends beyond physical flow management, encompassing planning, coordination and resource optimization, while generating synergies. (Lacoste Romuald and Terrassier Nicolas)

## 3. Geographical Position of Skikda and its Dynamic Strategic Importance

### 3.1 Geographical Situation:

The Skikda Wilaya is located in the northeastern part of the country. The area of 4 118 km<sup>2</sup> is bounded by the Mediterranean Sea to the north, the wilaya of Annaba to the east, the wilayas of Constantine, Mila and Guelma to the south, and the wilaya of Jijel to the west. .

The city of Skikda is located in the north-eastern region of Algeria, on the Mediterranean coast. It is located approximately 471 kilometers east of the capital Algiers, 80 kilometers northeast of Constantine and 100 kilometers west of Annaba. Strategically located, Skikda is a major economic and tourist hub. (Fig 1 Map 1).

Skikda, a coastal municipality in Algeria, bordered by the Mediterranean Sea to the north, with a 130-kilometre coastline. It shares borders with Filfila, El Hadaiek, Hamadi Krouma and Aïn Zouit. Skikda covers an area of 5,200 hectares and has a population of over 804,000, mainly concentrated in the capital and the surrounding area. Equipped with modern infrastructure such as national roads, ports and railways, it is a key commercial crossroads. Skikda also known for its industrial zones, particularly in the petrochemical sector. Its coastal location and proximity to neighboring wilayas such as Annaba, Guelma, Constantine, Mila and Jijel mean that it plays a central role in regional trade. This strategic position, combined with its natural and economic heritage, gives Skikda a strategic role in Algeria's development.

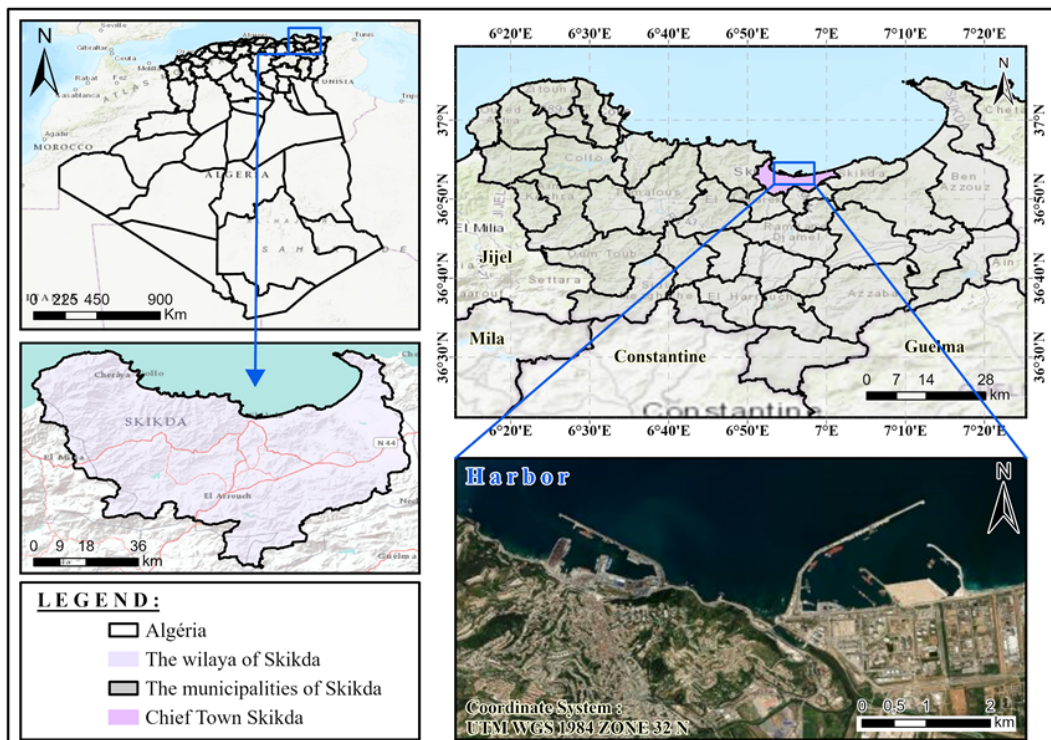


Fig.1. Map (01): The Location of the City of Skikda in Relation to the Nation, and its port (Source: Authors (2024) using ArcGIS 10.7.)

#### 4. Related Transportation Infrastructure

##### 4.1 Physical presentation of the ports of Skikda.

The port of Skikda, located in the town of Skikda, is an important commercial port with two separate facilities: the former port dedicated to the movement of goods, the new port for oil materials. The new port, as a national infrastructure, is in addition to the port of Arzew and the dry port.

Commercial port facilities play a critical role in ensuring efficient maritime operations and supporting the local and global economy.

The town of Skikda has:

two international trade ports (old and new) (4,420 m of wharves in 24 berths). The mixed port of Skikda (general cargo and hydrocarbons) and the port of Skikda El Djadid specialized in the transit of hydrocarbons.



Fig.2. Photo (01): Skikda trading port (Source Guide to Skikda Ports 2020. Skikda)

- Two international trade ports (4,420 metres long) with 24 storage stations.
- The mixed port of Skikda (general and hydrocarbons) and the port of Skikda El Djadid are specialized in the transport of hydrocarbons.(Fig2 photo 1 )
- The mixed port of Skikda, initially composed of seven storage stations, has grown considerably thanks to port extension programs.
- Currently, it has 14 storage stations, including three gas stations.
- Skikda also has large commercial areas (cedar and land) and three terminals with a total capacity of 6500EVP.(Fig 3 Map 2)

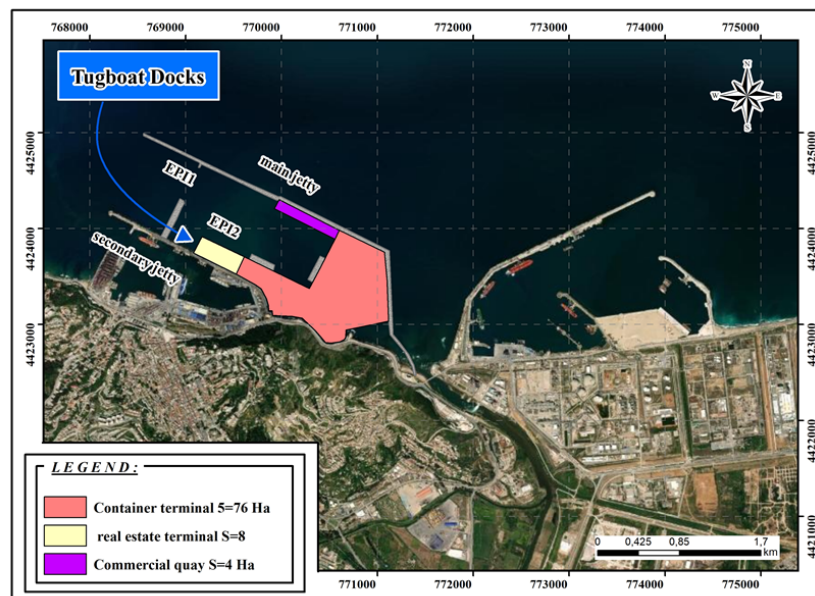


Fig.3. Map (02): Extension of the commercial port (Source: Statistical Yearbook 2018. Skikda Port Company.)

The new port "EL DJEDID" or petrochemical port:

THE PORT OF Skikda «El-Djedid», is the second largest hydrocarbon port in Algeria. It is an essential link in the integrated pole of the Skikda industrial hydrocarbon platform (Fig 3 photo(02)) With an annual total traffic of approximately 23 million tones, it ensures the delivery of refined hydrocarbons, gaseous, aromatic and crude oil products and derivatives from the Skikda refinery to national and international markets.



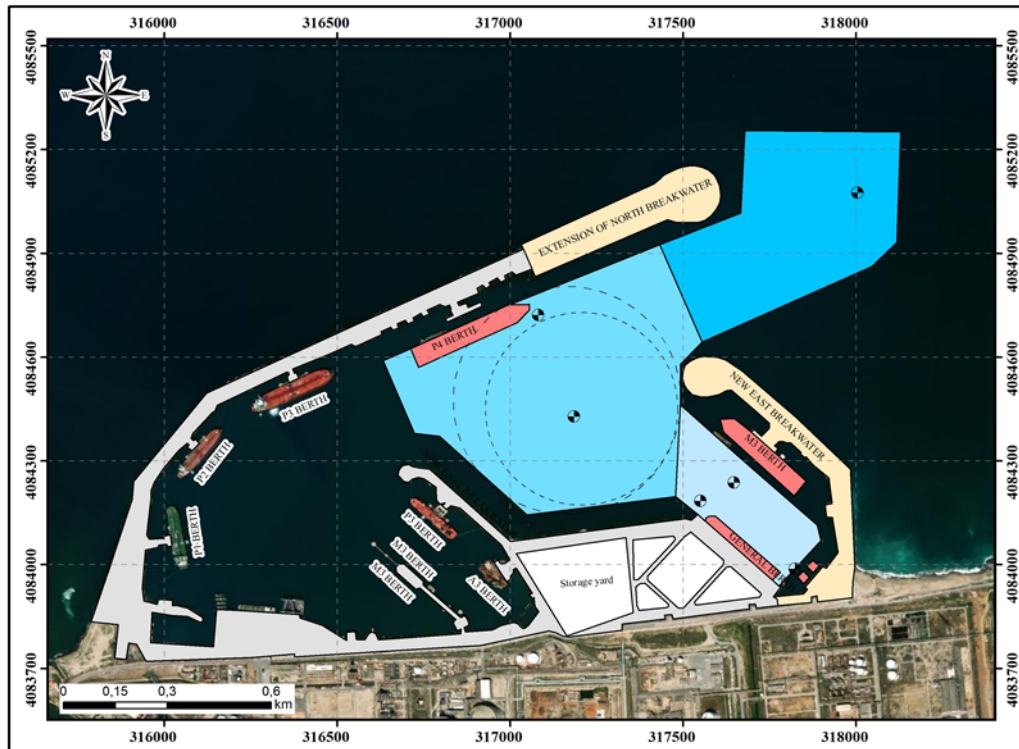
Fig.4. Photo (02): Hydrocarbon port (Source: Statistical Yearbook 2018. Skikda Port Company.)

#### 4.2 Towards a New Port in Skikda: Optimization and Extension of the Logistic Infrastructures.

"Due to the lack of available space and the growing importance of the port of Skikda in the region's economy, the authorities have decided to launch the construction of a new port. This project aims to strengthen existing port capacity. And to meet the accumulated demand for logistics services, thereby consolidating Skikda's competitiveness as a strategic maritime transit center for the region and beyond.(Fig 5 Map 3 )

Investment of 1.8 million dinars for the rehabilitation and optimization of the port.

- Expansion of the company's headquarters for better installation teams.
- 714 million dinars for the rehabilitation of docks and the concrete making of commercial, fishing and logistics ports.
- 160 million dinars for the modernization of the inland railway to facilitate the transport of goods between port areas.
- 592 million dinars for construction and new superstructures.
- Increased port security by installing monitoring devices, improving lighting and securing the port's logistics gates.



*Fig.5. Photo (03): New port of Skikda*

*(Source: Authors 2024 using Statistical Yearbook 2018. Skikda Port Company.)*

As part of the extension of the mixed port of Skikda, additional work is being carried out to build a deep water port on the east side (goat islets) with a draft of more than 15 meters. This new infrastructure, adjacent to the mixed harbor, will include a third dock and an extension of the main pier, with a deep-water substation. A 22-hectare container terminal, capable of storing up to 6,940 TEUs, also planned, with an ongoing study by the Skikda Wilaya Public Works Directorate to meet the port's logistics needs. In addition, a second basin built at the El Djeddid oil port. This expansion designed to accommodate LNG carriers of 150,000 m<sup>3</sup> and over, recommended by an extension study carried out by SHELL on behalf of SONATRACH.

##### **5. The port of Skikda: an open port on the Cinque continent.**

Container traffic in 2021 is 124,357 units, a 20% decrease compared to 2020. *après* (Fig 6 Map n° 4 ) shows that the largest share of imported goods comes from Asia with 310,220 tonnes or 49,44% of all imported containers and in second place come the EU countries with 32.96%, followed by Arab countries with 21.60%.

This geographical configuration, linked to the strategic position of the port of Skikda, allows it to be ideally located to facilitate access to the main maritime routes dependent on Algeria to Asian countries, to the Member States of the European Union and to the Arab nations. . In addition, the port has excellent connectivity with other national ports, reinforcing its key role in trade.

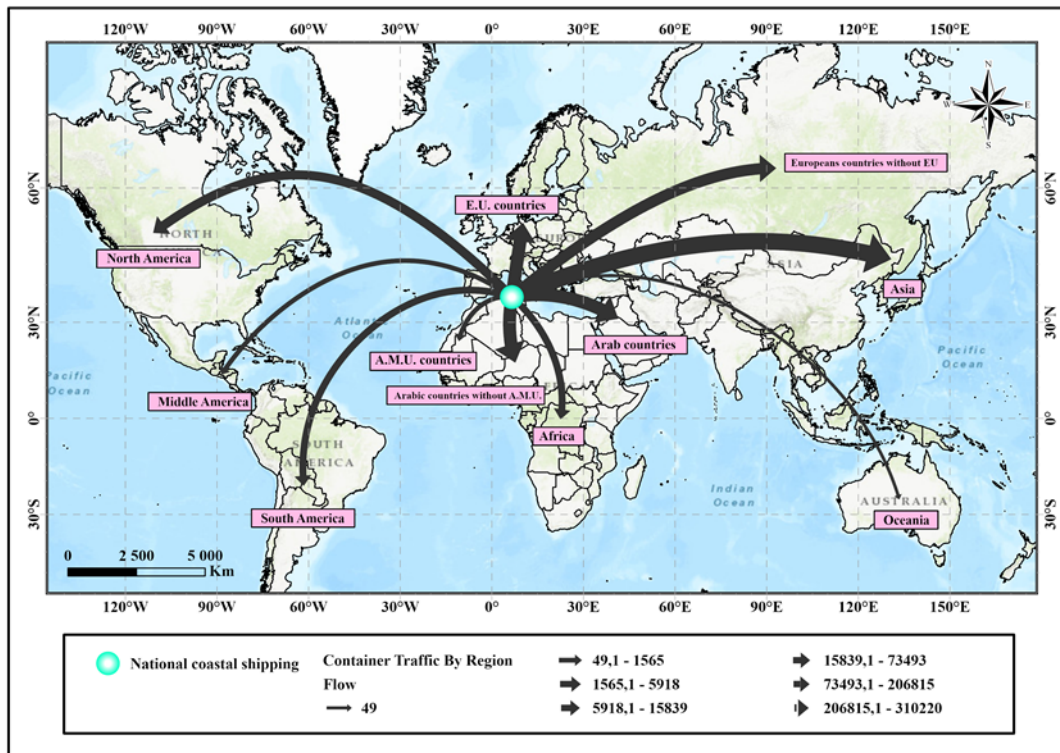


Fig.6. Map (04): Skikda port: volume of traffic by country of provenance  
(Source: Authors 2024 using Statistical Yearbook 2022. Skikda Port Company.)

In this context, it is crucial to implement a development plan aimed at developing and improving the logistics performance of the port of Skikda. This plan should include all the projects mentioned above, as well as the possibility of reopening the dry port of Skikda in order to optimize all the assets of the port and to maintain a competitive climate vis-à-vis national and international competitors.

#### 6. A Connected Port: An Asset for the Fluidity of Logistic Exchanges.

"The port extension will benefit from a direct connection to the east-west motorway via the penetrant currently under construction between Hammadi Krouma and El-Harrouch (Fig. 7), thus facilitating accessibility and the transport of goods into the interior of the country. This connection will optimize port logistics and improve the definition of delivery times (Fig. 7, Map 5)

This program will transform the port of Skikda into a modern and competitive maritime hub, able to meet the demands of an expanding market and strengthen its position on international trade routes. Nevertheless, the recent closure of the dry port in the same area is regrettable, as it could have played a crucial role as a complement to the new port infrastructure. The proximity of the dry port would have allowed for a smoother transport of containers, optimized logistics operations and guaranteed a safer and more organized movement of goods. The synergy between the main port and the dry port would have increased the efficiency of trade and maximized the potential.



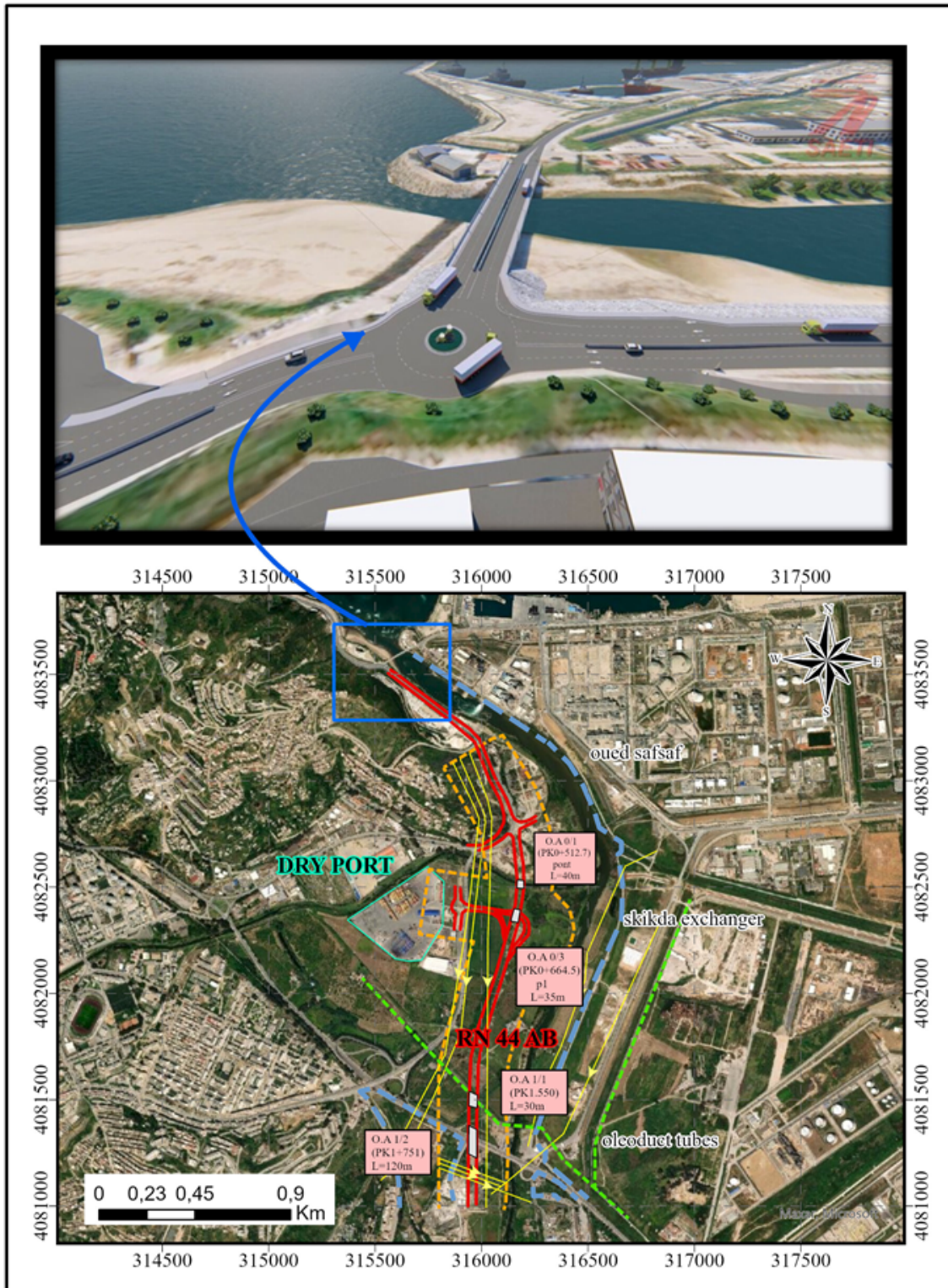


Fig.7. Map (05): Skikda port: Connection of the ports Skikda and the dry port to East-West highway  
(Source: Authors 2024 using Statistical Yearbook 2018. Skikda Port Company.)

**7. Skikda: A Dry Port Strategically Positioned for Commercial and Logistics Development".**

The dry port of Skikda, is located at the entrance to the town of Skikda in the small industrial area, 2 km away from the seaport.(Fig 8 N° 6)

- The dry port of Skikda, also called the Intermodal Logistics Company (SIL), at the origin of this operation,

- SIL, which had significant financial power, had a share capital of 500 million dinars (500 000 000 DA).

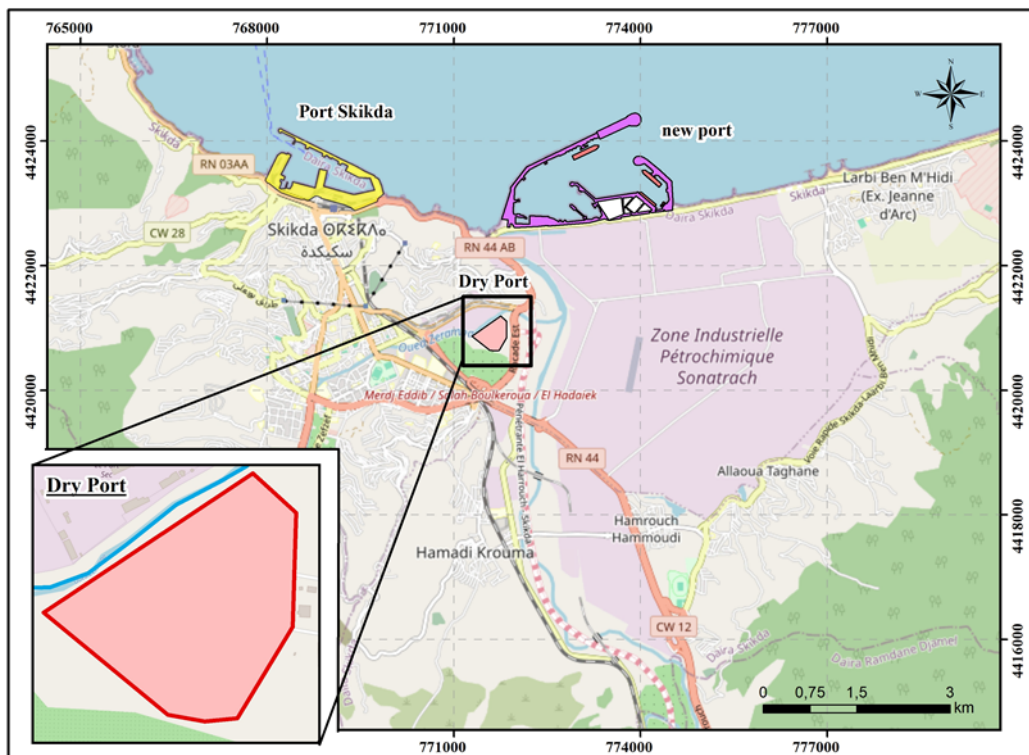


Fig.8. Map (05): The location of dry port

(Source: Authors 2024 using Statistical Yearbook 2014. Skikda Port Company.)

- Share distribution: 66% were held by the Port Company of Skikda, 20% by the Port Company of Annaba and 14% by the Intermodal Transport Company (STIM).
- The company also planned a 12-hectare warehouse and another of 18 hectares, aimed at simplifying the reception and transit of dry goods and other types of goods.

This initiative marked a turning point in inter-institutional collaboration, particularly in the port and railway sectors. Indeed, SIL's multi-purpose strategy, based on the ports of Skikda and Annaba as anchor points, made it possible to efficiently connect destinations via land and rail networks. This approach constituted a major strategic advantage, thus strengthening the competitiveness and efficiency of the region's logistics infrastructure.

Impact of the Skikda dry port closure.

## 8. Impact of The Closure Of The Dry Port.

### 8.1 Impact on port performance.

The closure of the dry port of Skikda in 2021 has led to a significant slowdown in port activities in the region. Before this event, the port had a promising performance. In 2014, the number of container vessel calls increased by 11.2% compared to 2013, allowing for processing of 39,146 TEU (20-foot equivalent), compared to 35,219 TEU the previous year. Dry port also made a significant contribution to total containerized traffic, reaching 56% in 2014, compared with 53% in 2013 and 47% in 2012.

Table.1. evolution of dry port activity 2012 to 2014  
(Source: Authors 2024 using Statistical 2014. Skikda Port Company.)

Activity	Type	2012	2013	2014	Evolution 2014/2013 (%)
Transfer of full containers to dry port	20'	1 424	6 919	9 376	35,51
	40'	2 908	14 150	14 885	5,19
	EVP	4 332	35 219	39 146	11,15
Full container removal from dry port	20'	1 320	7 011	8 793	25,42
	40'	3 300	14 288	15 048	5,32
	EVP	4 620	35 889	38 889	9,28

Despite these encouraging results, the closure of the dry port has highlighted the fragility of the local logistics ecosystem. As R.E. Thayer et al. (1989) pointed out, modern infrastructure is not sufficient to ensure the economic sustainability of a port. Fluctuations in international markets, combined with the lack of sustainable logistics solutions, can quickly compromise the performance of a maritime hub.

The closure of the dry port of Skikda has had a significant impact on the region's port and logistics dynamics, directly affecting the overall performance of the port. This underlines the importance of a sustainable logistics strategy to ensure the competitiveness of Algerian ports in a constantly changing global context.

## 8.2 Impact job creation and local economy.

The number of officers employed at the opening of the dry port in April 2007 was 47. This number has risen to 82 agents at the end of December 2014, indicating significant growth in activity and a certain potential for development.

The fact that 99% of the agents are from the Skikda wilaya and 91% from the Skikda municipality shows a strong local anchor of the company. As a result, job losses have a direct and significant impact on the local economy.

Impact on land access: "Logistic accessibility of consignees and freight forwarders at the dry port of Skikda"

The closure of the dry port also disrupted land access to port facilities. In the absence of storage areas and local logistics facilities, freight transport has become more complex and less fluid. This has resulted in delays in cargo handling and additional constraints on the regional supply chain, increasing costs for operations.

In addition, the closure of the dry port has significantly reduced the accessibility of consignees and freight forwarders who relied on these facilities to optimize the management of cargo flows. These key players faced with longer distances and restricted access to the trading port, which increases logistical costs and complicates coordination of operations.

## Conclusions.

The closure of the Skikda port terminal has had a significant economic impact on the community. To stimulate the local economy and increase its competitiveness, the Algerian port strategy must be reviewed and incentives to develop logistics infrastructures. The reactivation of the terminal could be an important step in this direction, provided it supported by a comprehensive economic growth strategy. The closure has amplified problems with port traffic, container management and access to land. In summary, the closure of the dry port of Skikda without a viable alternative has not only disrupted supply chains but also weakened the competitiveness of Algerian port infrastructure. It is imperative that port and customs authorities review their approach in order to restore the confidence of economic actors and lay the foundations for sustainable development of foreign trade. Port regionalization, as mentioned by Notteboom and Rodrigue (2005), considered a strategic solution to relocate some logistics functions and support resilient regional economic development.

## REFERENCES

1. Yanis, I., & Edine, B. A. (s.d.). Conflicts of use city-port: Causes of informal habitat proliferation. Case of the port city of Bejaia (Algeria). ASJP. Available on cerist.dz
2. Cherfi, Z., & Chemloul, M. (2022). Measuring the performance of port activities through efficiency and effectiveness: Case of the Algiers port company. Dspace. Available on ummto.dz
3. Rouquet, A., & Guenoun, M. (2023). Logistisons l'Etat! : Proposals to strengthen the logistics organization of France. Logistics & Management. Taylor & Francis.

4. Notteboom, T. E., & Rodrigue, J.-P. (2005). Port regionalization: Towards a new phase in port development. *Maritime Policy & Management*, 32(4), 297–313.
5. Lacoste, R., & Terrassier, N. (n.d.). Container port handling: Global players' perspectives - a European vision.
6. Mupier Muka, N. (2024). Optimisation of the strategic and operational management of the Congolese maritime line SA, a public commercial undertaking in the Democratic Republic of the Congo. Matheo. Available on [uliege.be/Cerceau](http://uliege.be/Cerceau),
7. J., & Enrech, C. (2023). Interoperability and resilience of cross-border territories along logistics corridors. IMT Mines Alès. Available on [hal.science/Padonou](http://hal.science/Padonou), V. A. (2022).
8. Port logistics and accessibility of the landlocked countries of the WAEMU to the international market: Case of the port of Cotonou. Available on [hal.science/Granier](http://hal.science/Granier), C., & Ellie, P. (2021). These territories seeking to reindustrialize. The Factory. Available on [la-fabrique.fr/Azzedine](http://la-fabrique.fr/Azzedine)
9. M. A., Amar, M. A., & Souhila, M. (n.d.). Option: Finance and Accounting. Available on [theses-algerie.com/Mottet](http://theses-algerie.com/Mottet), É. (n.d.). La BRI en Asie du Sud-Est. *De Gruyter*. Disponible sur [degruyter.com](http://degruyter.com)
10. Law no. 07-79 of 21 July 1979 on the Customs Code, as amended and supplemented by various laws and ordinances. Hiliquin, M. (2024, December). New Silk Roads in Central Asia in China's geo-economic strategy. *Geoconfluences*.
11. Claverie, B. (2024, September). The dry port of Xi'an: A logistic arrangement between local development and China's insertion in globalization. *Geoconfluences*. Shaaban, A. (2015). Dry ports : Egypt's path to development. *Sky Shaaban*, 14, 20p.
12. Benkhedda, K., El Hakmi, S., & Bennaceur, A. (2023). The determinants of port logistics performance: Case of the port of Casablanca. *International Journal of Accounting, Finance, Auditing, Management and Economics*, 4(1-2), 81–100. <https://doi.org/10.5281/zenodo.7582300>
13. Merzoug, S. (2013). Littoral without maritime: Obstacle to external trade. *Les Cahiers du Cedimes*, 7(2), 44. Alilat, T. (2005). The challenges of containerization in Algerian ports (Mémoire de magistère, Université Abderrahmane Mira, Bejaia).
14. Mohamed Chérif, F.-Z. (2004). The Port and Maritime Activity of Algeria: Problems and Prospects (2nd ed.). Office for Academic Publications.
15. Lamour, C. (2011). Grand-régionalisme: From partial state decompartmentalization to network territoriality. *Geographica Helvetica*, 66(4), 281–292. <https://doi.org/10.5194/gh-66-281-2011>
16. Skikda Port Company. (2020). Guide to Skikda Ports (Ed. 3). Skikda Port Company.
17. Skikda Port Company. (2018). Statistical Yearbook 2018. Skikda Port Company. Available at <https://skikda-port.com/wp-content/uploads/2022/03/Annuaire-Statistique-2018.pdf>
18. Skikda Port Company. (2020). Statistical Yearbook 2018. Skikda Port Company. Available at <https://skikda-port.com/wp-content/uploads/2022/03/Annuaire-Statistique-2020.pdf>
19. Ourida, E., & Ali, A. (2021). The reality of strategic management in shipping services: A case study of Algeria. *Journal of New Economy*, 12(1), 644–663. Published on March 20, 2020; Accepted on January 1, 2021.
20. Agence Nationale d'Intermédiation et de Régulation Foncière. (2020). Monograph: Wilaya de Skikda. Agence Nationale d'Intermédiation et de Régulation Foncière. Boison, D. K., & Antwi-Boampong, A. (2020).
21. Blockchain ready port supply chain using distributed ledger. *Journal of NBICT*, 1(1), 1–32. <https://doi.org/10.13052/nbjct1902-097X.2020.001>