

Analysis of the Evolution of Cargo Handling and Discharge at the Djendjen Port (2014-2024)

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Abstract

This research aims to study the evolution of cargo handling and discharge operations at the Djendjen Port during the period 2014–2024, considering it one of Algeria's strategic ports of increasing importance in supporting foreign trade and strengthening national supply chains. The significance of this research lies in providing an analytical perspective on the port's performance amidst regional and international economic changes, with a focus on loading and unloading indicators, and the composition of handled cargo. Expected findings indicate that the port, despite circumstantial challenges noted in 2024, is progressing towards achieving higher operational efficiency owing to technological developments, continuous training, and ongoing expansion projects. It is also anticipated that the port will enhance its position as a competitive logistics hub in North Africa.

Keywords:

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Maritime Shipping;
Operational Efficiency.

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1. Introduction

Maritime transport is considered one of the oldest and most important modes of transportation known to humanity throughout the ages. This mode relies on the use of water bodies, such as seas and oceans, to transport people and goods using ships and boats. Maritime transport is characterized by its capacity to move vast quantities of goods over long distances at a low cost compared to other means such as air or land transport.

Since ancient times, maritime transport has played a pivotal role in facilitating trade between different regions and nations, as it contributed to the movement of goods between continents and helped strengthen economic relations among peoples. Today, maritime transport continues to be a fundamental pillar of global trade, transporting a large proportion of goods, including raw materials, consumer goods, and industrial products.

Modern ships used in maritime transport are characterized by high efficiency and advanced technology, which enhances their ability to transport large volumes of goods quickly and safely. Furthermore, maritime transport contributes to job creation and fosters global economic growth in general.

The importance of maritime transport extends beyond the commercial aspect to also encompass tourism and cultural dimensions, as cruise ships are used to transport passengers on leisure voyages across various oceans and seas.

2. Introduction to the Djendjen Port Enterprise

The Djendjen Port is considered one of the most prominent ports relied upon by Algeria to enhance its foreign trade and drive economic development. In this context, we will present the Djendjen Port Enterprise, the importance of this port, its functions, its available infrastructure, in addition to the logistics activities it undertakes.

2.1. Historical Overview of Djendjen Port

The coast of Jijel Wilaya (Province) is a strategically important region, having served as a significant destination both locally and internationally since ancient times, acting as a major transit point for merchant ships. During the French colonial period, authorities decided to build a new port dedicated to cargo transport, primarily focused on cork and viticulture products, which constituted a large proportion of exports abroad, especially to France and Belgium.

After Algeria regained its independence, the Jijel Port became one of the state's vital facilities, subordinate to the Port of Bejaia until 1984. In that year, the enterprise was restructured, and the port came under the supervision of the Jijel Port Enterprise (Entreprise Portuaire de Jijel) according to Presidential Decree No. 84/173 issued on July 21, 1984, bearing the name "Jijel Port Enterprise" with a capital of approximately 35 million Algerian dinars.(Decree No. 84-173, 1984)

With increasing national trade activity and expanding commercial space, waiting times in ports became lengthy, and existing ports were not equipped to accommodate large, high-capacity vessels due to their limited depth. Therefore, the decision was made to construct a new port in the Achouat area of Jijel, linked to the Bellara iron and steel plant project. It was anticipated that the port would collaborate with this plant to export around 3 million tons, equivalent to 66.6% of the port's capacity.

Construction work on the Djendjen Port began on November 9, 1984, and concluded at the end of 1999. A consortium of Italian and Dutch companies undertook the project execution under the supervision of the Condotte company.

The cost of completing the port amounted to approximately 5.2 billion Algerian dinars, jointly financed by several parties, including the Algerian state, the Saudi Fund for Development, the Arab Fund for

Economic and Social Development, and the Islamic Development Bank.

The first vessel to berth at Djendjen Port was a Cypriot ship in July 1989, loaded with equipment necessary for completing the project for the Condotte company. In 1993, it was officially named Djendjen Port, while the old Jijel Port was transferred to the National Navy.(Fatima Belchem & Faiza Boulahia, 2019)

2.2. The Djendjen Port Enterprise

The Djendjen Port Enterprise (Entreprise Portuaire de Djendjen) is a public economic enterprise enjoying financial autonomy and subject to the supervision of the Port Services Group (Groupe SERPORT), headquartered in Hydra, Algiers, which falls under the Ministry of Transport. The enterprise is a joint-stock company with a capital estimated at around 4 trillion Algerian dinars (*Translator's Note: 4 thousand billion dinars is 4 trillion*). Djendjen Port is located in the eastern part of Algeria, covering a total area exceeding 140 hectares, with the potential for expansion by 30 hectares, in addition to a reserve area designated for establishing a logistics zone of 350 hectares. The port is one of the most important commercial sites receiving imported grains and exporting salt and cork, and it is considered the deepest port in Algeria.

Djendjen Port is located 40 kilometers from the Bellara industrial zone, 2 kilometers from Ferhat Abbas Airport, 370 kilometers from Algiers, 140 kilometers from Constantine Wilaya, and 900 kilometers from Hassi Messaoud. The port also enjoys a strategic position on the Mediterranean maritime axis connecting the Suez Canal and the Strait of Gibraltar, situated approximately 80 kilometers from this axis. Djendjen Port holds significant importance, highlighted by the following points:

Analysis of the Evolution of Cargo Handling and Discharge at the Djendjen Port (2014-2024)

- It serves as a major link between Africa, Europe, and the Middle East.
- It possesses a strategic location on the maritime axis connecting the Suez Canal and the Strait of Gibraltar.
- It has attracted numerous local and international economic operators.
- It is considered the backbone of import and export trade movements.
- It has contributed to the creation of a large number of jobs.

The functions of Djendjen Port involve providing a range of port services that include attending to vessels upon their arrival in the port bay and upon departure, through several procedures, including:

- Contacting the vessel's crew to grant clearance for port entry.
- Providing assistance and advice related to weather conditions to facilitate the vessel's entry into the port. To ease this process, the vessel is provided with a port pilot, along with the use of tugboats, launches, and necessary guidance to prevent accidents that could lead to material or human losses. The same procedures are repeated upon the vessel's departure from the port.
- Ensuring the protection of goods from damage or theft through storage in warehouses.
- Verifying the conformity of goods with security specifications.
- Providing round-the-clock security for goods until they are collected.
- Leasing warehouses and designated storage areas.
- Providing various equipment such as tugboats and launches to assist vessels entering and leaving the port.

It is worth mentioning that the Djendjen Port Enterprise has adopted an Integrated Management System (IMS) in accordance with the standards (ISO 9001 – ISO 14001 – ISO 45001). This system enables

organizations to apply a structured approach to their activities to achieve their objectives in various fields. The attainment of these certifications by the Djendjen Port Enterprise represents the culmination of years of continuous effort by the company, resulting from the dedication and participation of all its workers and employees in executing assigned tasks and satisfying customers. (Website of the Djendjen Port, Mars 2025)

2.3. Port Infrastructure and Logistics Activities

In this section, we will attempt to identify the infrastructure of Djendjen Port, which will help us determine the impact of this infrastructure on logistics activities, understand how these services are provided in ports, and evaluate their performance. We also aim to highlight the importance of logistics activities in improving port performance and increasing its competitiveness by attracting more investment and reducing costs, thereby becoming a competitive logistics hub that contributes to national economic development and enhances foreign trade.

2.3.1. Characteristics of Port Infrastructure

The port's infrastructure consists of a set of facilities including breakwaters that protect it from sea waves, quays designated for vessel berthing and cargo handling (loading/unloading), in addition to waterways that allow ships to enter the port. The facilities are divided into two main categories: external works and internal works. (Website of the Djendjen Port, Mars 2025)

- **External Works**
 - Djendjen Port features a unique basin extending over an area of 180 hectares, protected from the north and east by extended breakwaters/jetties.
 - The main entrance channel to the port is located on the northeastern side and has a width of 250 meters.

Analysis of the Evolution of Cargo Handling and Discharge at the Djendjen Port (2014-2024)

- The approach or entrance channel has a draft (depth) of up to 19 meters.
- The turning basin within the port boasts a draft of up to 18 meters and occupies an area of 18 hectares.
- **Internal Works:** Djendjen Port consists of two protective breakwaters and a number of quays and berths with various characteristics.
 - **Protective Breakwaters:** The port is equipped with breakwaters aimed at securing it from the effects of waves. The following table includes details regarding the protective breakwaters.

Table (01): Protective Breakwaters

Breakwate	Length
Northwestern Breakwater	3400 m
Northeastern Breakwater	900 m
Epi	100 m

Source: Official Website of the Djendjen Port Enterprise

- **Quays and Berths:** The port contains four main quays, as the following table illustrates:

Table (02): Quays and Berths at Djendjen Port

Type of Berth	Length	Width	Depth	Yard Area	Number of Berths
General Cargo Berth	770 m	200 m	11 m	15 ha	04
Multi-purpose Berth¹	250 m	300 m	11 m	7.5 ha	02
Specialized Berth	1060 m	300 m	10.5 m - 18.2 m	30 ha	08
Ro-Ro Berth	3 Ramps ²	3 Ramps ²	11 m	9 ha	03
Dedicated Container Terminal Berth (3 distinct berths)	1829 m	N/A	14 m - 17 m	78.5 ha	N/A

Source: Official Website of the Djendjen Port Enterprise

- Total length of quays: 802 m
- Land area: 15 hectares

All quays are equipped with railway lines connecting to the national rail transport network via the "Bazoul" freight sorting station, located 500 meters from the port. The "Bazoul" station is considered the largest station in Eastern Algeria, with a handling capacity of 8 million tons.

- **Port Superstructure:** The port superstructure includes all built structures within the port boundaries, distributed among various essential facilities and services, as follows:
 - **Administrative Buildings:** This category encompasses all administrative buildings such as the Customs headquarters, Border Police and Traffic Control, the Port Authority building (Capitainerie), as well as the health complex.
 - **Power Generation Station:** This station distributes electrical power through the main network within the port, with a capacity of 6300 kW. Additionally, there are 5 secondary substations operating at different capacities.
 - **Warehouses:** The port includes three warehouses, each with an area of 100 m². It also contains structures under construction on the western quay with a total area reaching 6000 m².
 - **Storage Areas:** This includes areas designated for receiving goods, detailed as follows:
 - Total land area of the port: 150 hectares.
 - External annexed area adjacent to the port: 27 hectares.
 - Real estate reserve outside the port for establishing logistics zones: 350 hectares.
 - **Specialized Facilities:** Includes the following installations:
 - Oil tanks with a capacity of 8,000 liters
 - Cement silos with a capacity of 15,000 tons.
 - Grain silos with a capacity of 280,000 tons.
 - **Equipment:** Includes the handling equipment within the port, represented by the following machinery, with details on load capacity.

Analysis of the Evolution of Cargo Handling and Discharge at the Djendjen Port (2014-2024)

Table (03): Handling Equipment at Djendjen Port

Equipment	Quantity	Load Capacity
Forklift	34	3 tons to 15 tons
Forklift	02	38 tons
Forklift ¹	02	42 tons to 250 tons/hr
Grain Gantry Crane	02	250 tons/hr
Mobile Harbour Crane	03	64 tons
Mobile Telescopic Crane (on tires)	01	120 tons
Mobile Telescopic Crane (on tires)	02	90 tons
Mobile Telescopic Crane (on tires)	02	60 tons
RO/RO Tractor (1 Chouleurs) ²	02	40 tons
Terminal Chassis	02	N/A
Tractor Unit + Semi-trailer (TB 400)	05	N/A
Tractor Unit + Semi-trailer (DAF)	06	N/A
Tractor Unit + Semi-trailer (Mercedes)	06	N/A
Boom Lift Truck (Cherry Picker)	01	N/A
Backhoe Loader	30	N/A
Loader	04	N/A

Source: Official Website of the Djendjen Port Enterprise

- Marine Equipment

Table No. (04): Marine Equipment for the Port of Djendjen

1 x 7213 hp Tugboat	1 x 1700 hp Tugboat
1 x 5440 hp Tugboat	3 x Pilot Boats
2 x 2750 hp Tugboats	4 x Mooring Boats

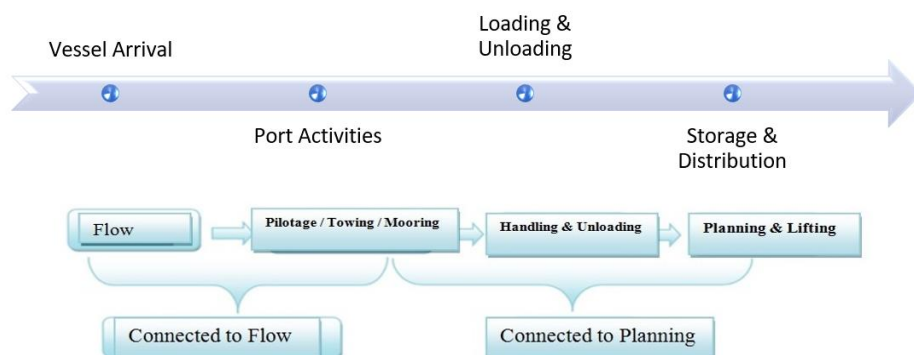
Source: Official Website of the Djendjen Port Enterprise

Through these activities and its developed infrastructure, Djendjen Port strives to increase Algeria's capacity to interact with international markets and enhance its role in global trade, thereby contributing to the development of the national economy and boosting Algeria's competitiveness in the global market.

2.3.2. Logistics Activities of the Djendjen Port Enterprise

The port's operating system consists of a series of interconnected and sequential processes carried out in an organized manner, where the output of each process serves as the input for the next. These processes overlap to achieve the primary objective: customer satisfaction. The following figure illustrates the port's logistics activities chain.

Figure (01): Elements of the Port Logistics Activities Chain



Source: Official Website of the Port Authority of DjenDjen.

Analysis of the Evolution of Cargo Handling and Discharge at the Djendjen Port (2014-2024)

- **Handling:** Port handling operations encompass the loading and discharge of cargo, its subsequent transfer, and storage either in open yard areas or within warehouses. These services are rendered based on contractual agreements, with fees levied commensurate with the services provided.
- **Loading:** The process of loading cargo onto vessels is executed either directly from inland transport modes (e.g., trucks, railcars), from the quayside, or from designated storage zones, utilizing equipment appropriate to the specific cargo type.
- **Stevedoring (Loading and Discharge Oversight):** This scope of operations includes ensuring the proper reception of cargo loaded or discharged onto the quay, its classification and inspection, and maintaining its security until onward transport to its final destination.
- **Pilotage and Guidance:** This service involves assisting vessels during port entry and departure phases, as well as providing navigational guidance to vessel masters regarding specific hydrographic and operational characteristics within the port limits.
- **Towage:** Towage services consist of assisting vessels through pulling or pushing operations, facilitating berthing and unberthing maneuvers, and providing support during other navigational maneuvers within the port. These services are provided by dedicated tugboats.
- **Port Operational Structure:** The Port of Djendjen employs a workforce of 1,270 personnel. The port maintains continuous 24-hour operations (24/7) through a system of four rotating shift teams operating on a 24/72 schedule (24 hours on duty followed by 72 hours off). Operational continuity is maintained with two shifts actively working at any given time.
- **Training and Development:** An allocation equivalent to 2% of the total payroll at the Port of Djendjen is dedicated to employee training and professional development. The objective of this

investment is to enhance operational productivity and mitigate equipment maintenance costs through the promotion of optimal handling and utilization practices.

Algeria is currently experiencing significant economic growth, reflected in notable increases in trade volumes handled by its ports. By the end of 2023, Algeria's non-hydrocarbon exports reached USD 7 billion. The government has set a strategic target to increase non-oil exports to USD 15 billion by 2030. To accommodate and facilitate this growth trajectory, comprehensive expansion plans are underway for Algerian ports. Among these, the Port of Djendjen is undergoing substantial development, positioning it to become the largest port facility in the Mediterranean basin upon the scheduled completion of its expansion phase in 2025.

This expansion includes the development of a new container terminal with a projected annual handling capacity of up to 2 million TEUs (Twenty-foot Equivalent Units). The project involves constructing approximately 3 kilometers of quay length and developing a terminal area exceeding 350 hectares. In July 2024, a new quay section measuring 320 meters in length with a navigational draft of 14 meters was commissioned, enabling the port to accommodate vessels with capacities up to 6,000 TEUs. In the subsequent phase, the draft is planned to be increased to 18 meters, which will allow the port to service Ultra-Large Container Vessels (ULCVs) with capacities up to 18,000 TEUs by September 2025.

These infrastructural enhancements are expected to yield significant reductions in logistical transportation costs and decrease transit times for goods transiting between Europe and African nations by an estimated 20 days. The port aims to achieve an annual cargo throughput of 12 million tonnes, a substantial increase from the 9.7 million tonnes recorded in 2013. Furthermore, strategic integration projects are underway to connect the port directly to the national highway system (East-West Highway) and the railway network. These enhanced

Analysis of the Evolution of Cargo Handling and Discharge at the Djendjen Port (2014-2024)

hinterland connections are anticipated to significantly boost port throughput and act as a catalyst for broader national economic development.

3. Statistical Analysis of Traffic Evolution at the Port of Djendjen

The Port of Djendjen is recognized as one of Algeria's preeminent commercial ports, benefiting from a strategic location on the Mediterranean Sea. This position establishes it as a primary maritime gateway, particularly for trade flows connecting European and African markets. It possesses significant handling capacity, having been designed to accommodate large-scale vessels and heavy cargo consignments, making it a pivotal hub for the import and export of diverse commodities, including raw materials and industrial equipment.

The adoption of continuous, 24/7 operations underscores a strategic commitment to optimizing logistical performance and minimizing vessel turnaround times, thereby enhancing the port's competitive standing within the region. This operational strategy is projected to expedite cargo handling (loading and discharge) processes, facilitate smoother trade flows, and strengthen the maritime transport sector, aligning with the Algerian government's overarching objectives for infrastructure modernization and national economic advancement. (Website of the Djendjen Port, Mars 2025)

3.1. Evolution of Maritime Traffic at the Port of Djendjen: 2023 vs. 2024

Data presented in the subsequent table, pertaining to vessel movements and cargo throughput at the Port of Djendjen for the year 2024, indicate discernible shifts when compared with the corresponding data for 2023. These changes exhibit varying trends across the principal performance indicators.

Table (05): Evolution of Maritime Traffic at the Port of Djendjen (2023-2024)

	2023	2024	Evol	2023	2024	Evol	2023	2024	Evol
Vessels	106	59	-44%	360	324	-10%	466	383	-18%
GRT	2811575Tx	1596472Tx	-43%	7806415Tx	8783491Tx	+13%	10617990Tx	10379963Tx	-2%

Source: Official Website of the Port Authority of Djendjen

Table No. (05) indicates a decline in port traffic at the Port of Djendjen during 2024 compared to 2023, detailed as follows:

1. **Vessel Traffic:** The port experienced a significant decrease in the number of vessels calls during 2024. A total of 59 vessels berthed, compared to 106 vessels in 2023, representing a 44% reduction. This decline in vessel numbers may be associated with reduced commercial activity levels at the port or operational challenges potentially impacting the port's handling capacity.
2. **Cargo Throughput (Tonnes):** Notwithstanding the decrease in vessel traffic, the volume of cargo handled at the port exhibited notable changes.
 - The volume of **loaded cargo** (exports) decreased from 2,811,575 tonnes in 2023 to 1,596,472 tonnes in 2024, marking a 43% reduction.
 - Conversely, **discharge operations** (imports) saw a 13% increase, rising from 7,806,415 tonnes in 2023 to 8,783,491 tonnes in 2024. This improvement in discharge volumes could potentially be attributed to enhanced operational efficiency within the port or increased demand for imported goods.
3. **Overall Total Throughput:** The total port throughput, representing the sum of loaded and discharged cargo, experienced a marginal decrease of 2%, falling from 10,617,990 tonnes in 2023 to 10,379,963 tonnes in 2024. This overall reduction reflects the decline in loading activity, notwithstanding the increase observed in discharge operations.

Analysis of the Evolution of Cargo Handling and Discharge at the Djendjen Port (2014-2024)

The analysis suggests that the Port of Djendjen encountered challenges in 2024, marked by a significant drop in vessel calls and a notable decrease in loading volumes. However, the improvement in discharge throughput may indicate enhanced operational efficiency at the port, potentially contributing to increased handling capacity and competitiveness going forward. This performance shift could potentially be a result of infrastructure upgrades or adjustments in shipping and logistics strategies.

3.2. Evolution of Cargo Commodity Traffic at the Port of Djendjen 2023 vs. 2024

Data pertaining to cargo commodity movements at the Port of Djendjen reveal a notable decrease across several categories in 2024 compared to 2023, alongside increases in certain other commodity types.

Table (06): Details the Evolution of Cargo Commodity Traffic at the Port of Djendjen (2023-2024)

Goods	2023	2024	Evolution
Ores and Metallurgical Products	542910	8566	-35%
Wire Rod	42645	50125	-80%
Rebar	66855	50125	-25%
Steel Billets	149774	31735	-79%
Cold Direct Reduced Iron (C-DRI)	266388	261383	-2%
Mill Scale	16218	0	-100%
Tube / Pipe	1030	0	-100%
Minerals and Construction Materials	3115811	1694609	-46%
Clinker	2638867	1457695	-50%
Cement	476944	236914	-45%
Miscellaneous Goods	58253	98364	69%
Containers	53292	96172	+80%
Various Equipment	4961	2192	-56%
Total	3716974	3714349	-42,3%

Source: Official Website of the Port Authority of Djendjen

During 2024, the Port of Djendjen witnessed a significant decrease in total loaded cargo (exports), amounting to 2,144.78 thousand metric tonnes. This marks a substantial decline of 42.3% compared to 2023, equivalent to a reduction of 1,572.192 thousand metric tonnes. The specific commodity breakdown is as follows:

1. **Mineral Products:**

- **Metals and Metal Products:** This category experienced a significant decrease of 35%, declining from 542,910 tonnes in 2023 to 351,809 tonnes in 2024.
- **Iron (Rounds):** Volumes decreased by 25%, falling from 66,855 tonnes to 50,125 tonnes.
- **Steel Billets:** This segment recorded a substantial decrease of 79%, dropping from 149,774 tonnes to 31,735 tonnes.
- **Other Products (e.g., Pipes, Clinker, Calamine):** These also experienced sharp declines, reaching 100% in some cases. Zero values were recorded for commodities such as Pipes and Calamine, indicating a marked downturn in these specific export categories.

2. **Minerals and Construction Materials:**

- This category (including Clinker and Cement) saw a significant reduction overall.
- **Clinker:** Volumes decreased from 2,638,867 tonnes to 1,457,695 tonnes (a 50% reduction).
- **Cement:** Volumes fell from 476,944 tonnes to 236,914 tonnes (a 45% decrease).

3. **Miscellaneous Goods:**

- Conversely, other categories registered notable increases. **Miscellaneous Goods** rose by 69%, increasing from 58,253 tonnes to 98,364 tonnes.
- **Containers:** This segment experienced significant growth of 80% (measured in tonnes), increasing from 53,292 tonnes to 96,172 tonnes. This increase may suggest improvements in handling efficiency.

Analysis of the Evolution of Cargo Handling and Discharge at the Djendjen Port (2014-2024)

4. **Overall Traffic Decline:** Despite the increases in categories such as Containers and Miscellaneous Goods, the overall loaded cargo traffic at the port experienced a decline of 42.3%, decreasing from 3,716,974 tonnes in 2023 to 3,714,349 tonnes in 2024. This reduction primarily reflects downturns in most major export categories, particularly Minerals and Construction Materials.

These data indicate variability in cargo export movements at the Port of Djendjen between 2023 and 2024. While significant decreases were recorded in several principal commodity groups, such as minerals and construction materials, strong growth was observed in other segments, namely Containers and Miscellaneous Goods. These shifts may result from changes in shipping strategies, market preferences, or potentially the impacts of ongoing construction and development activities at the port. Despite the overall decrease in export volume, the improved performance in the container segment suggests promising future growth potential, particularly concerning Algeria's non-hydrocarbon export objectives.

3.3. Evolution of Imported Cargo Traffic at the Port of Djendjen: 2023 vs. 2024

The table below illustrates the evolution of discharged cargo (imports) at the Port of Djendjen during 2024 compared to 2023. The data reveal varied dynamics across different commodity categories, reflecting changes in import patterns and domestic market priorities.

Table (07): Details the Evolution of Imported Cargo Traffic at the Port of Djendjen (2023-2024)

Goods	2023	2024	Evolution
Agricultural Products	1811323	1703935	-6%
Wheat/Barley/Soy/Corn	1590484	1450949	-9%
Rice in Big Bag	0	32636	-
White Bean	0	5120	-
Pois chiche en Big Bag	0	6524	-
Wood/Plywood	220839	208706	-5%
Foodstuffs	33007	21539	-35%
Vegetable Oils	33007	4679268	-35%
Ores and Metallurgical Products	3608300	4679268	30%
Wire Rod	1500	2811	+87%
Steel Coils	456653	884802	+94%
Pipes	147653	110606	-25%
Steel Balls	2204	0	-100%
Angle Iron / Beam	111277	144521	+25%
Metal Framework / Sheet Metal	5121	39737	+676%
Pellets	2869538	3477697	+21%
Ferro Silico Manganese	10905	16345	+50%
Rails	0	2746	-
Minerals and Construction Materials	16840	8297	-51%
Clay / Feldspar / Sand	4252	4252	+95%
Marble	12588	0	-100%
Chemical Products	75319	201515	+168%
Carbonate / Sulfate / Phosphate / PVC / Resin	75319	201515	+168%
Petroleum Products	49878	17305	-65%
Bitumen	49878	17305	-65%
Miscellaneous Goods	333637	610607	83%
Containers	303255	502904	+66%
Various Equipment	30382	107703	+254%
Matériel roulant	68581	57178	-17%
Vehicles / Machinery	68581	57178	-17%
Total	5543863	7299644	22%

Source: Official Website of the Port Authority of Djendjen

Analysis of the Evolution of Cargo Handling and Discharge at the Djendjen Port (2014-2024)

The table illustrates the diversity of commodities imported via the Port of Djendjen. The import manifest includes agricultural products and foodstuffs, raw materials and mineral products, metals and construction materials, chemicals and petroleum products, in addition to miscellaneous goods. This reflects the multifaceted nature of the port's commercial activities and its significance in facilitating international trade. Furthermore, import traffic registered positive growth, increasing by 22% during 2024 compared to 2023. This increase serves as an indicator of recovering external trade and heightened import activity, potentially supported by the relaxation of trade restrictions and elevated demand for certain essential commodities, thereby reinforcing the port's strategic role in supporting national economic activity.

Conversely, a decrease was noted in the importation of specific commodities such as marble, bitumen, vehicles, and certain food products, including vegetable oils. This reduction may be linked to shifts in implemented economic strategies, particularly concerning policies aimed at encouraging domestic industry and promoting local production, as part of a broader policy initiative to reduce import dependency. This shift reflects a strategic orientation towards achieving self-sufficiency in certain sectors, which could potentially contribute to economic diversification and a reduction in the trade deficit in the future.

3.4. Evolution of Cargo Traffic by Packaging Method at the Port of Djendjen: 2023 vs. 2024

Table (08): Details the Evolution of Cargo Traffic by Packaging Method at the Port of Djendjen (2023-2024)

	Boarding			Unloading			Total		
	2023	2024	Evol	2023	2024	Evol	2023	2024	Evol
Liquid Bulk	0	0	-	82885	38844	-53%	82885	38844	-53%
Solid Bulk	3398417	1955992	-42%	4460524	4937827	+11%	7858941	6893819	-12%
Various Goods	318557	188790	-41%	1453476	2322973	+60%	1772033	2511763	+42%
Total	3716974	2144782	-42%	5996885	7299644	+22%	9713859	9444426	-3%

Source: Official Website of the Port Authority of Djendjen

Data pertaining to the Port of Djendjen for 2024 reveal notable changes in cargo traffic compared to 2023, with performance varying across different cargo types:

1. **Liquid Bulk:** Traffic in liquid bulk commodities registered a significant decrease in 2024. Only 38,844 metric tonnes were discharged (imported), compared to 82,885 metric tonnes in 2023, reflecting a 53% decline. Conversely, the port recorded zero loaded shipments (exports) of liquid bulk in 2024. This underscores adverse impacts on this sector, potentially stemming from challenges related to handling capacity or shifts in trade patterns.
2. **Dry Bulk:** The handling of dry bulk cargo displayed mixed results. Loading (export) volumes experienced a notable decrease of 42%, falling from 3,398,417 metric tonnes in 2023 to 1,955,992 metric tonnes in 2024. However, discharge (import) operations demonstrated an 11% improvement, increasing from 4,460,524 metric tonnes in 2023 to 4,937,827 metric tonnes in 2024. This rise in imports partially offset the export decline, resulting in a moderated overall decrease in total dry bulk throughput of 12%.
3. **General Cargo (Miscellaneous Goods):** In contrast, general cargo exhibited significantly positive performance. Discharge (import) traffic increased substantially by 60%, rising from 1,453,476 metric tonnes in 2023 to 2,322,973 metric tonnes in 2024. This growth reflects improvement within this key segment and highlights the port's enhanced capabilities in managing general cargo trade.

Analysis of the Evolution of Cargo Handling and Discharge at the Djendjen Port (2014-2024)

Although notable downturns occurred in certain segments, specifically liquid and dry bulk, the Port of Djendjen demonstrated resilience and adaptability, bolstered by the significant growth observed in general cargo. Overall cargo throughput experienced a marginal decrease of 3% compared to the previous year, potentially indicating some capacity-related challenges. Nevertheless, the substantial increase in general cargo imports and the improved performance in dry bulk imports suggest promising future prospects, with potential for further growth in these strengthening segments.

3.5. Evolution of Cargo Traffic at the Port of Djendjen over the Previous Decade

The following table illustrates the loading (export) and discharge (import) traffic at the Port of Djendjen over the last ten years. It focuses on major changes in the overall volume of port operations, thereby reflecting the developmental trajectory of the port during this period.

Table (09): Evolution of Cargo Traffic at the Port of Djendjen over the Previous Decade

Year	Boarding	Unloading	Total
2014	23365	4711216	4734581
2015	10575	4725732	4736307
2016	12666	3880475	3893141
2017	28362	2968810	2997172
2018	553075	2819093	3372168
2019	1242425	3213140	4455565
2020	2363966	2382510	4756476
2021	3597958	3660209	7258167
2022	3714349	5543863	9258212
2023	3716974	5996885	9713859
2024	2144782	7299644	9444426

Source: Official Website of the Port Authority of Djendjen

Analysis of Table No. (09) reveals the following:

1. **Trends in Loading and Discharge Traffic Over the Decade:**
The data indicate that the Port of Djendjen has experienced notable development in its loading and discharge activities over the past decade. Initially, traffic volumes were relatively limited; total throughput in 2014 did not exceed 4,734,581 metric tonnes. Over subsequent years, these figures gradually increased. The port recorded its highest total throughput in 2021, reaching 7,258,167 metric tonnes, reflecting a significant enhancement in its handling capacity.
2. **Continuous Growth until 2023:** In the period between 2021 and 2023, the port maintained positive growth in total throughput. In 2022, total loading and discharge reached 9,258,212 metric tonnes, further increasing to 9,713,859 metric tonnes in 2023. This sustained, albeit slight, increase indicates continued improvement in the port's operational capacity.
3. **Decline in 2024:** Despite the general growth trend observed in preceding years, 2024 reflects a marked decrease in loading volumes. These fell from 3,716,974 metric tonnes in 2023 to 2,144,782 metric tonnes in 2024, representing a 42% decline. Conversely, discharge traffic experienced a substantial increase of 22%, rising from 5,996,885 metric tonnes in 2023 to 7,299,644 metric tonnes in 2024. This rise in discharge volumes suggests an improved capacity for handling cargo traffic more efficiently, notwithstanding the reduction in loading activity.
4. **Strategic Analysis:** The decrease in loading volumes in 2024 may stem from several potential factors, including changes in transport and shipping strategies or shifts in domestic and international economic conditions. It is also plausible that this decline is linked to the ongoing development works at the port, which could temporarily impact handling capacity. Conversely, the increase in discharge operations signifies enhanced efficiency

Analysis of the Evolution of Cargo Handling and Discharge at the Djendjen Port (2014-2024)

in port processes, bolstering the facility's capability to receive and process larger cargo quantities in the future.

Based on the analyzed data, it can be concluded that the Port of Djendjen underwent significant evolution in its loading and discharge traffic from 2014 to 2024, sustaining growth through most years up to 2023. Although a decline in loading volumes was observed in 2024, the simultaneous increase in discharge underscores the port's capacity to adapt to operational challenges and improve logistical efficiency. This positive trend in discharge operations is anticipated to reflect sustained performance improvement in the long term, reinforcing the port's role as a vital link in international trade.

4. Conclusion

In conclusion, this research demonstrates that the Port of Djendjen is a leading Algerian port possessing strategic significance at both national and regional levels. Its advantageous geographical location on the Mediterranean coast grants it a pivotal role in facilitating foreign trade and driving economic development, particularly within the context of the government's strategic orientation towards national economic diversification and reducing dependence on the hydrocarbon sector.

The statistical data for 2023 and 2024 have highlighted distinct shifts in the port's activity, encompassing the types of cargo handled, the volume of maritime traffic and vessel calls, and internal operational performance. The study revealed several significant indicators that permit an assessment of the current situation and the proposal of future improvement pathways.

Key Findings:

1. **A notable decrease in vessel traffic and loaded cargo during 2024:** The number of arriving vessels decreased by 44% compared to 2023, while the volume of loaded cargo decreased by 43%. This necessitates further investigation into the underlying causes of this decline, whether linked to external factors (e.g., global economic conditions) or internal ones (e.g., operational costs, bureaucracy, weak commercial promotion).
2. **An increase in cargo discharge traffic by 13% during the same period:** This serves as an indicator of the port's capacity to process imported goods with greater efficiency, particularly given improvements in technical and human resources supporting discharge operations.
3. **A qualitative shift in the composition of handled cargo:**
 - An 80% increase in container activity (by tonnage) was observed, representing a positive trend towards greater engagement in modern shipping practices and structured global trade.
 - A 69% growth in miscellaneous goods traffic indicates increasing diversification in Algeria's imports and exports handled via the port.
 - Conversely, a decline was noted in activity for certain heavy and mineral commodities, such as cement and iron, likely resulting from weaker domestic demand or shifts in target export markets.
4. **The continuation of employee training and development (funded at 2% of the payroll):** This initiative has contributed to enhancing professional performance and reducing operational losses, including the mitigation of errors and unsafe handling practices.
5. **The launch of major expansion projects in late 2024 and early 2025:** These projects aim to enhance the port's capacity to accommodate ultra-large vessels and increase its storage

Analysis of the Evolution of Cargo Handling and Discharge at the Djendjen Port (2014-2024)

capabilities, thereby strengthening its competitive position within the North Africa region.

6. **The port's role in supporting the national supply chain:** Its function in the regular importation of essential commodities, such as grains, oils, heavy equipment, and spare parts, reflects its critical importance for the country's economic and social stability.

References:

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Fatima Belchem and Faiza Boulahia, Financial Performance Evaluation in the Economic Enterprise – Case Study of the Djen Djen Port Authority, Master's thesis, Specialization: Financial Management, University of Jijel, 2019, p. 81.

Website of the Djen Djen Port Authority: <https://djendjen-port.dz/le-port/>

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