

Damietta Port: Egypt's Flagship Model for a Green, Smart & Sustainable Port Ecosystem

Damietta Port demonstrates how a port in the Global South can deliver measurable, investable, and technology-driven green transformation – built on multimodal connectivity, clean energy, circularity, and world-class environmental governance.

Connectivity Investment Conference on Green & Efficient Ports

Presented by:

Rear Admiral: Ahmed Hamdy Abdel Aziz

Vice Chairman of Damietta Port Authority



The Global Green Imperative & Damietta Port's Answer

“Maritime decarbonization continues to define our time. With global regulations gaining momentum and industry commitment accelerating, the pathway to net zero is no longer theoretical, it’s unfolding in real time. The challenges are complex, but the direction is clear, and the pace of innovation, investment, and collaboration is picking up across certain parts of the value chain.”

DNV, Maritime Forecast to 2050

The Global Imperative: Green Transition Under Pressure

The maritime sector is entering a decisive decade with

- **IMO 2023 GHG Strategy**
- **FuelEU Maritime 2025**

This is a systemic challenge: **sustainability now depends on efficiency.**

Damietta Port's Answer: The Green Intelligence Engine

Damietta Port has built a **sustainability-first operating system**,

Anchored in:

- **Egypt Vision 2030** – Sustainable & Smart Logistics
- **Ministry of Transport Strategy** – Integrated Green-Port Network
- **National Hydrogen Strategy** – Mediterranean Clean Energy Leadership

42%

Renewable Energy Share

National power mix target by 2035

20%

Emissions Reduction

Energy sector target by 2030

8%

Global Hydrogen Market

Targeted share by 2040

\$60B

Investment Potential

Hydrogen strategy financing

Damietta's Strategic Role in the National Ecosystem

Global Maritime Connectivity

Direct access to more than 300 global ports across Mediterranean, European, and Asian trade routes

Industrial Proximity

Adjacent to major petrochemical clusters including MOPCO and Methanex providing industrial ecosystem and technical expertise while enabling integrated green fuel production and reducing transport emissions.

Deep-Water Capacity

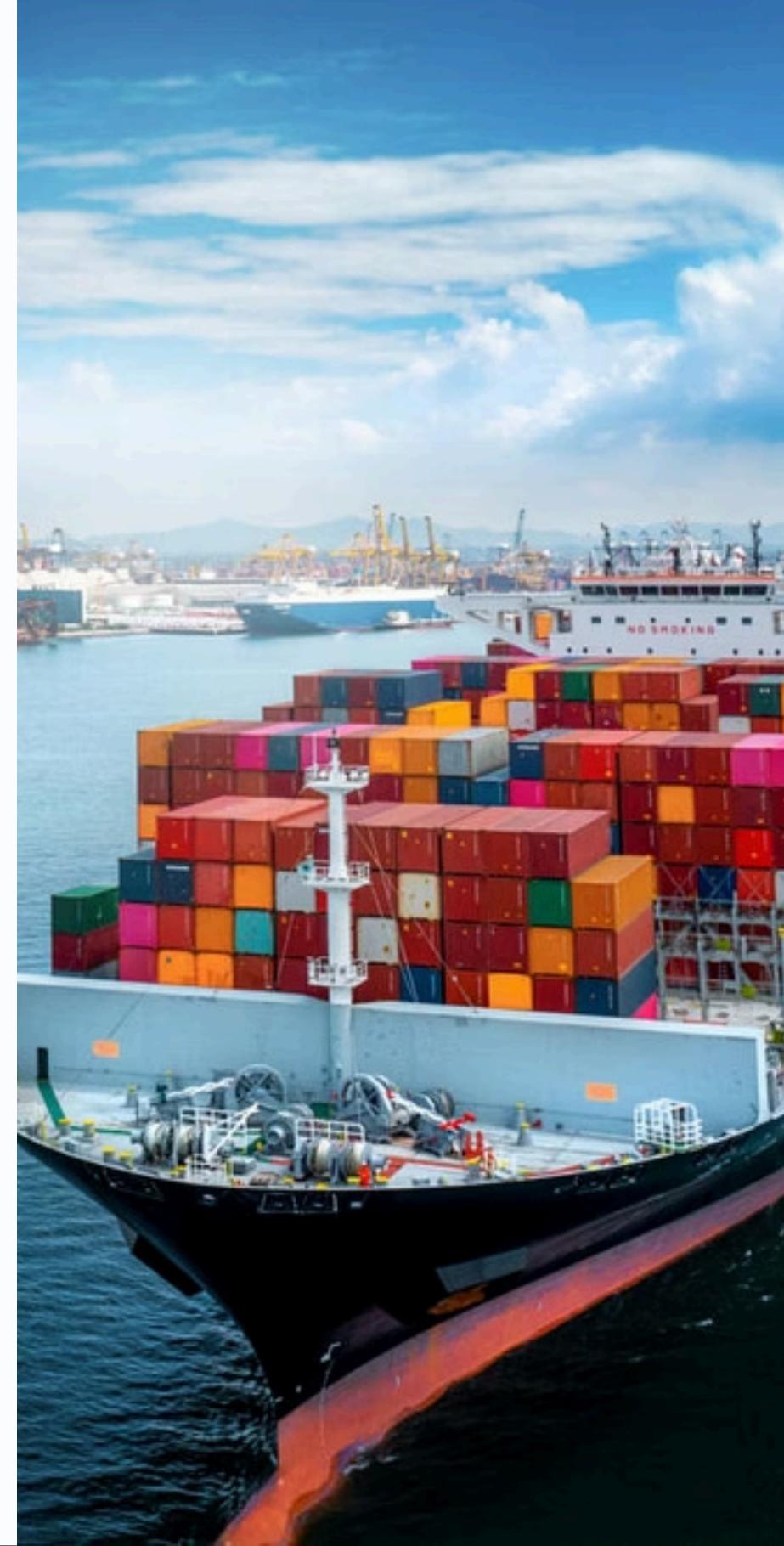
Natural basins reaching 18–19 metres support large vessels and future energy infrastructure requirements

Trade Route Integration

Direct access to Suez–EU trade lanes positions Damietta as a natural bunkering and export hub for clean maritime fuels.

Multimodal Excellence

This integrated multimodal approach reduces carbon intensity of cargo flows by up to 35%, enables faster and more cost-effective exports to Europe, reduces heavy truck congestion on national roads, and builds more resilient supply chains for Egyptian manufacturers and exporters.



From Port to Integrated Ecosystem



Traditional Role

Cargo handling and logistics hub focused on container throughput and bulk commodities



Future Role

Integrated green energy, industrial production, and bunkering hub creating value across multiple sectors

Core Pillars of Transformation

A comprehensive transformation framework integrates environmental, economic, and technological objectives into a unified strategic vision.

1

Environmental Sustainability

Six-axis pollution control system delivering 34 environmental objectives across air, marine, soil, thermal, noise, and light pollution management.

2

Circular Economy & Resource Efficiency

Closed-loop waste systems maximising recycling, reuse, and recovery of all port-generated materials and resources.

3

Smart Port & Digitalisation

VTS, Port Community System, and Digital Single Window enable transparent, data-driven operations. Advanced **Navis N4** terminal operating system optimising container movements and yard planning.

4

Clean Energy & Decarbonisation

Green ammonia production, biomethanol facilities, hydrogen-ready zones, and onshore power supply reducing emissions.

Cleaner Operations for a Cleaner Port

Onshore Power Supply

Egypt's first OPS installation eliminates SO_x, NO_x, and CO₂ emissions whilst vessels berth, setting regional standards



Renewable Energy Integration

Solar PV installations and comprehensive LED lighting systems deliver 25% energy efficiency gains

Fleet Electrification

Electrified cranes and CNG-converted vehicle fleet reduce port-side emissions and operational costs



Clean Marine Fuel

Partnership with Peninsula and Minerva provides 0.1% sulphur compliant fuel for visiting vessels

Environmental Observatory & Monitoring Systems



Command Centre

180 m² facility linked to Egypt's National Environmental Monitoring Network for integrated oversight



Continuous Monitoring

Air, water, noise, and light pollution tracked in real-time across all port operations



Laboratory Analysis

Bi-weekly water sampling ensures compliance and identifies emerging environmental challenges

We reduce our own environmental footprint before enabling cleaner operations for global fleets.

Circular Infrastructure: Turning Waste Into Value

Our port operates a comprehensive circular ecosystem, featuring a 400-tonne oily water and sludge treatment unit, a 2,500 m² solid waste management complex, and two tertiary wastewater treatment plants enabling 100% water reuse. Additionally, 2.2 million m² of land has been reclaimed using dredged material, sustainably expanding port capacity.





Digital Transformation for Smart, Efficient Operations

A Modern Smart Port Architecture



Vessel Traffic Services

Advanced VTS reduces waiting time and emissions through optimised navigation and berth allocation



Port Community System

Integrated data platform connects all stakeholders for seamless information exchange



Digital Single Window

Streamlined clearance processes reduce administrative burden and accelerate cargo flow



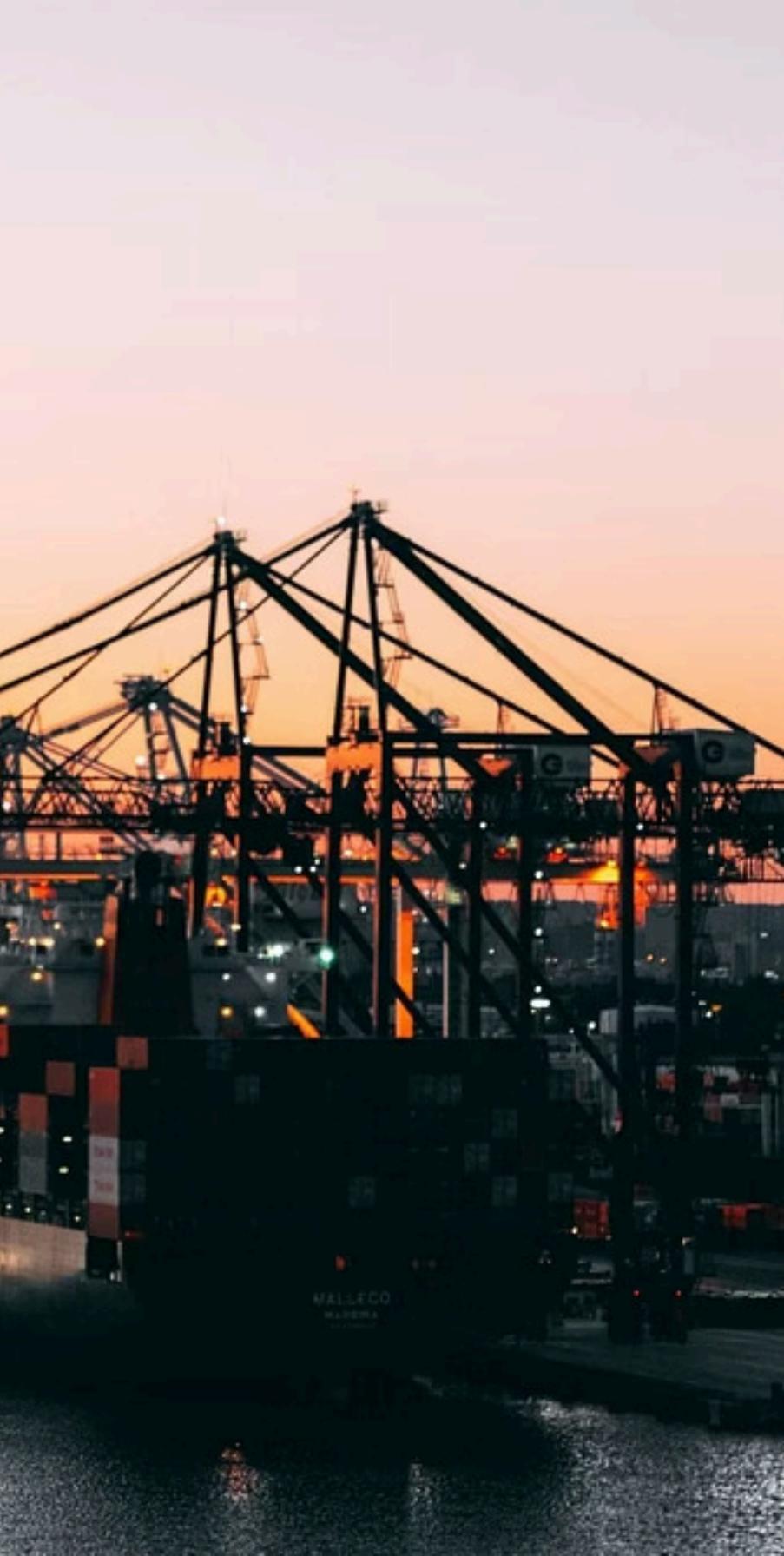
Smart Gate Systems

OCR and RFID technology enable efficient truck and container flow with minimal delays



Terminal Operating System

Navis N4 platform delivers real-time yard optimisation and equipment management



Just-in-Time Arrival & Smart Scheduling: Operational Efficiency Meets Emissions Reduction



Zero External Waiting Time

Target eliminates anchorage delays through predictive scheduling and berth optimisation



Anchorage Emissions Eliminated

Reduced idling time cuts fuel consumption and atmospheric pollution from waiting vessels



Lower Fuel Consumption

Coordinated arrival timing enables speed optimisation and reduces overall voyage emissions



Enhanced Terminal Productivity

Predictable vessel arrivals improve resource allocation and cargo handling efficiency



Digital Reporting Compliance

System supports IMO DCS and EU MRV requirements with automated data capture

Efficient operations are climate actions – demonstrating that productivity gains and emissions reductions are two sides of the same strategic coin.

OPS: Egypt's First Operational Onshore Power Supply

Operational Excellence

Ships shut down engines whilst at berth, connecting directly to shore-based electricity. This delivers substantial reductions in SO_x, NO_x, and CO₂ emissions whilst vessels load and unload cargo.

Advanced Technology

- Digital metering and automated billing systems
- Seamless integration with vessel power management
- Strong compliance advantage for EU shipping under ETS regulations
- Operational green asset with proven track record, not a pilot programme

Environmental Impact: Each vessel connection eliminates CO₂ emissions per port call, creating immediate and measurable air quality improvements for port workers and surrounding communities.

Clean Fuels: Damietta's Multi-Fuel Energy Ecosystem

Damietta is establishing itself as a Mediterranean clean fuel hub, with production capacity aligned to global fleet transition timelines and emerging demand patterns.

Green Fuels for the Next Generation of Shipping

Green Ammonia

150,000 tonnes annually

- 480 MW renewable capacity feeding 240 MW electrolysis
- Strategic partners: Scatec, MOPCO, Yara Clean Ammonia
- Offtake secured for export markets with future bunkering potential

Bio Fuel (Methanol/Ethanol)

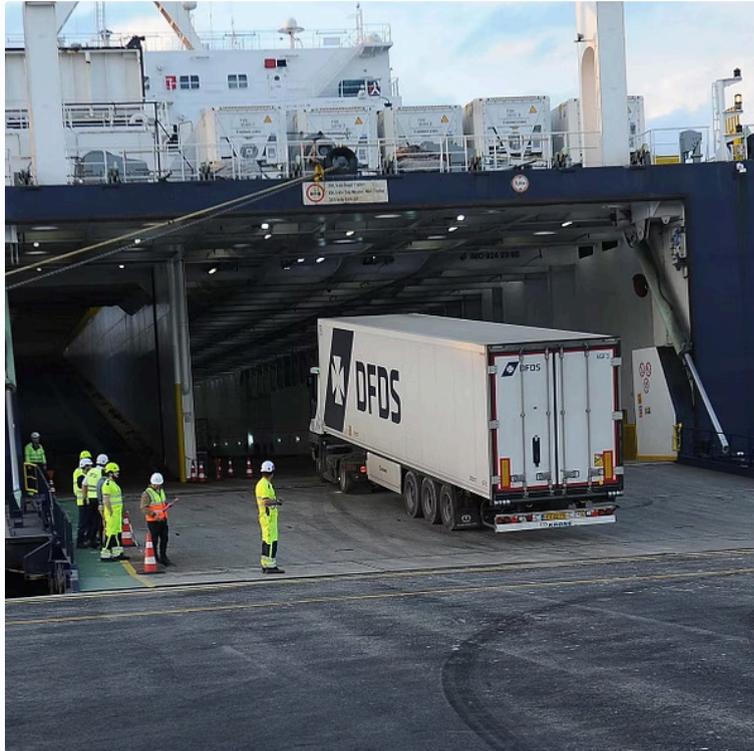
Approximately 100,000 ton annually

- Expansion from 40,000 ton initial capacity
- \$135 million investment program
- Manufacturing renewable, value-added, eco-friendly biological products for green energy sectors.

This diversified clean fuel portfolio positions Damietta to serve multiple vessel types and fuel preferences, reducing transition risk whilst supporting Egypt's National Hydrogen Strategy objectives. The port's adjacent industrial infrastructure and renewable energy potential create natural advantages for cost-competitive clean fuel production.

Green Multimodal Corridors

Efficient, Low-Carbon Logistics from Port to Hinterland



Damietta–Trieste Mediterranean Corridor

18% lower emissions versus long-haul trucking alternatives

- Sea-rail integration to Central and Eastern Europe
- 150,000+ tonnes annual cargo capacity
- Ideal for refrigerated agricultural exports requiring cold chain integrity
- Reduces road congestion and cross-border complexity



Tanta–Mansoura–Damietta Inland Corridor

Synchronised rail, road, and river networks optimise hinterland access

- Reduces Delta region road congestion and associated emissions
- Connects agricultural production zones directly to export facilities
- Supports inland dry port development for extended reach
- Enhances regional economic integration and supply chain resilience

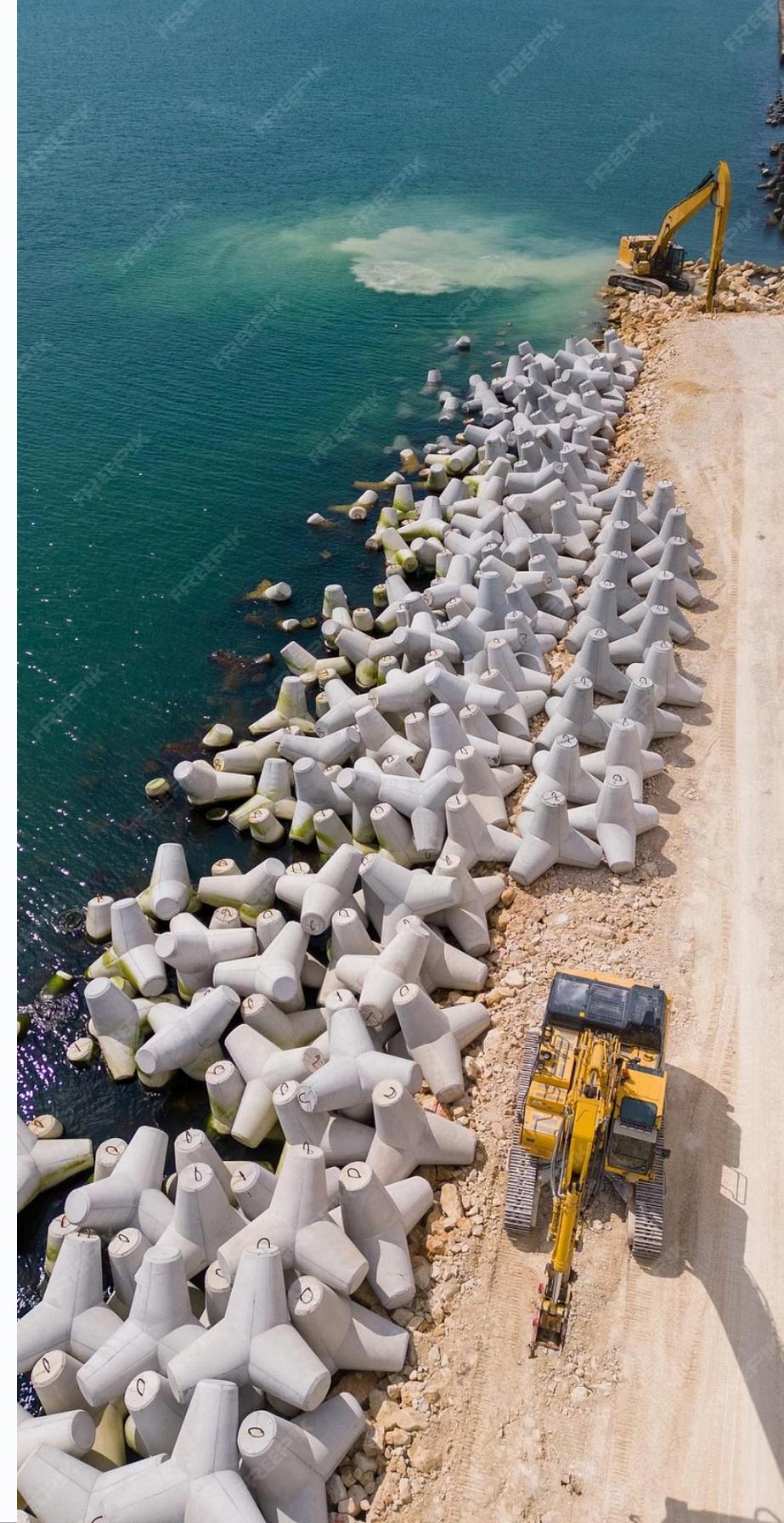
Climate-Resilient Engineering

Nature Based Solution: Adapting to Tomorrow's Climate Realities

As Mediterranean storm intensity and sea levels rise, Damietta's infrastructure investments ensure operational continuity and asset protection under future climate scenarios.



Innovation includes climate resilience — not just decarbonisation. Protecting assets and operations against physical climate risks is as critical as reducing emissions.



Governance, Compliance: Strong Governance Enables Sustainable Innovation

1

International Compliance

Full adherence to maritime conventions:

- MARPOL (pollution prevention)
- SOLAS (safety of life at sea)
- STCW (seafarer training standards)
- COLREG (collision regulations)

2

Quality Systems

Triple ISO certification demonstrates systematic excellence:

- ISO 9001 (quality management)
- ISO 14001 (environmental management)
- ISO 45001 (occupational health & safety)

3

Safety Infrastructure

- Hazardous cargo detection and isolation facilities
- Emergency response capabilities for clean fuel handling
- Continuous risk assessment and mitigation protocols

De-Risking Mechanisms



Long-term green fuel offtake agreements providing revenue certainty



Co-investment from established industrial partners: MOPCO, Methanex, Scatec



Alignment with Egypt's national strategies ensures policy continuity



Full IMO and ISO compliance (9001, 14001, 45001)



Commercial-ready technologies—no experimental pilots



Climate-aligned infrastructure reduces regulatory risk exposure



Hydrogen strategy and Euro-Mediterranean corridor positioning

Environmental Performance: By the Numbers

34

Environmental Objectives

Comprehensive targets across 6 pollution axes

400

Tonnes of Capacity

Oily water and sludge reception and treatment

2,500

Square Metres

Dedicated solid waste management complex

150K

Tonnes per Year

Green ammonia production capacity

100K

Tonnes per Year

Biomethanol and bioethanol production

100%

Wastewater Reuse

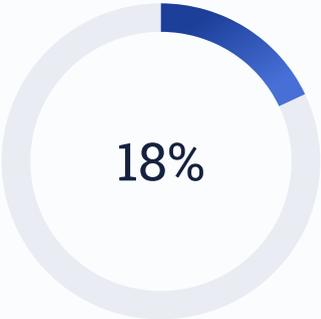
Complete circular water management

2.2M

Land Reclaimed

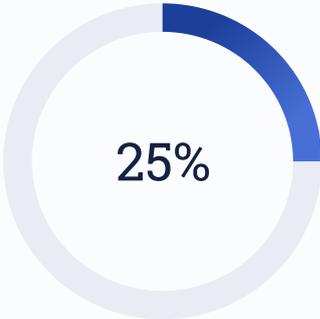
Square metres through sustainable dredging

Emissions Reduction Impact



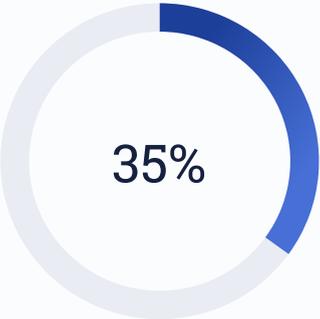
RORO Line Advantage

Lower emissions compared to long-haul trucking via Damietta-Trieste route



Energy Efficiency Gains

Reduction in overall energy consumption through smart systems



Carbon Intensity Reduction

Decrease in cargo flow emissions through multimodal integration

Join Us in Shaping the Future of Mediterranean Green Ports

Damietta Port integrates sustainability, smart systems, multimodal connectivity, and clean energy into a unified transformation model. We invite international partners to join us in shaping the Eastern Mediterranean's leading green port ecosystem.

Strategic Frontiers: Transforming Challenges into Partnership Opportunities



FUEL & ENERGY TRANSITION

Challenge:

- Infrastructure for new fuels (NH₃, H₂)
- High CAPEX for OPS & storage
- Fleet readiness gap

PARTNERSHIP PATHWAY: Co-invest in bunkering pilots & storage. Co-fund vessel retrofit schemes.



DIGITAL & DATA INTEGRATION

Challenge:

- System interoperability (JIT, VTS, PCS)
- Cybersecurity & data-sharing protocols

PARTNERSHIP PATHWAY: Co-develop open-architecture digital platforms and secure data corridors.



RESILIENCE & CONNECTIVITY

Challenge:

- Climate-adaptive engineering
- Modernizing multimodal corridors

PARTNERSHIP PATHWAY: Finance reinforced breakwaters. Partner on low-carbon logistics corridor pilots.



GOVERNANCE & CAPABILITY

Challenge:

- Regulatory frameworks for new fuels
- Specialised workforce training

PARTNERSHIP PATHWAY: Establish a Regional Green Maritime Training Centre. Align on international safety codes.

Together, we can demonstrate that ports in the Global South can lead the world in sustainable maritime infrastructure—delivering strong commercial returns whilst protecting our shared environment for future generations.