



GHANA PORTS AND HARBOURS AUTHORITY



**Sustainable
Terminal Development
at the Port of Takoradi
Dry Bulk and Natural Gas Liquids
Infrastructure Expansion**



PROJECT OVERVIEW

The Ghana Ports and Harbours Authority (GPHA) has delivered a transformative, sustainability-driven infrastructure programme at the Port of Takoradi through the development of two strategic terminal facilities: the Dry Bulk Terminal (DBT) and the Takoradi Natural Gas Liquids Export Terminal (TNET). Together, these projects demonstrate how innovative engineering, sustainable land reclamation and modern cargo-handling systems can optimise port capacity, enhance operational efficiency, strengthen long-term resilience and support regional economic growth.

Beyond expanding the Port's operational capabilities, the projects are not only aligned with the IAPH Sustainability Awards – Infrastructure Category – Criteria but also contribute directly to several United Nations Sustainable Development Goals (SDGs), particularly SDG 7 (Affordable and Clean Energy), SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), SDG 14 (Life Below Water) and SDG 17 (Partnerships for the Goals).



Key Infrastructure Highlights/Features

1.Dry Bulk Terminal (DBT) Key Features	2.Takoradi Natural Gas Liquids Export Terminal (TNET) Key Features
<ul style="list-style-type: none"> 800-metre quay with a design depth of 16 metres, enabling accommodation of larger bulk vessels. 	<ul style="list-style-type: none"> Developed in partnership with Genser Energy Limited as a modern energy export terminal.
<ul style="list-style-type: none"> Automated enclosed conveyor system linked to twin ship loaders, each capable of loading up to 2,500 metric tonnes per hour. 	<ul style="list-style-type: none"> Approximately 40,000 m³ cryogenic storage capacity for propane and butane exports.
<ul style="list-style-type: none"> Transition from conventional loading operations averaging approximately 8,000 metric tonnes per day to high-capacity, efficient bulk loading operations. 	<ul style="list-style-type: none"> Developed on approximately 30,000 m² of reclaimed land, addressing land availability constraints within the Port.
<ul style="list-style-type: none"> Deployment of Eco Hoppers and enclosed cargo transfer systems to minimise dust emissions and environmental impacts. 	<ul style="list-style-type: none"> Includes specialised cryogenic storage tanks, piping systems, marine loading infrastructure and advanced safety systems.
<ul style="list-style-type: none"> Constructed on reclaimed land created largely through the beneficial use of dredged materials. 	<ul style="list-style-type: none"> Designed with shoreline protection measures and elevated infrastructure platforms to enhance climate resilience and safeguard long-term operations.



IAPH Sustainability Awards (Infrastructure Category) Criteria-Fit Profile and Justification for Entry of the Two Projects

The following Table and narratives present/explain how the two projects align with the criteria for the IAPH Sustainability Awards Infrastructure Category:

IAPH SUSTAINABILITY AWARDS CRITERIA	PROJECT/CRITERIA_FIT	
	DBT Project	TNET Project
Sustainable Port Development	<p>Extensive use of reclaimed land/reuse of dredged materials.</p> <p>Environmentally responsible terminal development that maximises existing port space.</p>	<p>Ditto</p> <p>Ditto</p> <p>Support for cleaner energy supply chains and sustainable cargo-handling practices.</p>
Deployment of State-of-the-Art Facilities	<p>Installation of advanced automated conveyor systems and high-capacity ship loaders at the DBT.</p> <p>Integration of advanced safety, environmental and operational technologies.</p>	Development of modern cryogenic storage and export infrastructure at the TNET.
Optimisation of Existing Port Capacity	<p>Significant increase in bulk cargo handling efficiency and berth productivity.</p> <p>Enhanced ability to accommodate larger vessels and higher cargo volumes.</p>	Introduction of natural gas liquids export operations, diversifying cargo streams and revenue sources.
Addressing Critical Infrastructure Challenges	<p>Innovative land reclamation solutions overcoming space constraints within an active port city environment.</p> <p>Creation of new terminal capacity without the need for extensive greenfield development.</p>	<p>Ditto</p> <p>Ditto</p>

IAPH SUSTAINABILITY AWARDS CRITERIA	PROJECT/CRITERIA_FIT	
	DBT Project	TNET Project
Environmental Sustainability	<p>Deployment of Eco Hoppers and enclosed cargo transfer systems to minimise dust emissions.</p> <p>Reduction in cargo losses and environmental impacts during handling operations.</p> <p>Sustainable utilisation of dredged materials for productive infrastructure development.</p>	<p>-</p> <p>Ditto</p> <p>Ditto</p>
Climate Resilience and Adaptation	<p>Shoreline protection and elevated infrastructure incorporated into terminal design, as long-term adaptation measures addressing climate change and coastal vulnerability. Thus ensuring enhanced operational resilience to future environmental and climatic challenges.</p>	<p>Ditto</p>

The two projects are deemed suitable for entry for the IAPH Sustainability Awards 2026 Infrastructure Category with respect to the following dimensions aligned with the IAPH Infrastructure Category Award criteria:

- **Sustainable Port Development:** Utilisation of reclaimed land and dredged materials for both terminals; and support for cleaner energy exports (NGLs) and environmentally responsible cargo handling.
- **Deployment of State-of-the-Art Facilities:** Advanced automated conveyor and ship loading systems at DBT; and modern cryogenic storage and export infrastructure at the TNET.
- **Optimisation of Existing Port Capacity:** Significant increase in bulk cargo throughput and berth productivity; and introduction of new cargo streams (NGL exports), diversifying port operations.
- **Addressing Critical Infrastructure Challenges:** Innovative land reclamation solutions to overcome spatial limitations; and integration of marine, civil, and industrial systems within a constrained port environment.
- **Environmental Sustainability:** Dust suppression via Eco Hoppers and enclosed systems.
- **Climate Resilience and Adaptation:** Elevated terminal platforms and shoreline protection systems; and infrastructure designed for long-term coastal and operational resilience.

SDGs Linkage/Support Profile As Further Justification for Entry of the Two Projects

The following Table and narratives presents/explain how the two projects align with and/or support the UN Sustainable Development Goals (SDGs):

SDGs SUPPORTED	PROJECT/CRITERIA FIT	
	DBT Project	TNET Project
SDG 7 – Affordable and Clean Energy	-	Provides critical infrastructure for the storage and export of propane and butane, supporting cleaner energy supply chains and energy security.
SDG 8 – Decent Work and Economic Growth	Increases cargo throughput, trade efficiency and port competitiveness, creating employment and supporting economic growth.	Diversification of port services; creates jobs during construction and operation while supporting growth in Ghana's energy and export sectors.
SDG 9 – Industry, Innovation and Infrastructure	Introduces modern bulk cargo handling technology, including automated conveyor systems and high-capacity ship loaders.	Establishes state-of-the-art cryogenic storage and export infrastructure, expanding Ghana's industrial and export capabilities.
SDG 11 – Sustainable Cities and Communities	Optimises existing port land through sustainable expansion, reducing pressure for additional coastal development.	Enhances regional infrastructure and industrial development while making efficient use of reclaimed land within the Port.
SDG 12 – Responsible Consumption and Production	Utilises enclosed conveyor systems and Eco Hoppers to minimise cargo losses, dust emissions and environmental impacts.	Demonstrates responsible resource utilisation through efficient storage systems and sustainable land reclamation practices.
SDG 13 – Climate Action	Improves cargo-handling efficiency, reducing vessel waiting times and associated emissions.	Incorporates elevated infrastructure and shoreline protection measures to enhance resilience against climate change impacts and sea-level rise.

SDGs SUPPORTED	PROJECT/CRITERIA FIT	
	DBT Project	TNET Project
SDG 14 – Life Below Water	The enclosed bulk handling systems and dust-control technologies reduce the risk of particulate pollution affecting nearby marine and coastal environments.	Employs sustainable reclamation and coastal protection measures that minimise impacts on marine and coastal ecosystems.
SDG 17 – Partnerships for the Goals	-	Developed through a strategic partnership between GPHA and Genser Energy Limited, illustrating effective public-private collaboration for sustainable development

SDG 7 – Affordable and Clean Energy: The TNET Project supports cleaner energy supply chains through the export of natural gas liquids such as propane and butane, which are generally lower-emission alternatives to traditional heavy fuel sources. The facility contributes to energy security and supports the transition toward cleaner and more efficient energy solutions within the region.

SDG 8 – Decent Work and Economic Growth: The projects contribute to sustainable economic growth by expanding trade capacity, improving cargo throughput and creating direct and indirect employment opportunities during construction and operations. The increased efficiency and diversification of port services support regional commerce, industrial activity and cross-border trade throughout West Africa.

SDG 9 – Industry, Innovation and Infrastructure: Both projects represent major investments in resilient and modern infrastructure that strengthen Ghana’s maritime and logistics sector. The DBT introduces advanced bulk cargo handling technologies that significantly improve operational efficiency, while the TNET establishes a new industrial export platform for natural gas liquids. Together, they enhance trade competitiveness, stimulate industrial development and position the Port of Takoradi as a strategic regional logistics hub.

SDG 11 – Sustainable Cities and Communities: The projects contribute to sustainable urban and industrial development in the Western Region of Ghana by strengthening critical infrastructure, supporting economic opportunities and promoting environmentally responsible industrial growth within existing port boundaries rather than through uncontrolled coastal expansion.

SDG 12 – Responsible Consumption and Production: The DBT promotes sustainable production and logistics practices through enclosed conveyor systems and Eco Hopper technology, reducing material losses, dust emissions and environmental impacts associated with bulk cargo handling. Both projects also demonstrate responsible resource utilisation through the beneficial reuse of dredged materials for land reclamation and infrastructure development.

SDG 13 – Climate Action: Climate resilience has been integrated into the design of both facilities. The TNET incorporates elevated infrastructure and shoreline protection measures to address future climate risks, including sea-level rise and coastal erosion. The DBT’s modern cargo-handling systems also improve operational efficiency, reducing vessel waiting times and associated emissions from prolonged port stays.

SDG 14 – Life Below Water: By utilising reclaimed land and implementing environmentally responsible engineering solutions, the projects minimise pressure on marine ecosystems while supporting sustainable port expansion. The enclosed bulk handling systems and dust-control technologies further reduce the risk of particulate pollution affecting nearby marine and coastal environments.



CONCLUSION

The development of the Dry Bulk Terminal and the Takoradi Natural Gas Liquids Export Terminal represents a comprehensive and future-ready model for sustainable port infrastructure development. Through innovative engineering, beneficial reuse of dredged materials, environmental stewardship, climate-resilient design and technological advancement, GPHA has created a resilient platform for trade facilitation, industrial growth and energy transition.

By directly advancing multiple United Nations Sustainable Development Goals – including SDGs 7, 8, 9, 11, 12, 13, 14 and 17 – the projects demonstrate how ports can serve as catalysts for sustainable economic development while safeguarding environmental and community interests. These achievements strongly position the Port of Takoradi as a worthy candidate for the IAPH Sustainability Awards 2026 – Infrastructure Category and exemplify the objectives of the IAPH World Ports Sustainability Program.