



**Asia-Pacific
Economic Cooperation**

2024/TPTWG/MEG/TM1/004

Agenda Item: 3.2

Sustainable Measures in Tuas Next Generation Port

Purpose: Information
Submitted by: Singapore



**Thematic Session on Supporting the
Identification and Integration of New
and Emerging Smart and Sustainable
Maritime Technologies and Services**

4 April 2024



Asia-Pacific
Economic Cooperation

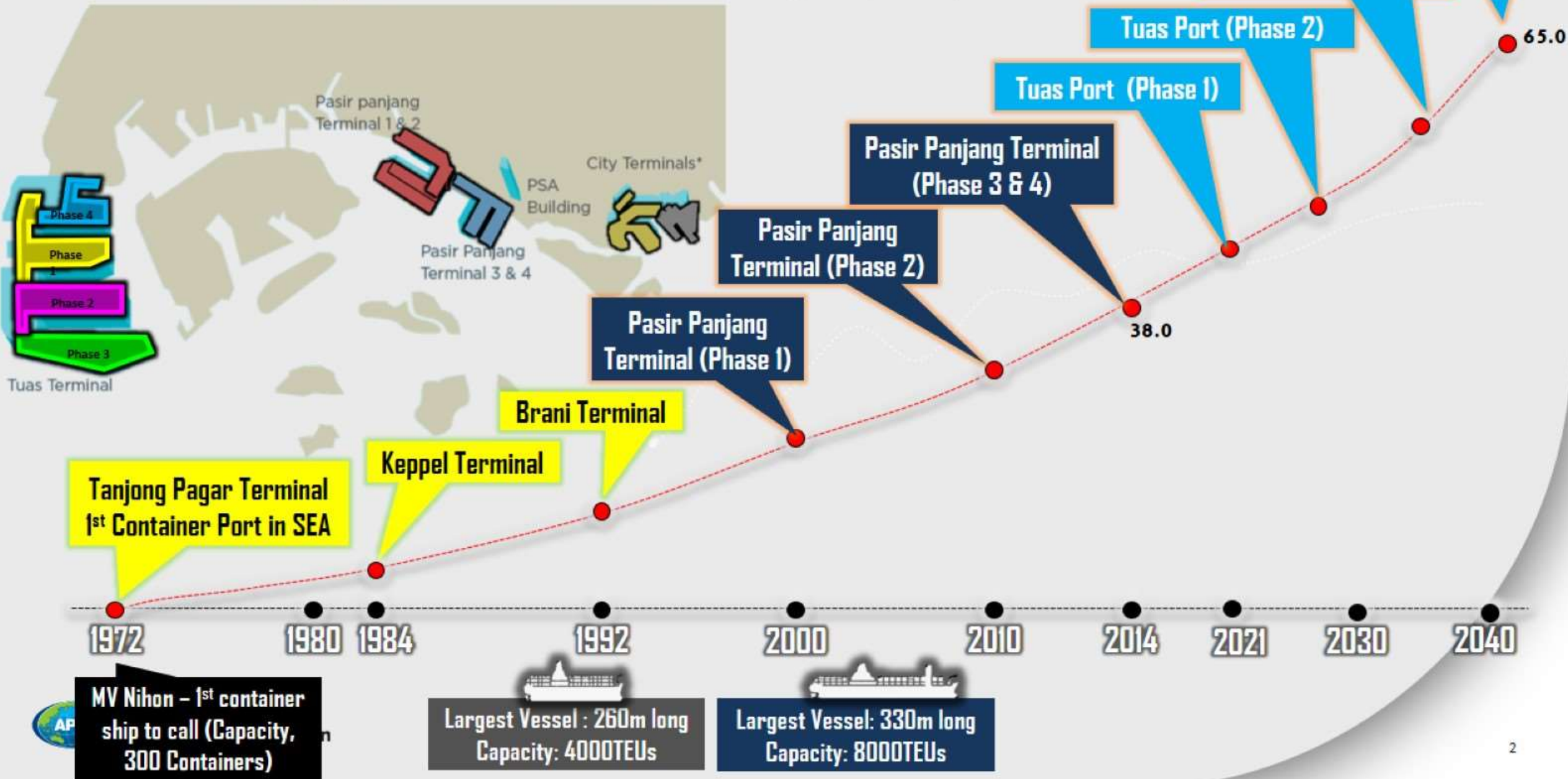
APEC Maritime Experts Group Meeting

Sustainable Measures In Tuas Next Generation Port

Mr. Eugene Khoo, Head (Next Generation Port Office)

4 April 2024

Past, Present and Future: Growth of Singapore's Container-Handling Capacity



Looking Ahead - Consolidation of Container Terminals at Tuas Port

Impetus for Relocation to Tuas Port

- Land lease expiring at City Terminals
- Replace existing capacity while catering to future growth

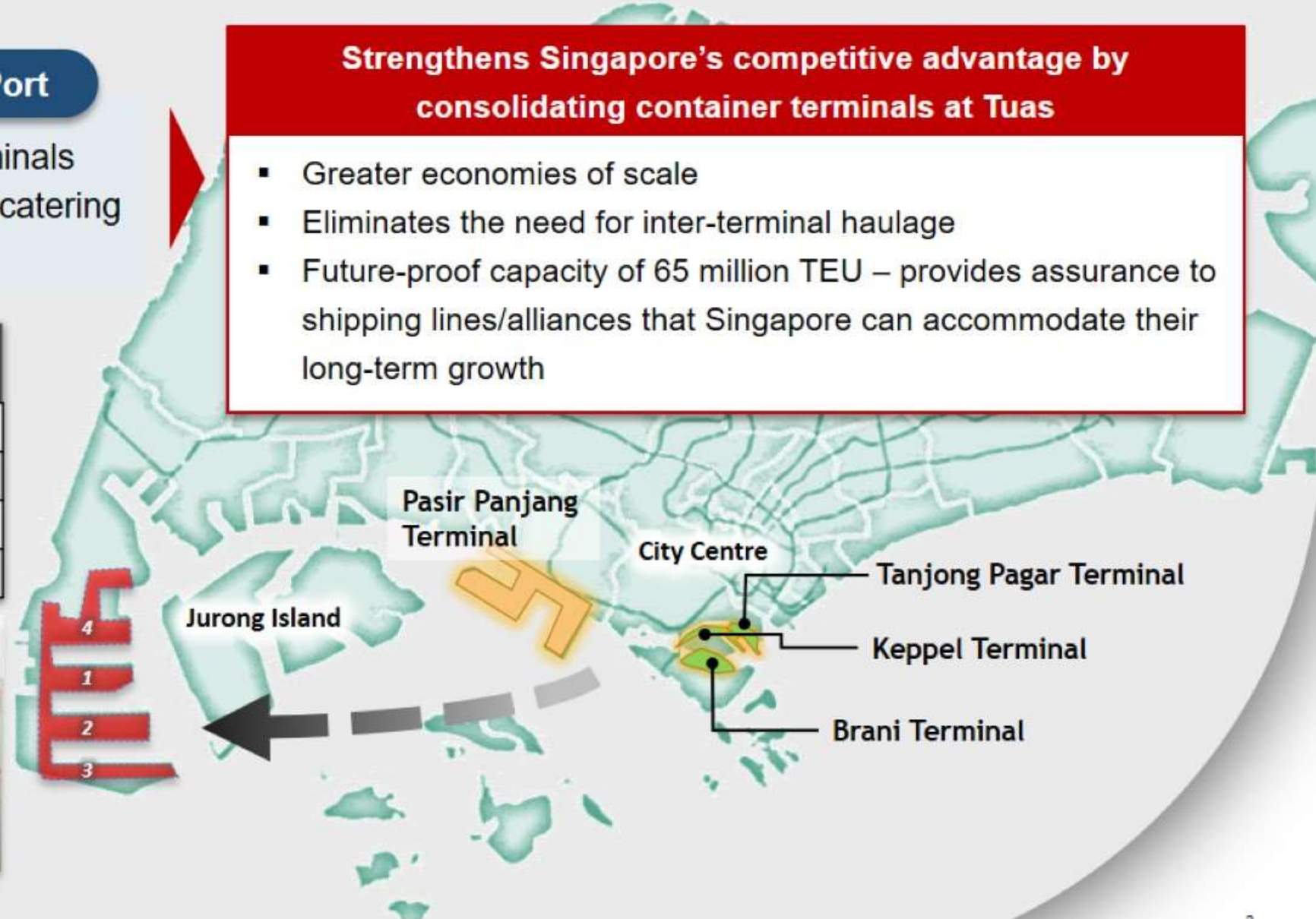
PHASE	AREA (HA)	START OF OPERATIONS	CAPACITY (TEU)
1	416	2021	20
2	405	Late 2020s	21
3	258	Early 2030s	11
4	258	Late 2030s	13

Tuas Port



Strengthens Singapore's competitive advantage by consolidating container terminals at Tuas

- Greater economies of scale
- Eliminates the need for inter-terminal haulage
- Future-proof capacity of 65 million TEU – provides assurance to shipping lines/alliances that Singapore can accommodate their long-term growth



Key Considerations for Development of Next Generation Tuas Port

3 Key Objectives: Capacity, Navigation, Flexibility



Maximising Terminal Capacity (65Mil TEUs)



Meet Navigational Requirements

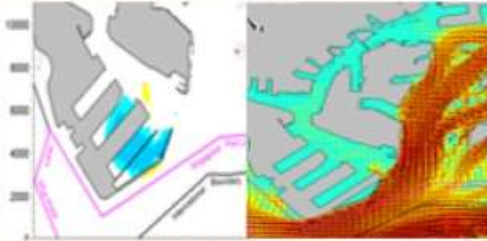


Maximum Flexibility to Berth Ships of Different Sizes

Key Characteristics of Tuas Port

Deep Basins (-23mCD) | Long Linear Berths (3 – 4km long)

Low Maintenance Dredging



No maintenance dredging required for up to 30 years

Maintenance dredging at PTP is carried out every 5-6 years

Maximum Flexibility



Able to accommodate container ships >400m long

Max length overall of container ship is expected to reach 437m from today's 400m

Adequate Sea Space Capacity



Ensures navigation safety even with increased marine traffic

Marine traffic transiting Singapore Straits is expected to increase by 40% by 2065

Efficient Port - Operations

Berth Operations



Deliver high service level to customers by building a robust scheduling for berthing-on-arrival

Container Transfer Operations



To achieve a consistency in work performance, such as the use of Automated Guided Vehicles to improve on work productivity and safety

Container Yard Operations



Reduce transshipment complexity through large-scale use of automated equipment and optimisation of yard layout

Operations, Planning & Community Systems

Just In Time Planning and Coordination Platform

Adopting a customer service journey perspective to optimise the port stay for ships that call at the Port of Singapore.

Monitoring of Vessel Arrival

The JIT platform will inform ship agents if there are changes to the vessel arrival time. This is for the ship agents to **make changes** to the itinerary if necessary. If there are no changes to the arrival time, the ship agents will **confirm the itinerary**.



Departure of Vessel

The **Estimated Time of Unberthing** will be shared with all stakeholders to ensure timely departure of vessel.

The **Estimated Time of Departure** will be captured upon disembarkation of the pilot from the vessel.



Berth Planning

Ship agents are required to **submit berth applications** to the terminals for **planning and clearance**. The terminals will provide the **Estimated Time of Berthing (ETB)** in advance through the JIT Platform.



Planning & Coordination of Vessel Activities

The JIT platform facilitates direct berthing on arrivals and on-time departures to **enhance ship turnaround time** as well as to **reduce dwell time** at anchorages.

All vessel activities will be **captured in real time** on the JIT platform with the corresponding activity timestamps.



Itinerary Planning for Port Stay

The ETB information will be sent to all stakeholders attending to the vessel through the JIT platform.

Government authorities and marine service providers can use the ETB to **plan and deploy resources** accordingly.



Examples of Interfacing Systems

- digitalPORT@SG™ (Single Window Port Clearance)
- digitalBunker@SG
- LT Connect
- Portnet
- JP-Online
- as well as any digital-ready platform of marine service providers through APIs!

Green & Sustainable Port



Electric Automated Guided Vehicle



Electrified Quay Cranes



Solar Photovoltaic Panels

Construction Phase



Corals Relocation Programme



Sustainable Reclamation



Huge Potential to attain Net-Positive

✓ Well-suited to explore various types of renewables: Solar, Wind & Tidal

Going beyond powering Tuas Port, excess renewable energy could be channeled towards **decarbonisation of maritime sector** in Singapore, i.e., *charging of e-harbour craft fleet, production of green H₂, cold-ironing, etc.*

Advocate for climate action at IMO and international fora

Singapore seeks to play 3 key roles on the global stage to advance maritime decarbonisation:

Standards-Setter



MPA formed the **Future Fuel Port Network** and joined the **Zero-Emission Shipping Mission** to develop harmonised standards for clean marine fuels.

Bridge-Builder



Actively contributed to discussions at IMO on the **Revised IMO Strategy adopted in July 2023**, including strengthened levels of ambition for 2030, 2040 and 2050

Advocate for Inclusive Climate Action

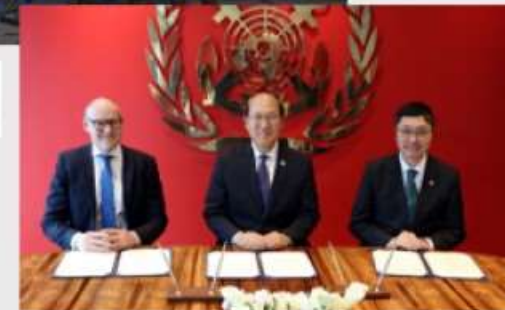
Awards Ceremony, IMO-Singapore NextGEN Connect Call for Proposals



NEXT GEN Towards Green and Efficient Navigation



GREEN VOYAGE
2 0 5 0



Working with the **IMO Secretariat and Norway's Ministry of Climate and the Environment** to develop “**NextGEN**” portal to visualise maritime decarbonisation projects and “**NextGEN Connect**” to facilitate inclusive route-based action plans in developing countries. Joint workshop in Oct 2023

Singapore and our partners are working on the pilot implementation of NextGEN Connect to catalyse stakeholder collaboration for inclusive maritime decarbonisation.



- Singapore and the IMO successfully launched the NextGEN Connect initiative in April 2022.
- MPA announced the winning proposal “Development of a Route-Based Action Plan Methodology based upon Silk Alliance” by Lloyd’s Register Maritime Decarbonisation Hub, at Singapore Maritime Week 2023.
- Together with IMO, Lloyd’s Register Maritime Decarbonisation Hub and the Norwegian Ministry of Climate and the Environment, Singapore is working on the pilot implementation of NextGEN Connect between Singapore and a developing economy in Asia Pacific

Thank you



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