TRADE FORUM 2024
Session 2: Enhancing Sustainable and Resilient Trade Facilitation

Smart Port Systems to Enhance Trade and Green Growth in Developing Asia

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Background

Ports and maritime sector

- Move over 80% of all traded goods world-wide. Account for 3% of global greenhouse gas emissions.
- 64% global maritime trade through Asia.
- Global initiatives for emissions reduction in maritime.
  - International Maritime Organization's Greenhouse Gas Strategy (July 2023)
  - Maritime Single Window (1 January 2024)

Smart port systems

- Technology cheaper, readily available.
- Uptake ongoing in Asia and the Pacific region, albeit with subregional variations.

Smart port systems for sustainability

- Reduce greenhouse gas emissions at/around ports.
- Increase port productivity, support trade, national supply and global value chains.

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International Maritime Organization's GHG Strategy

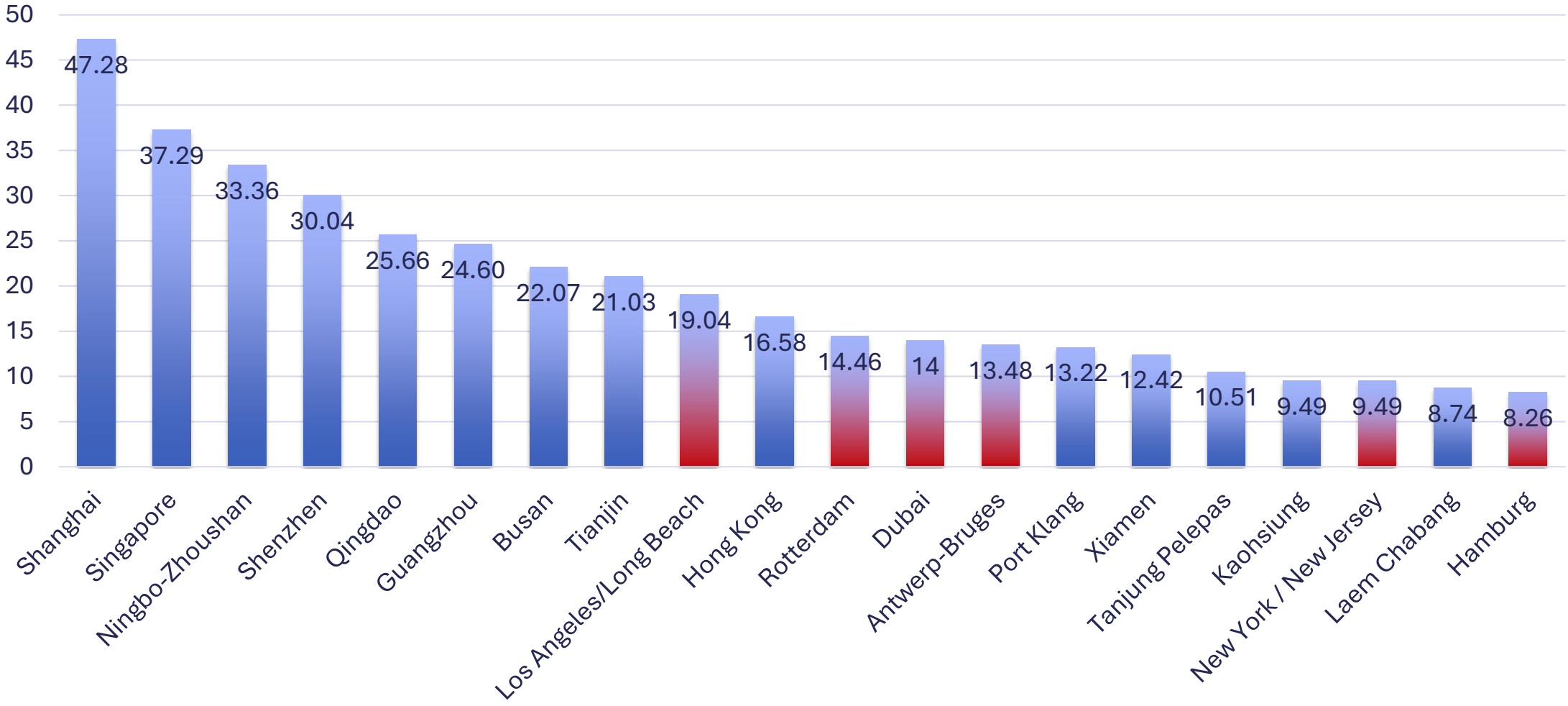
- 175 member states of IMO agreed on a new climate strategy that includes reaching net-zero greenhouse gas (GHG) emissions.

Net-zero GHG emissions by or around 2050

5% to 10% uptake of zero GHG emission fuels by 2030

40% reduction in CO_2 emissions on average in international shipping by 2030 (compared to 2008)

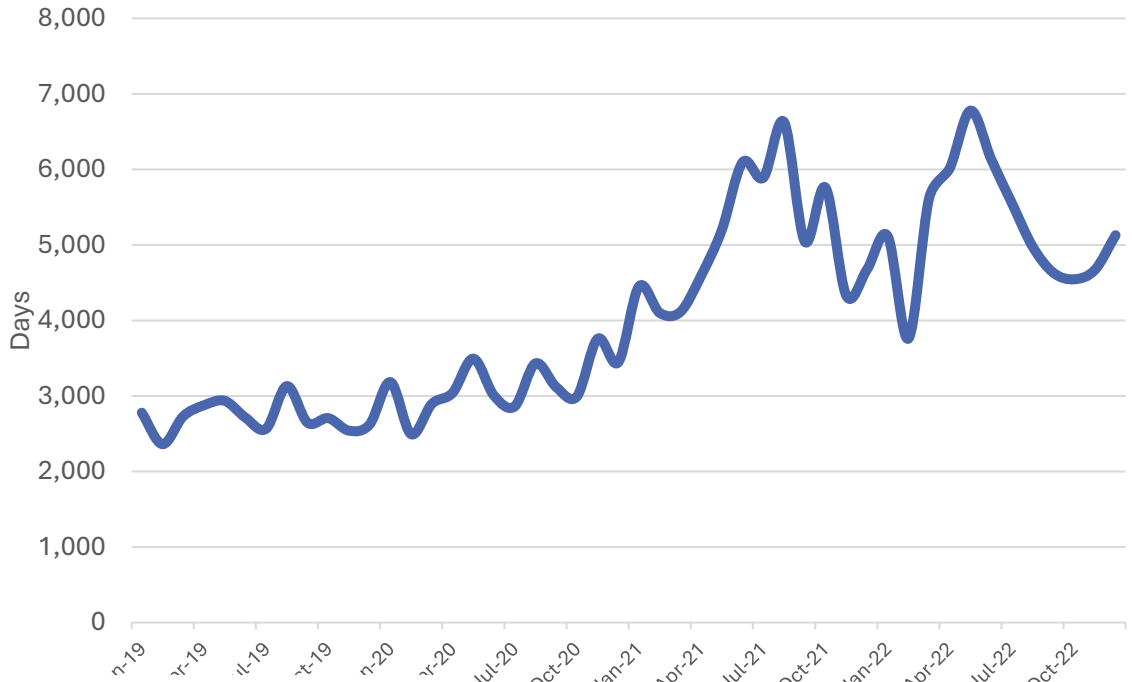
Largest Container Ports in 2022, by Throughout (million TEUs)



Source: Statista

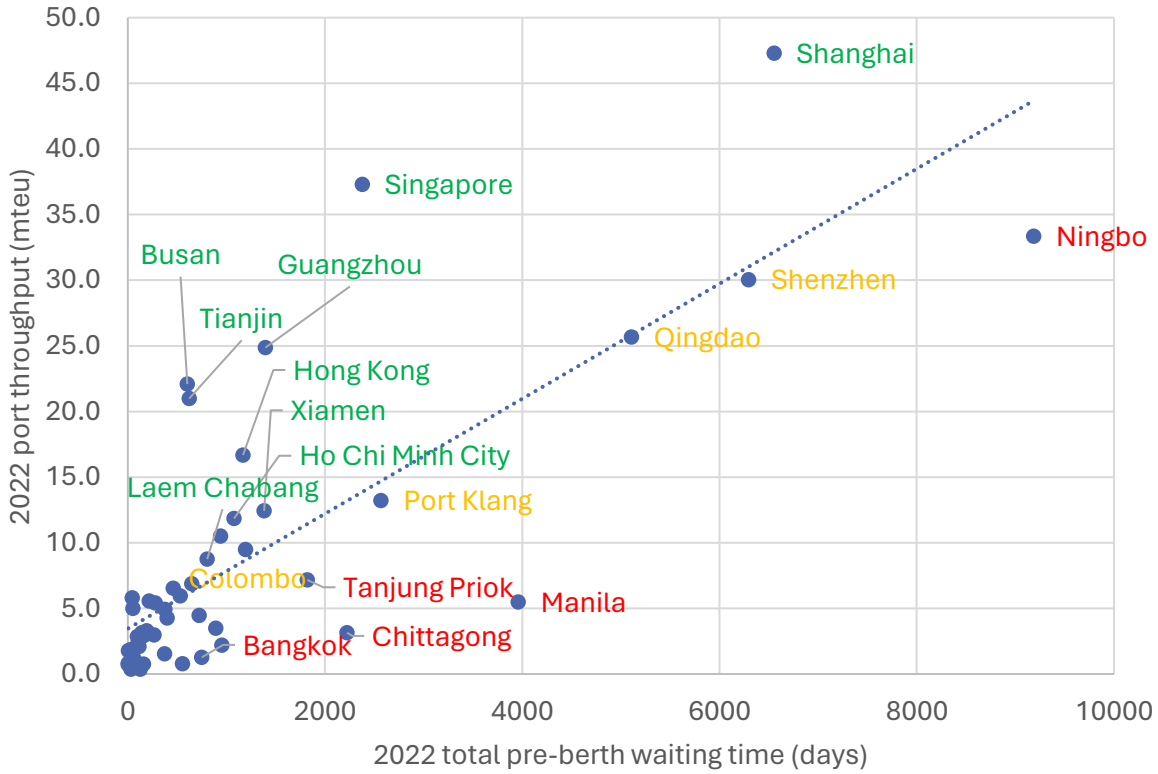
Port Delays in Asia and the Pacific (53 Port Sample)

Total pre-berth waiting time, 2019-2022



Source: Author's calculations.

Pre-berth waiting time vs. port throughput, 2022

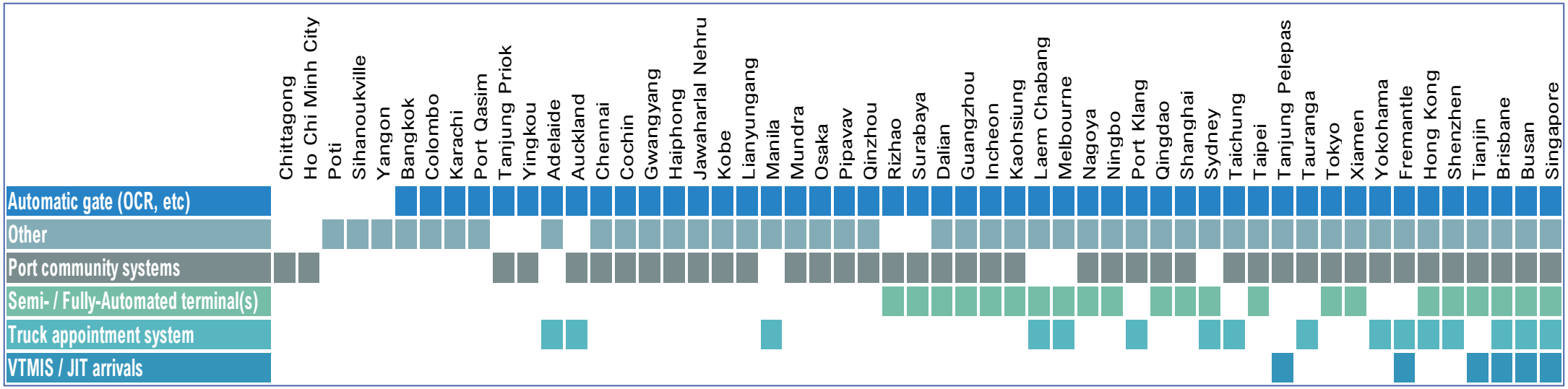


* Longer the wait, lower the throughput and higher the emissions.

Smart Port Systems in Asia and the Pacific

- Smart port – evolving definition, in tandem with technology.
- Smart system applications in ports since the 1990s.
- Progress has been robust with technology more readily available for recent adopters.
- Uptake gaining momentum among countries in Asia and the Pacific region.

Smart Port Systems in Use, Sample of 53 Ports in Asia and the Pacific

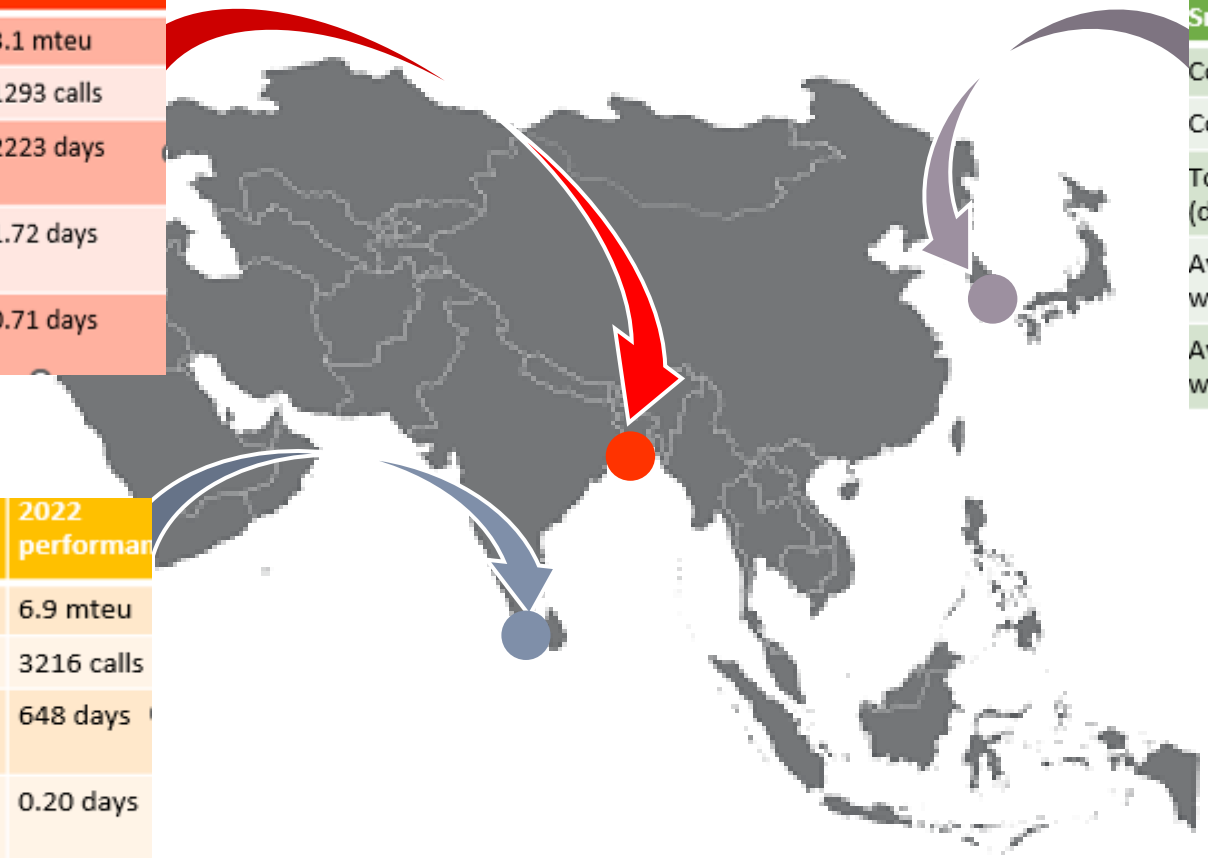


Note: OCR = optical character recognition, VTMIS = vessel traffic management and information system, JIT = just in time.
Source: Author's compilation from respective port authorities.

Assessing the Emissions Saving Potential (2022 baseline)

Chittagong Smart port score 17%	2022 performance
Container throughput	3.1 mteu
Container vessel calls	1293 calls
Total waiting time (days)	2223 days
Average pre-berth waiting per call	1.72 days
Average pre-berth waiting per 1kteu	0.71 days

Busan Smart Port Score 100%	2022 performance
Container throughput	22.1 mteu
Container vessel calls	10756 calls
Total waiting time (days)	603 days
Average pre-berth waiting per call	0.06 days
Average pre-berth waiting per 1kteu	0.03 days



Colombo Smart Port Score 33%	2022 performan
Container throughput	6.9 mteu
Container vessel calls	3216 calls
Total waiting time (days)	648 days
Average pre-berth waiting per call	0.20 days
Average pre-berth waiting per 1kteu	0.09 days

Source: Authors' elaborations from Drewry AIS database.

Can "Just in Time" Arrival System Generate Emissions Savings?

		Busan	Colombo	Chittagong
Reduce average inbound speed to 12 knots	Total time saving	47 days	76 days	466 days
	% reduction	4%	13%	21%
Reduce average inbound speed to 10 knots	Total time saving	128 days	169 days	946 days
	% reduction	11%	29%	43%

		Busan	Colombo	Chittagong
2022 Baseline	Emissions in anchorage (CO_{2eq} tonnes)	39,467	20,365	76,355
Reduce average inbound speed to 12 knots	Total saving (CO_{2eq} tonnes)	1599	2615	16,008
	% reduction	4%	13%	21%
Reduce average inbound speed to 10 knots	Total saving (CO_{2eq} tonnes)	4,397	5,806	32,461
	% reduction	11%	29%	43%

Note: Assumes 1.43 tonnes CO_{2eq} per hour of waiting.
Source: Author's analysis.

Points for Consideration

Collaborative action necessary in an interconnected industry.

Smart systems offer short- to medium-term results.

Multiple benefits for sustainable trade and the environment.

Complementary to net-zero emission solutions in medium- to long-term.

Thank you

For more information:

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