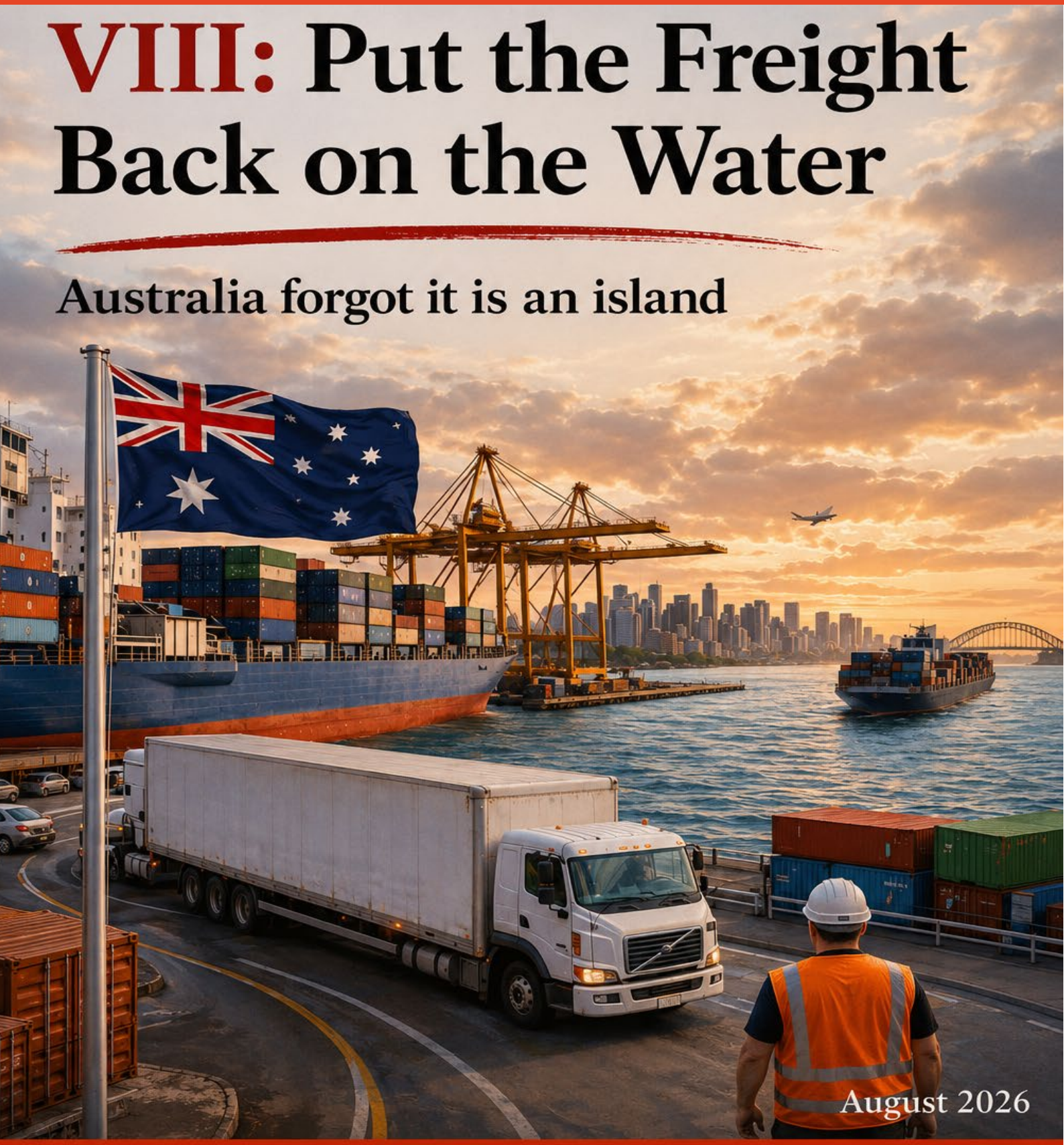
THE UNIVERSITY OF SYDNEY

VIII: Put the Freight Back on the Water

Australia forgot it is an island



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Acknowledgement of Country

We recognise and pay respect to the Elders and communities – past and present – of the lands that the University of Sydney's campuses stand on. For thousands of years, they have shared and exchanged knowledges across innumerable generations for the benefit of all.

Every day, thousands of heavy trucks grind along the Hume Highway between Melbourne and Sydney. Freight convoys stretch across the Pacific and Bruce highways. Road trains dominate key corridors. We accept this as inevitable. It feels normal.

It is not inevitable. It is the result of policy choices.

The Bureau of Infrastructure and Transport Research Economics estimates Australia's domestic freight task reached about 786 billion tonne kilometres in 2024 to 2025, the highest on record (BITRE,2025). That freight moves by road, rail and sea. Road and rail dominate. Coastal shipping plays a much smaller role than geography would suggest.

According to federal government maritime fact sheets, coastal shipping performs only a modest share of the national freight task compared with road and rail (Department of Infrastructure, Transport, Regional Development, Communications, Sports, and the Arts, 2013). Over time, its share has declined even as total freight volumes have grown.

This shift did not happen by accident. It followed decades of deregulation, changing labour rules, competition from road freight, and infrastructure decisions that favoured highways over ports and coastal networks.

From a climate perspective, that matters.

Transport emissions totalled about 90 million tonnes of carbon dioxide equivalent in 2022 and represent roughly 21 percent of Australia's total emissions. On road vehicles account for the vast majority of that sector. Heavy trucks are a significant component (Climate Change Authority, 2024).

Moving freight by sea can be more energy efficient per tonne kilometre than moving it by road, depending on vessel type and fuel. A single ship can carry the equivalent of hundreds of truckloads. Even without zero emissions fuels, mode shift from road to coastal shipping can reduce fuel use per tonne kilometre.

This does not mean shipping is clean. Marine fuels have their own emissions challenges. But from a systems perspective, shifting appropriate freight from road to sea can ease congestion, reduce road wear and potentially cut emissions intensity.

So why does Australia rely so heavily on trucks between major coastal cities that are literally connected by ocean?

Part of the answer is flexibility. Road freight offers door to door service. It avoids multiple handling stages. It operates within an established regulatory framework. It has become embedded in supply chains.

Part of the answer is policy. Road freight does not always face the full cost of infrastructure wear and environmental externalities. Coastal shipping has faced regulatory and cost hurdles that have limited competitiveness. Port infrastructure and coordination have not always been aligned to support efficient domestic sea freight.

If climate targets are serious, mode shift must be part of the conversation. This is not nostalgia for a romantic era of ships in harbour. It is economic pragmatism.

Imagine a framework in which suitable intercity freight between major coastal hubs is actively encouraged to shift to sea. That would require reviewing coastal shipping regulations to ensure they enable, rather than stifle, domestic operators. It would require investment in port facilities designed for efficient loading and unloading of domestic cargo. It would require better integration between sea, rail and last mile road logistics.

It would also require more honest pricing of road freight externalities. Heavy trucks impose significant wear on highways. Maintenance costs are borne by governments and taxpayers. Congestion and safety risks are shared by the public. When those costs are not fully reflected in freight pricing, road transport appears artificially competitive.

Critics will argue that coastal shipping cannot handle time sensitive freight. That is true for some goods. But not all freight is urgent. Bulk goods, non-perishable items and consolidated loads are candidates for slower but potentially more efficient transport.

The rise of just in time logistics has conditioned businesses to prioritise speed. Yet as discussed in the context of e commerce, speed often comes at environmental cost. Rebalancing expectations around delivery timelines could create space for greater use of sea freight.

There is also a resilience argument. Diversifying freight modes reduces dependence on any single corridor. Extreme weather events, accidents or infrastructure failures can disrupt road networks. Coastal shipping offers redundancy in a country surrounded by water.

From a regional development perspective, revitalising coastal shipping could stimulate port activity and associated industries in smaller coastal centres. That may create economic opportunities beyond the major capitals.

Of course, shipping itself must decarbonise over time. International maritime bodies are tightening emissions standards. Alternative fuels and efficiency measures are under development. Investing in coastal shipping should go hand in hand with supporting cleaner marine technologies.

But waiting for perfect zero emissions vessels before shifting freight is a recipe for inaction.

Australia faces a freight task that is large and growing. If that growth is absorbed primarily by road, emissions and congestion pressures will intensify. Electrifying heavy trucks will help, but deployment at scale across long distances is complex and capital intensive.

A balanced strategy would strengthen rail and revive coastal shipping alongside road decarbonisation. The political challenge is perception. Trucks are visible symbols of commerce. Ships move quietly offshore, out of sight. Highways cut ribbons easily. Maritime policy is technical and less glamorous.

Yet geography has not changed. Australia remains an island continent with major cities strung along its coastline. It is difficult to justify a system where vast volumes of freight crawl along congested coastal highways while open sea lanes sit underutilised.

Putting freight back on the water will not solve transport emissions alone. But it could be a meaningful piece of a broader strategy.

In a climate constrained world, efficiency matters. So does common sense. Australia cannot claim to be serious about sustainable transport while ignoring the most obvious feature of its map.

We are surrounded by ocean. It is time our freight policy remembered that.

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Sustainable Transport Series

About the authors of this series

John rejoined the Institute of Transport and Logistics Studies as the Neil Smith Research Chair in Sustainable Transport Futures in October 2022, after an 8-year absence. Over the course of his academic career, John has published over 300 scientific articles in peer-reviewed journals, books, and conference proceedings. He has also been an Associate Editor of Transportation, and Co-Editor and Chief of the Journal of Choice Modelling and Transportation Research Part A. He has also held various roles on multiple conference committees both in Australia and overseas.

Since graduating with a PhD, John has been obtained numerous grants worth over $3.4 million. These include a number of ARC discovery grants in the areas of Public Health, Transportation crowding, general economic theory related to utility separability as well as one on improving the external validity of Discrete Choice Experiments. In addition to academic grants, John has been involved in $9 million in industry-based contract research since the year 2005. Find out more about John: https://profiles.sydney.edu.au/john.rose

Andrea joined the Institute of Transport and Logistics Studies as the Neil Smith Lecturer in Sustainable Mobility and Accessibility in March 2023. Before becoming a lecturer, Andrea spent three years as visiting research scholar thanks to two scholarships, the Early.Postdoc mobility and the Postdoc mobility, awarded by the Swiss National Science Foundation. Andrea holds a Master of Science in Statistics with Honors from the University of Bologna and a PhD in Economics from the University of Lugano. Over the years, Andrea has taken part in different consulting projects with several public and private institutions such as NSW Government, University of Florence, and University of Catania. Find out more about Andrea: https://profiles.sydney.edu.au/andrea.pellegrini

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