28th April 2021

Committee Secretary
Productivity Commission
PO Box 6100
Parliament House
Canberra ACT 2600

Dear Sir / Madam,

Reference: *Productivity Commission Study – Vulnerable Supply Chains (2021).*

RDA Tasmania (RDAT) and the Tasmanian Logistics Committee (TLC) are pleased to provide our joint submission to the Productivity Commission Study – Vulnerable Supply Chains (2021).

RDA Tasmania

Regional Development Australia (RDA) is an Australian Government initiative established to encourage partnership between all levels of government to enhance the growth and development of Australia's regional communities.

RDA committees operate under a national RDA Charter and report to the Australian Government on key outcomes. A national network of 52 RDA committees has been established and RDA Tasmania represents the entire state of Tasmania.

The RDA Tasmania committee supports the development of Tasmanian businesses through engagement with key regional stakeholders. RDA Tasmania's continued participation in the freight and logistics sector is crucial to understanding the ongoing and emerging challenges and opportunities for Tasmania.

RDA Tasmania provides secretariat support to the Tasmanian Logistics Committee as part of its commitment to the Tasmanian freight and logistics sector as a vital component of the Tasmanian economy.

Tasmanian Logistics Committee

The Tasmanian Logistics Committee was formed in 2012 as a subcommittee of the Tasmanian Chamber of Commerce and Industry, in partnership with RDA Tasmania, as an independent voice to government.

The TLC does not receive funding but is supported by a number of key industry representatives who view the needs and integrity of Tasmania's freight and logistics task as a prime focus. All committee members provide qualified advice based on local knowledge and industry experience to government on issues of significance including:

- Coastal Shipping Reform
- Tasmanian Freight Equalisation (TFES) for domestic freight
- Tasmanian Freight Equalisation (TFES) extension for other markets (International) 2016
- Infrastructure investment that supports freight efficiencies

Member organisations of the Tasmanian Logistics Committee include:

- Tasports
- SeaRoad
- Statewide Independent Wholesalers
- Fonterra
- Australian Maritime College
- Bell Bay Aluminium
- Tasmanian Chamber of Commerce
- Hobart Airport
- RDA Tasmania
- Harvest Moon
- Tasmanian Agricultural Productivity Group (TAPG)
- Port of Melbourne
- Net Sea Freight
- TasRail
- Agility Logistics
- Tasmanian Transport Association
- Norske Skog
- Department of State Growth
- Launceston Airport
- OOCL
- ANL
- Tasmanian Minerals, Manufacturing and Energy Council

The members of our committee hope our submission is viewed in a positive light and we look forward to working with you on these vital issues for Australia's supply chains.

Yours faithfully

Craig Perkins
Chief Executive Officer &
Director of Regional Development
RDA Tasmania Committee

Brett Charlton
Chairman
Tasmanian Logistics Committee

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Summary of Recommendations

The following recommendations have been considered as potential solutions for government and other key stakeholders to adopt to address the current and future challenges for freight and logistics in Australia.

1. Government to consider possible *regulation* of port and infrastructure fees to reduce the occurrence of unjustified and exorbitant price increases. This will minimise ongoing price shocks on exporters and deter questionable commercial practices.
2. Government to consider engagement with global shipping lines and maintain a high agenda to ensure that the security of trade is maintained by commercial entities during such times as trade wars, pandemics or conflict. Exploration of contingencies and planning should be considered for essential goods where required.
3. Government to continue with controlled cabotage to level the playing field for local shippers and support continued service provision.
4. Government to consider foreign flagged vessel options where no local shipping provision is available to provide a level of service and access to markets to industry in regional locations.
5. Support for further investment in ports, road and rail to help support Australia's increasing domestic freight task will be crucial in the coming years.
6. Government to support competition in airfreight where possible to provide suite of export options for Australian exporters at affordable prices.
7. Government to reassess how airfreight can better support long term supply chains for essential items required in Australia.
8. Continuation of the International Freight Assistance Mechanism (IFAM) is crucial for Australian exporters (as a freight link for high value goods) until normal international airfreight and passenger services resume.
9. Government to consider the future supply chain requirements for Australian exporters in line with existing road, rail and port networks as a means of future investment in infrastructure to improve freight efficiencies and build resilience.
10. Government to map the freight paths of essential and non-essential goods from port to destinations within Australia and identify the most efficient routes and direct investment in infrastructure accordingly with evidence-based data and research.
11. Industry to work with government to reduce congestion and environmental consequences for urban areas of Australia's largest cities through strategic planning and adoption of alternate transport options where possible.

Submission to the Productivity Commission Study - Vulnerable Supply Chains (2021)

Risk Management

In reference to the Productivity Commission interim report on Vulnerable Supply Chains 2021, the following findings were made (Page 7) in respect of risk management and the role of government:

Risk management and the role of government

FINDING 5.1

Effective risk management requires a good understanding of a firm's risks to ensure that the net benefits of any investment to mitigate the costs of disruptions is matched by their potential effects and costs.

Supply chain risk management is similar to buying insurance for any other types of risk. In effect, a firm pays an insurance premium upfront to invest in a range of strategies such as, stockpiling, supplier diversification, contingent contracting, and domestic capability, to insure itself against potentially large cost increases if a disruption occurs. The focus of these risk management strategies is on the physical restoration of supply chains, rather than taking out insurance for a pure financial compensation in the event of a disruption.

FINDING 5.2

Risks are best managed by those who have direct incentives to mitigate against them. Firms are primarily responsible for managing risks in their supply chain.

Governments have responsibility, like any firm, to manage risks in supply chains for which they purchase and/or deliver goods and services directly, particularly when these are essential goods and services.

Each strategy has costs and some will perform better under different types of disruptions and contexts. Firms will employ a range of strategies to effectively manage risk.

FINDING 5.3

There are conditions where government intervention in private sector risk management may be justified — specifically, if society's tolerance for a residual risk is lower than the residual risk that results from the market. Another situation is where government or other impediments prevent firms from effectively managing their risks.

That said government intervention could crowd out private investment in risk management. The net benefit of any intervention would have to outweigh the possible costs.

The Australian Government also has responsibility for maintaining and promoting a respected and rules-based international trading system which promotes low-cost trading and firms' ability to insure themselves and respond to disruption. And all levels of government have responsibility for ensuring regulations are fit for purpose, including making temporary changes that let firms adjust to temporary disruptions.

Whilst RDA Tasmania (RDAT) and the Tasmanian Logistics Committee (TLC) recognise the importance of these findings as crucial to supply chain resilience, there is an omission to recognise the role of government and the freight and logistics sector in the transportation of essential and non-essential goods through Australia's numerous and varied supply chains.

Without transportation (international shipping, domestic shipping, airfreight, road and rail) the supply of these goods to Australia business does not occur.

Therefore, understanding the role of freight and logistics in efficient supply chain management cannot be overlooked and should be recognised in any supply chain analysis.

Burnie Port – Tasmania *Photo courtesy of TasPorts*

Australia is a shipping nation

Australia's geography reflects large population centres along the coastlines that are crucial to the Australian economy with Sydney, Melbourne, Brisbane and Perth the largest Australia cities central to the domestic freight network and international trade. However, these cities now incorporate vital ports and freight hubs that are now vastly different to the historical centres that they originated from and the increasing demands placed upon them are presenting larger and more significant long term planning challenges for government and industry.

As a continent, Australia is logistically reliant on shipping to provide the majority of goods from international destinations with multi-mode transport including road, rail and coastal shipping to distribute these goods to Australian cities. Similarly, exporters use these vital networks to transport goods to market from various regional and remote locations.

International shipping

Australia's geography limits our access to core shipping routes. As shown in figure 1, five of the world's largest transhipment ports, including Singapore, Hong Kong, Shanghai, Busan and Dubai, are also among the world's largest container ports.[1]

As Australia's maritime trade is dominated by bulk shipping, Australia's share of global container traffic is relatively small (estimated at approximately 1.5 per cent). More container goods are imported into Australia than exported, meaning shipping firms face lower utilisation rates on northbound trades and are often forced to reposition empty containers to other markets because cargo cannot be found for a return leg. This has often worked to Australia's advantage as shipping lines may offer cheap rates to attract cargo just to cover the cost of shipping empty containers back to Asian hubs.[2].

Furthermore, the configuration of container "equipment" remains an issue for Australian exporters with imports traditionally using 40 ft containers and exports using 20ft containers creating an imbalance in availability for exports in times of peak season trade and other market cycles.

Post COVID shipping

However, the COVID 19 pandemic has changed this equation significantly as the world resumes trade. Due to the Australian borders remaining closed, the lack of cargo space on international aircraft has largely left shipping as the only alternate means for Australian exporters to access markets internationally placing additional stresses on global shipping routes. This has resulted in delays for import materials vital for domestic supply chains and value add production as well as delays for exporters getting product to their international customers.

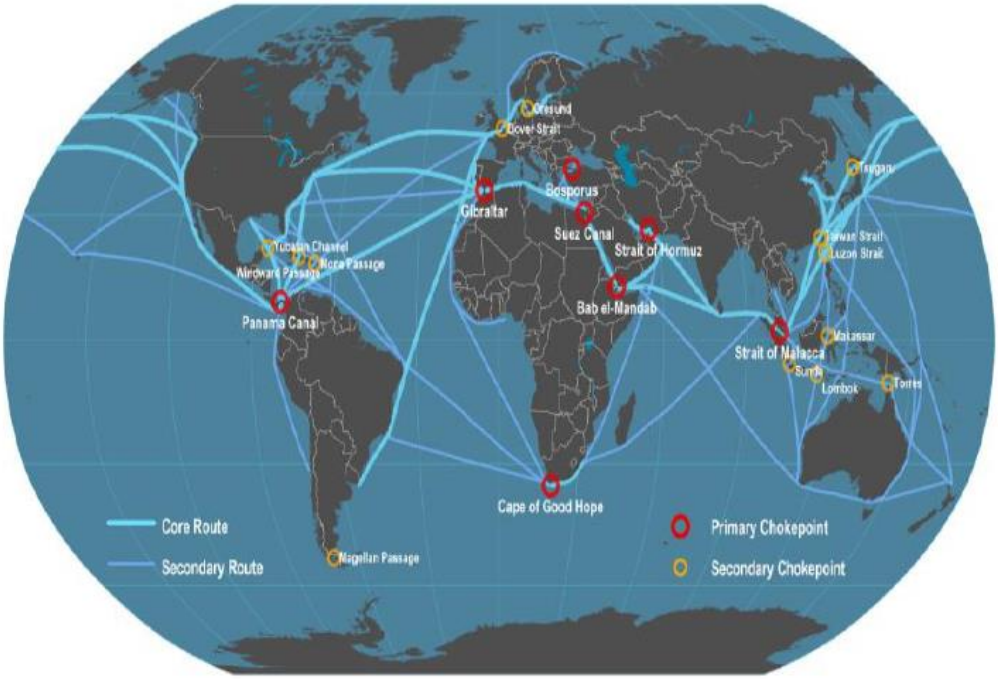
Additionally, the stimulus provided by other countries to stimulate their own economies has placed pressure on the shipping lines with volumes of cargo often exceeding available capacity.

[1] Australian Government Department of Infrastructure, Regional Development and Cities, Submission to the Standing Committee on Rural and Regional Affairs and Transport References Committee 2019
[2] Australian Government Department of Infrastructure, Regional Development and Cities, Submission to the Standing Committee on Rural and Regional Affairs and Transport References Committee 2019

Add in extreme weather events, industrial action in Australian ports and more recently the blockage in the Suez canal has combined to put significant pressure on the scheduling integrity of shipping and therefore the ability to reposition container equipment to ports when required.

As shown in Figure 1, the global shipping routes are extensive and Australia's position at the "bottom of the world' means that services can sometimes be susceptible to disruption in comparison to the main arterial routes in Europe, Asia, and North America.

Figure 1. Main Global Shipping Routes



Source: Australian Government Department of Infrastructure, Regional Development and Cities, Submission to the Standing Committee on Rural and Regional Affairs and Transport References Committee 2019 Page 42 – from Rodrigue, J. The Geography of the Transport System – Fourth Edition (2018).

Empty Container Movements

One unforeseen consequence of this emerging global shipping trend is the lack of empty containers available to Australian exporters to use for export. Global Shippers faced with increased export traffic, are opting to move full containers on regular routes leaving empty container parks in Sydney and Melbourne full and awaiting transfer to international hubs in Asia and Europe. This lack of available containers may force exporters to reduce or potentially halt production to adjust to reduce volumes of export.

Source: Weekly Times 10th March 2021 Page 9

The increasing cost of export

The market forces of supply and demand have exaggerated freight costs in the post COVID trading environment as cargo space on global shipping fleets is maximised and demand outstrips supply. This additional cost has resulted in large imposts on Australian exporters who are paying more to import goods for their own value add production and then export to international markets.

Port fees, infrastructure charges and shipper rates all form part of this equation, however questions continue to be raised as the reasoning and validity for any increase in these charges. Reporting from the shipping lines for instance shows that profits during 2020 as opposed to 2019 have risen significantly for shipping lines (CMA CGM, the world's third largest shipping line reported a profit of US$1.75 billion for 2020 whilst in 2019 the reported result was a loss of US$229 million).

Infrastructure Charges in Australian Ports

A major contributor to the escalating costs of export and importation of goods are the infrastructure fees charged by the stevedores at Australian ports, as illustrated in figure 2, who are justifying increasing charges in part to the reducing prices paid by the shipping lines to them (falling revenue) and growing competition between stevedores at Australian ports.

The revenue shortfall has now transferred to the land-based transport operators (trucks and trains), who in turn are passing them onto the exporters. Left unabated these charges will undoubtedly increase indefinitely as land-based transport operators cannot influence the stevedores for competitive rates like the shipping lines can achieve[3].

Figure 2, illustrates the rate of increase in infrastructure fees from 2016 to 2019 between three international stevedore operating at Australian Ports.

[3] Infrastructure Australia – Australian Freight Audit 2019

Figure 2. Increased charges by Stevedores in Australia 2016-2019

Port	DP World			Patrick		Hutchinson	
	2016-17	2017-18	2018-19	2016-17	2017-18	2016-17	2017-18
Brisbane	$32.74	$38.75 **+18.4%**	$65.15 **+68.1%**	$32.55	$38.25 **+17.5%**	$32.00	$32.60 **+1.9%**
Fremantle	$8.22	$8.22	$8.22	$4.76	$7.50 **+57.6%**		
Melbourne	$32.50	$49.20 **+51.4%**	$85.30 **+73.4%**	$32.00	$47.50 **+48.4%**		
Sydney	$21.16	$37.65 **+77.9%**	$63.80 **+69.5%**	$25.45	$41.10 **+61.5%**	–	$10.45

Note: The table excludes the Victorian International container terminal, as charges remained constant between 2016-17 and 2017-18.

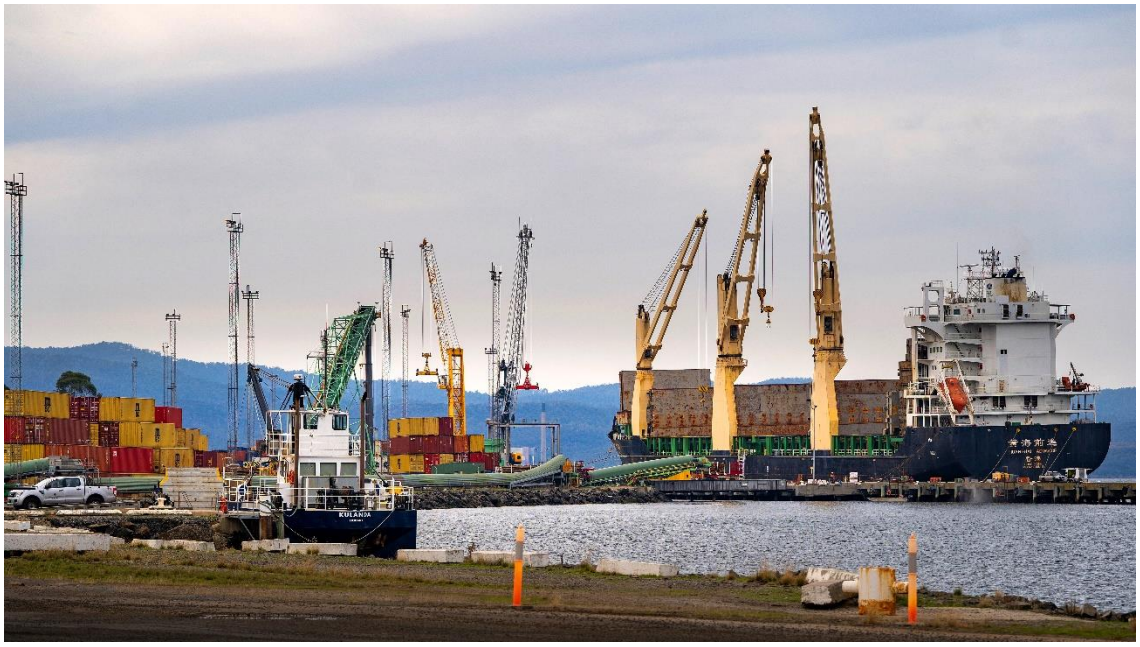
Source: Australian Competition and Consumer Commission (2018)[220]

Devonport Port – Tasmania *Photo courtesy of TasPorts*

Recommendations: Risk management options for government

1. Government to consider possible *regulation* of port and infrastructure fees to reduce the occurrence of unjustified and exorbitant price increases. This will minimise ongoing price shocks on exporters and deter questionable commercial practices.

2. Government to consider engagement with global shipping lines and maintain a high agenda to ensure that the security of trade is maintained by commercial entities during such times as trade wars, pandemics or conflict. Exploration of contingencies and planning should be considered for essential goods where required.



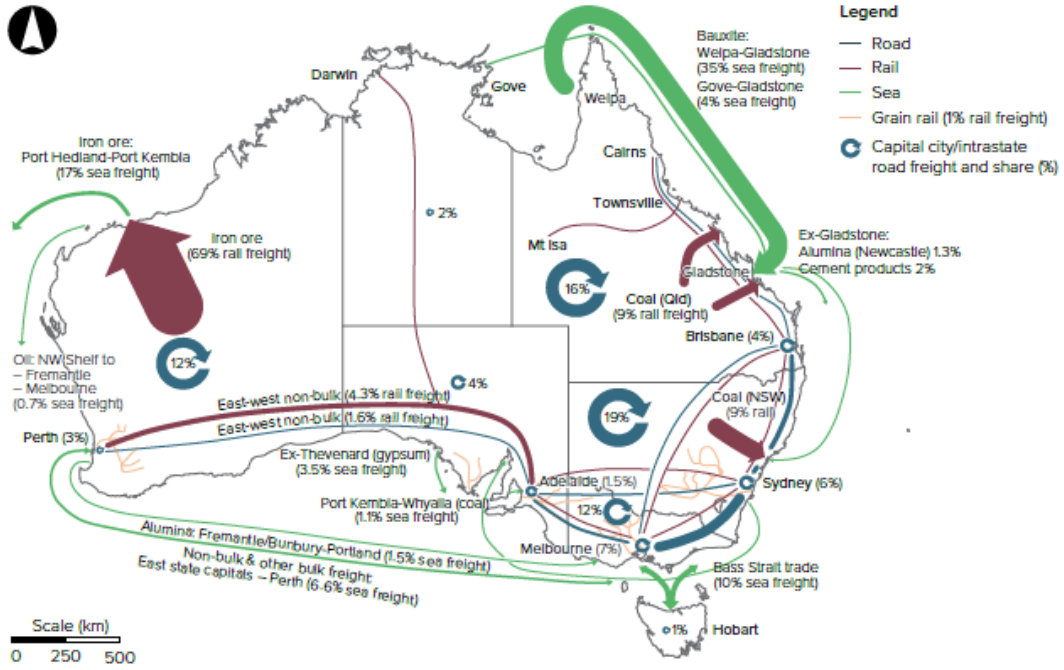
Bell Bay Port – Tasmania *Photo courtesy of TasPorts*

Coastal Shipping within Australia

Coastal shipping in Australia, explained in figure 3, is generally used to move the same types of freight around the same routes and is predominantly used to transport bulk commodities such as iron ore, petroleum, cement and alumina across long distances. [4] In the case of Tasmania, as Australia's only island state, 99% of its total freight is shipped off island by sea using existing coastal shipping services. [5]

Figure 3 shows the major freight flows of resources including bulk and non-bulk across the Australian continent from point of origin to destination including types of cargo.

Figure 3. Major Freight Flows in Australia



Source: Bureau of Infrastructure, Transport and Regional Economics (2019)[274]

There is potential for shipping to take more cargo, in particular for non-urgent, high volume shipments. Shipping is also the primary transport mechanism where there is no road or rail, such as shipping to Tasmania across Bass Strait (as mentioned above) and servicing remote communities in Northern Australia where road transport is disrupted due to the wet season and road quality is poorer[6].

[4] Australian Government Department of Infrastructure, Regional Development and Cities, Submission to the Standing Committee on Rural and Regional Affairs and Transport References Committee 2019 Page 43

[5] RDA Tasmania/ Tasmanian Logistics Committee TFES Case Study Report 2018 Page 9

[6] Australian Government Department of Infrastructure, Regional Development and Cities, Submission to the Standing Committee on Rural and Regional Affairs and Transport References Committee 2019 Page 44

Localised shipping versus Foreign Flagged Vessels

The current Coastal Trading regime has evolved over a rich history of the regulation of Australian coastal trade since Federation. Historically, coastal trade (along with a range of aspects of maritime navigation) was regulated by the Navigation Act 1912 (1912 Act) [7].

The 1912 Act contained Australia's cabotage regime and sought to balance the need for services with the availability of British and then Australian ships. Under the 1912 Act, all ships engaging in coastal trading were required to hold a licence. At the time of commencement of the 1912 Act, the conditions placed on licence holders related to standardised pay, seafarer conditions, and employment levels. The Governor-General also had the ability to declare certain voyages not to be coastal trading. Single and continuing voyage permits, allowing an unlicensed British ship to engage in coastal trading, were first introduced in 1921. These permits were only available where the Minister was satisfied that no licensed ship was available or that the service as carried out by a licensed ship or ships would have been inadequate. Permits could be issued unconditionally or subject to any condition the Minister saw fit.

Further amendments were made from the 1920s to 2006 that had the practical effect of progressively easing access to the coastal trades for foreign-flagged ships, where supplementation of the Australian fleet was seen to be necessary. Commencing in 2012, the Coastal Trading Act replaced the single and continuing voyage permit system of the 1912 Act with a three-tiered licence system, giving Australian-flagged ships unlimited access to the coastal trade and permitting foreign-flagged ships to operate under Temporary Licences for up to 12 months. Only consequential amendments have been made to the Coastal Trading Act since it entered into force in 2012. [8] Further streamlining to a two-tiered licence approach (without emergency licencing) continues with further industry consultation. Pockets of localised coastal shipping still exist today where the need is apparent for such services and the volumes of cargo justify the investment in localised shipping fleets. Examples include Tasmania, Western Australia to Eastern Shore. Changes to protect Australia's remaining domestic carriers have been advocated regularly as a means of ensuring self-sufficiency in respect to its maritime operations with ongoing debate about the need for foreign flagged vessels to provide domestic services in lieu of investment and expansion of localised options.

The opportunity to introduce foreign flagged vessels to help extract the best possible outcome for Australian industries that rely on shipping services may provide some benefit where no service exists. In simple terms this may be an easy solution for government to legislate, however, any service provided by foreign flagged vessels need to be solidified with firm commitment for the long term when local business becomes reliant on consistent uninterrupted service. Unfortunately, these services can become dependent on to the whims of the foreign shippers who may not view the needs of Australia's domestic shipping as their prime concern or responsibility when considering their long-term business models.

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[7] Australian Government Department of Infrastructure, Regional Development and Cities, Submission to the Standing Committee on Rural and Regional Affairs and Transport References Committee 2019 Page 48

[8] Australian Government Department of Infrastructure, Regional Development and Cities, Submission to the Standing Committee on Rural and Regional Affairs and Transport References Committee 2019 page 48

Overseas examples

The approach taken by the United States of America (the USA) under the *Merchant Marine Act of 1920* (known as the Jones Act) is an example of a regime of strict cabotage regime. It requires all domestic cargoes to be carried by USA built vessels that are registered in the USA, and owned and operated by USA citizens. The *Passenger Vessel Services Act of 1886* states that no foreign vessels shall transport passengers between ports or places in the USA, either directly or by way of a foreign port.[9]

The countries that now have no cabotage restrictions include the UK, the Netherlands, Denmark, New Zealand (NZ) and South Africa. In practice, NZ has an open coast. Coastal shipping is regulated under Section 198 of the Marine Transport Act 1994 that grants access to coastal trade to:

- NZ registered ships;
- Foreign ships on a demise charter to a NZ based operator; and
- Foreign ships passing through NZ waters while on a continuous journey from a foreign port to another foreign port and stopping in NZ to load or unload international cargo[10].

Recommendations: Risk management options for government

1. Government to continue with controlled cabotage to level the playing field for local shippers and support continued service provision.

2. Government to consider foreign flagged vessel options where no local shipping provision is available to provide a level of service and access to markets to industry in regional locations.

3. Support for further investment in ports, road and rail to help support Australia's increasing domestic freight task will be crucial in the coming years.

[9] Australian Government Department of Infrastructure, Regional Development and Cities, Submission to the Standing Committee on Rural and Regional Affairs and Transport References Committee 2019 page 49

[10] Australian Government Department of Infrastructure, Regional Development and Cities, Submission to the Standing Committee on Rural and Regional Affairs and Transport References Committee 2019 page 50

Airfreight

The movement of freight by air represents the smallest portion of Australia's freight task at 1.5 million tonnes or 0.1% (2016 / 2017)[11] with Australian airports in capital cities contributing the highest amount of tonnage. Typically, high net worth perishable freight is transported by air when time frames are critical and include seafood, flowers and seasonal fruits to destinations in Asia and Europe.

Figure 4 provides a description of export load for Australia's main airports as a percentage.

Figure 4. Exports per tonne from Australian Exports 2016

Airport	Exports (tonnes)	Imports (tonnes)	Total (tonnes)	Share
Sydney	255,173	205,065	460,238	47.3%
Melbourne	166,233	114,346	280,579	28.8%
Brisbane	67,740	40,818	108,558	11.2%
Perth	54,302	30,317	84,619	8.7%
Adelaide	14,621	7,941	22,562	2.3%
Cairns	4,677	516	5,193	0.5%
Darwin	900	897	1,797	0.2%
Other	4,578	5,363	9,941	1.0%
Total	**568,225**	**405,265**	**973,490**	

Note: Values represent tonnes imported or exported in 2016.

Source: Inquiry into National Freight and Supply Chain Priorities (2018)[329]

The COVID-19 pandemic restricted air travel with the closure of Australia's borders and without access to airfreight, many Australian exporters have relied upon the Australian Government's International Freight Assistance Mechanism [12] to support access to international markets until Australia's border re open.

Once this occurs, there is a possibility pressure on international shippers will be reduced as international airlines offer increased cargo space in line with the resumption of international travel.

[11] Infrastructure Australia – Australian Freight Audit 2019
[12] International Freight Assistance Mechanism - Austrade

Recommendations: Risk management options for government

1. Government to support competition in airfreight where possible to provide suite of export options for Australian exporters at affordable prices.

2. Government to reassess how airfreight can better support long term supply chains for essential items required in Australia.

3. Continuation of the International Freight Assistance Mechanism (IFAM) is crucial for Australian exporters (as a freight link for high value goods) until normal international airfreight and passenger services resume.

Launceston Airport *Photo courtesy of Launceston Airport*

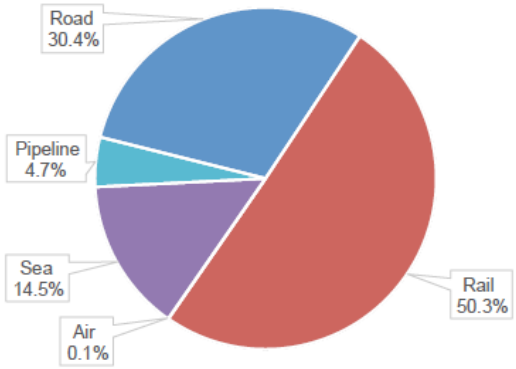
Road and Rail in Australia

As a result of Australia's wide geographic expanse, Australian freight supply chain networks are typically vast, reflecting the size of the country, and come in many different forms, illustrated in figure 5. In its most basic form, a supply chain is the network of people, companies, products and services that gathers raw materials, transforms them into products and transports them to their final destination.

Each year infrastructure operators, transport companies and logistics experts along these supply chains deliver approximately four billion tonnes of goods across Australia which equates to approximately 163 tonnes per person[13].

Australia's freight transport task is diverse and growing in line with global demand for Australian exports, particularly from Asia, Australia's geography and varied climate also means that Australia continues to produce a broad range of agricultural products, each with a unique supply chain. The performance of resulting freight networks varies across the country with urban and agricultural supply chains in particular experiencing challenges with Australian cities key centres of demand, supply and the processing of high-value and containerised freight.[14]

Figure 5. National freight task by mode, 2013- 2014



Source: Who moves what where report – National Transport Commission 2016

Road

Road transport via heavy vehicles (trucks) makes up almost one third of Australia's freight task [15] and is the most flexible mode of transport as it can deliver goods "door to door".

Rail

Half of the Australian freight task is supported by the rail network[16] which has the ability to transport significant tonnage of bulk commodities such as iron ore, across vast distances.

Comparing freight movements in urban and regional Australian locations

[13] Transport and Infrastructure Council 2015, *National Remote and Regional Transport Strategy*,
[14] Infrastructure Australia – Australian Freight Audit 2019
[15] National Transport Commission 2016, *Who Moves What Where, Freight and Passenger Transport in Australia*,
[16] National Transport Commission 2016, *Who Moves What Where, Freight and Passenger Transport in Australia*,

Australia's geography reflects large population centres along the coastlines that are crucial to the Australian economy with Sydney, Melbourne, Brisbane and Perth the largest Australia cities central to the domestic freight network and international trade[17]. However, these cities now incorporate vital ports and freight hubs that are now vastly different to the historical centres that they originated from therefore it is inevitable that conflicting demands for land in Australian cities will occur as cities expand and try to provide sufficient land space for business, transport and residential areas.

Regarding these freight and logistics operations, land is also required for intermodal terminals and container parks which also need to be accessible and located near ports, airports and local manufacturers. Planning for current and future freight requirements is particularly important with accessible road and rail networks to move goods efficiently to all destinations[18].

Despite the importance of more effective land-use planning for freight, government has historically struggled to implement effective reforms to address these challenges[19]. Lack of freight knowledge and conflict between proactive strategic planning and the regulatory role played by most planning agencies is likely to contribute to this, while many freight planning issues are often recognised in most strategic freight plans but not necessarily acted upon. Without action, this leaves cities and surrounding urban areas frequently bottlenecks in supply chains with freight often sharing and competing on road and rail infrastructure with passengers with resulting congestion on key access routes.

Similarly remote and regional areas also deliver substantial output to the Australian economy through their activities in agriculture, mining, fisheries and forestry[20]. The combined output for remote and regional Australia is approximately 40% of Australia's GDP[21].

However, despite the contributions these regional and remote communities make, the sub-standard level of transport infrastructure in these areas continue to be an inhibiter to large scale industry sector development, when compared to urban areas, in sectors such as agriculture and mining and their access to export markets. This is likely to limit long term economic growth and development in remote and regional areas and impact growth into the Australian economy. [22]

[17] Infrastructure Australia – Australian Freight Audit 2019
[18] Infrastructure Australia – Australian Freight Audit 2019
[19] Infrastructure Australia – Australian Freight Audit 2019
[20] Infrastructure Australia – Australian Freight Audit 2019
[21] Transport and Infrastructure Council 2015, *National Remote and Regional Transport Strategy*,
[22] Infrastructure Australia – Australian Freight Audit 2019

Recommendations: Risk management options for government

1. Government to consider the future supply chain requirements for Australian exporters in line with existing road, rail and port networks as a means of future investment in infrastructure to improve freight efficiencies and build resilience.

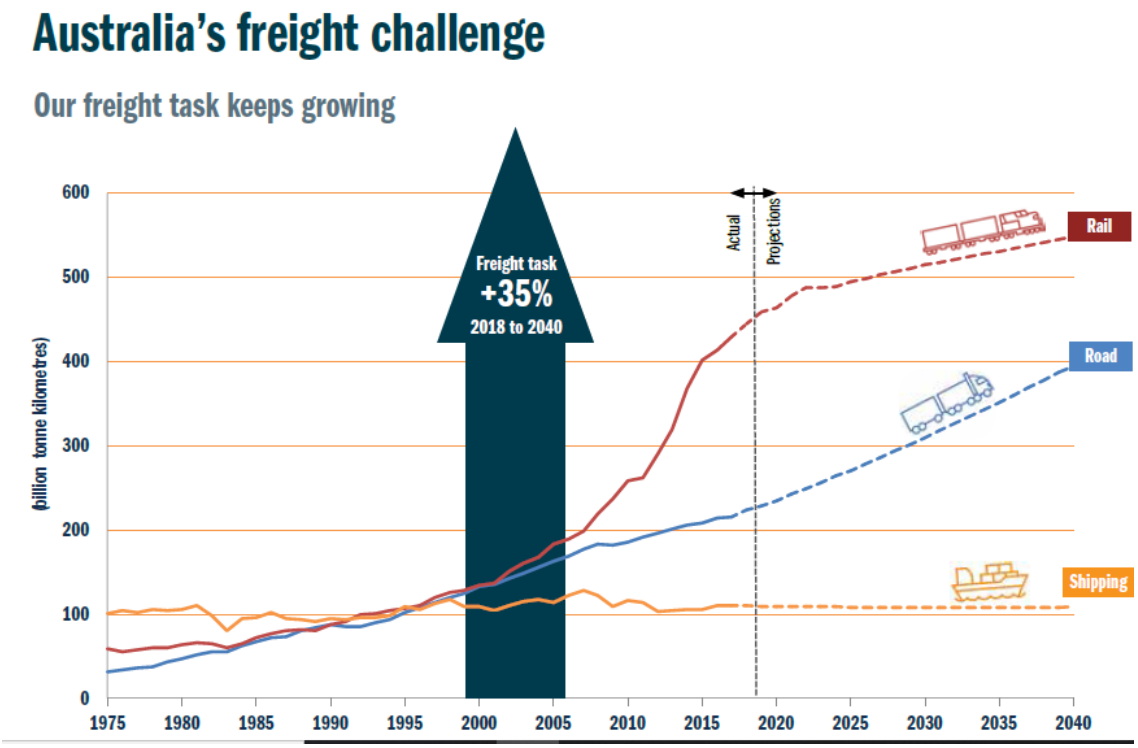
2. Government to map the freight paths of essential and non-essential goods from port to destinations within Australia and identify the most efficient routes and direct investment in infrastructure accordingly with evidence-based data and research.

3. Industry to work with government to reduce congestion and environmental consequences for urban areas of Australia's largest cities through strategic planning and adoption of alternate transport options where possible.

The Future - Australia's future domestic freight task

Australia's expanding freight task continues to increase as the demands placed upon domestic supply chains and resulting exports to international markets grow, shown in figure 6. All forms of freight transport are expected to shoulder this increased task with road and rail playing the biggest increased role[23].

Figure 6. Australia's Growing Freight Challenge 2018- 2040



Source: National Freight and Supply Chain Strategy 2019 (Bureau of Infrastructure, Transport and Regional Economics)

With the increased use of road transport to move larger freight volumes, concerns have been raised about congestion and pollution on roads as urban infrastructure reaches its capacity as corridor and precinct encroachment impact other land uses in urban areas (Transport and Infrastructure Council 2019).

Additionally, non-bulk freight movements are increasingly being undertaken in most instances via road freight with this trend increasing in recent years due to an improvement in road networks and vehicle size compared to rail options where poor rail connectivity to regional ports and fragmented rail infrastructure over regional routes still exist that negatively impact freight transport times and costs.

The challenge for government and industry is to blend and balance the needs of Australian exporters with the capacities of the freight and logistics sector ensuring all modes of transport can work effectively and at their capacity without hinderance of sub-standard infrastructure or bottlenecks to freight distribution centres and ports.

[23] Transport and Infrastructure Council 2015, *National Remote and Regional Transport Strategy*,

Other issues to consider

Barriers to efficient trade - Biosecurity processes

Australia's bio security rules are stringent to ensure unwanted pests and diseases do not make their way to Australia through imported cargoes and threaten native species, crops and vegetation. However, as the sheer volume of imported goods increases, more attention to design and implement seamless bio security inspections must be implemented to maintain efficiencies. Cumbersome state-based systems that integrate into federal systems (Tasmania) is one such example where redesign to an Australian based system would deliver advantage and improved efficiencies. Government is urged to work with industry and freight forwarders to identify areas for improvement and act accordingly.

Compliance and documentation

With the ever-increasing need for compliance related documentation to be completed for freight imports and exports, many documents including Certificates of Origin, phytosanitary certification and other is a significant but necessary burden on freight forwarders. The need to produce these documents in paper-based format is time consuming and can cause significant delays if not completed correctly. Any potential move to a digital "non paper based" format as a means of creating improved efficiencies and time savings should be considered as a matter or urgency as freight volumes increase.

Access to skilled workforce

As the Australian workforce ages, there is the potential for competition amongst industry to secure sufficiently skilled workers from a diminishing pool of workforce resource. This is also evident in the freight and logistics and maritime sectors with increasing need for these services being restrained by lack of human resource. Industry and government can address these challenges with skilled migration and other workforce development options that will secure the necessary skills for the medium and long term to provide stability and reassurance to supply chains.

Automation and adoption of new technologies

With the rate of technology and innovation increasing significantly, there are additional pressures to adopt new forms of technology where possible as a means of remaining competitively relevant in the global trading environment. Artificial intelligence, robotics and automated machinery are becoming more freely available and cheaper to adopt to traditional freight and logistics operations. The resulting efficiencies in supply chains need to be considered regularly by industry (with government support) to provide cheaper and faster transfers of freight between destinations.

Supporting Unique Freight Hubs in regional locations

Australia's geography does deliver significant challenges and these all need to be recognised and supported adequately. In the case of Tasmania, as Australia's only island state, the need to provide ongoing assistance through freight equalisation for shipping, to enable Tasmanian industries to compete on an equal playing field with its mainland counterparts cannot be overstated. Additionally, supporting bio security and other freight regulatory services should also be made available throughout Australia with a centralised system to provide consistency and sufficiency to all users.

Creating security of supply

Australian business has experienced both the positive and negative effects of the "just in time" approach to ordering inventory from international suppliers. Reduced imports during COVID - 19 illustrated the shortcomings of holding minimal stock for many Australian businesses which has influenced a more robust and resilient "security of supply" whereby more stock is warehoused and sourced from multiple suppliers overseas. This comes with a cost including purchasing more stock, which may lay idle for longer, and warehousing to store the increased inventory over longer periods. However, when considering the experience of reduced productivity and inability to trade, this new approach to stock ordering for many Australian businesses may be the best option to indemnify against future supply shocks.

E Commerce and the new world of online purchasing

The rate of eCommerce and purchasing online has increased immeasurably in the last few years and only exacerbated by COVID-19 when many consumers were forced into home isolation within Australia. This trend is expected to continue for the foreseeable future and increasing demand will add pressure to existing logistics services as freight volumes rise. Understanding the need for improved infrastructure including freight hubs to support this need will be crucial in maintaining service delivery for businesses and consumers.

Conclusions

Australia, like many of its counterparts that compete in the global trading environment, is reliant on robust, resilient and reliable freight and logistics networks to maintain continuity of supply to keep its economy going and ensure reliability and integrity within the economy's numerous and diverse supply chains. This forms two main parts, imports of essential and non-essential goods into Australia and the distribution of these goods thereafter within Australia among consumers and supply chain participants.

Obtaining and maintaining the regularity of supply of these goods is critical to Australian supply chains, however the means of how they are transported are just as important and need to be subject to ongoing planning, review and regular renewal investment. Unfortunately, domestic transport infrastructure has not kept pace with the needs of Australian industry as freight demands have increased. The future is equally challenging with the expectations of significant additional freight volumes across Australia adding to the existing demands on road, rail and port infrastructure. To be sufficiently prepared for these challenges, government and industry should plan accordingly through the identification of critical supply lines and infrastructure and then invest in improved capability as a means of delivering sufficient capability to maintain Australia's essential services, industry sectors and community services.

In the international sphere, Australia is reliant on the services of international shippers to transport essential goods to Australian ports with increasing regularity. Unfortunately, international carriers do not necessarily view the needs of Australia as their prime concern leaving Australia susceptible to their whims as they seek more lucrative routes in an increasingly competitive international freight market. Australia will continue to be challenged in this area and left exposed in times of global trade wars, pandemics, or potential conflict.

These trends will influence Australia's supply chains and may promote a change in business trading away from the "just in time" ordering of stock for domestic use to more of a "security of supply" with a diversification of suppliers and ensure more stock is available locally to build contingency against future supply shocks. This could impact cost for Australia business by way of more stock on hand remaining idle for longer periods coupled with the need for additional warehousing to cope with increased inventory. The alternative of reduced stock on hand (as experienced during COVID-19) is not ideal and this new approach to business in a post COVID world may be a way of indemnifying future trading in Australia.

Finally, Australia's supply chains are unique and vast due to its geographic size and the location of its major cities, therefore any investment and planning equations should consider these factors as a means of reducing risk to the various supply chains. This should occur by fortifying existing freight corridors, expanding access routes where required and developing road, rail, shipping and port infrastructure to adequately meet the growth in Australia's future freight tasks.