Infrastructure Australia and the National Transport Commission

National ports strategy

Background paper

December 2010

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1 Introduction

In recent years there have been a number of formal national level reviews of aspects of the Australian port and related freight sectors.

Most recently there were reviews for the Council of Australian Governments of regulatory arrangements of certain ports under the Competition and Infrastructure Reform Agreement (CIRA).

Earlier this year, Infrastructure Australia and the National Transport Commission were requested to develop a draft national ports strategy for consideration by the Council of Australian Governments in 2010. The draft national ports strategy was to consider the following issues:

- the future infrastructure requirements of Australia's ports including road and rail links
- the most effective regulatory and governance frameworks
- ways to improve land planning and corridor preservation
- a nationally coordinated approach to the future development and planning of port and freight infrastructure.

This paper provides some background to the response to that request.

There are a number of ways of examining 'ports' issues. One possibility is to take a legal view, and consider port authorities. A second possibility is to take a location-based view, and consider 'port precincts' which may include matters which are not in the direct control of the port authority. A third is to take a functional view and consider matters related to the activities conducted at ports, even if those matters occur beyond the port precinct.

A national ports strategy that deals with the issues identified in the Government's request needs to take a functional focus. It must deal with aspects of the logistics chain that may be distant from the port. It should extend beyond port authorities and port precincts on both sea-side and land-side. It should be broader in scope and coverage than the CIRA port reviews.

In developing their views, Infrastructure Australia and the National Transport Commission undertook significant consultation. In this process comments were made regarding specific jurisdictional matters, particularly that an Australian national ports strategy should not take the view that functions relevant to ports are a state responsibility only. The approach proposed in this paper does not offer a critique of governments' performance, nor does it recommend Commonwealth 'intrusion'. Rather it aims to provide some guidance for the future of Australia's major commercial ports.

There are many parties with interests in ports. These interests include commercial and economic matters, defence, security, border protection, tourism, the environment, health, safety and social amenity. Any decisions regarding ports need to balance these interests. A strategy provides a good opportunity to do so in a thoughtful way.

A key strategic theme is that the economic significance of certain ports needs to be more clearly recognised by the community. The performance of these ports substantially affects national level productivity, and both Infrastructure Australia and the National Transport Commission take the view that a productivity agenda is most important to Australia.

Nationally significant ports, for which the challenges of growth loom largest, are the focus of the national ports strategy. These ports include those in or serving metropolitan areas and the larger bulk commodity ports. For the metropolitan ports, the growth challenges are greatest on the land side. This includes infrastructure not under the control of the port. Other major ports may emerge in the future either at new locations or where relatively minor ports substantially increase their scale of operation.

Recognition of the economic significance of the nation's ports needs to be balanced by greater transparency and responsibility. The durability and acceptability of any ports strategy will be affected

by this balance. Part of this transparency requires the port authorities to operate under true commercial principles.

Governments have agreed to a number of policies which will have implications for ports. Among these are competition policy, skills development and city planning. Other policies are in development, for example, infrastructure pricing. These policies alone will not be enough to optimise the productivity contribution of Australia's ports. Further measures are needed.

2 Some background to Australian ports

2.1 Introduction

There is a substantial and growing body of literature on Australia's ports, including documentation for specific ports, general reviews and policy studies. Rather than recite this work, some background on the function and importance of ports in national freight flows is provided. It shows the economic dominance of a relatively small number of ports, and illustrates the complex and varied nature of the major ports.

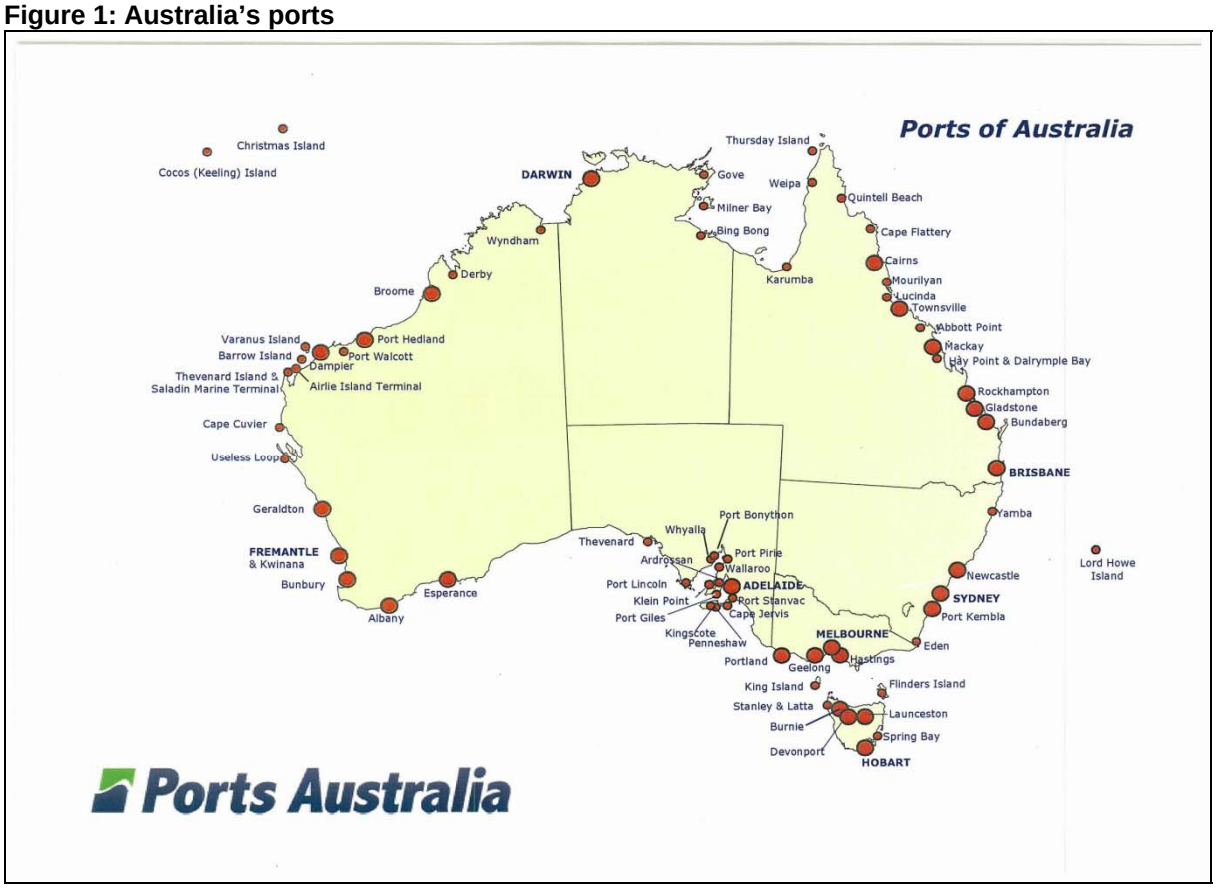
2.2 The function of ports

Ports are interfaces, transport network nodes, between the sea and land where goods are transferred to and from ships. The outgoing and incoming goods are carried overland to and from the port by trucks and trains. Some ports also cater for passengers, and some ports are used for national security and defence purposes including naval stations.

Ports are dispersed across Australia and generally fall into three categories reflecting cargo types and geographic location. These are:

- bulk (mainly single commodity) export ports
- capital-city metropolitan (mainly container) ports
- mixed cargo sector ports (can be regional or capital cities).

Figure 1: Australia's ports



The types of cargoes typically shipped through Australian ports fall into six broad categories:

- iron ore exports (a bulk cargo)
- coal exports (a bulk cargo)
- high-value mineral and agricultural exports (mostly also bulk cargoes but include live animal exports)
- containers - exports and imports
- liquid goods, such as crude oil, petroleum products and LNG (all bulk cargoes), and
- high-value specialised goods and services – such as rolling cargoes (vehicles), project cargoes and cruising.

On the sea-side, a port needs to have safe marine access channels, sea anchorage areas outside the port, pilots and tugs to safely navigate the ships to and from quayside, and procedures to minimise any possible damage to the marine environment.

Once the ships are moored alongside the quay, formal arrival procedures are carried out by customs and quarantine, and ship-safety authorities to ensure that both the crew and goods comply with all protective regulations.

Equipment is then used to transfer goods to and from the ships. The loading and unloading of ships, depending upon the size and type of goods, can take anywhere from several hours to several days. While in port, the ships often have to be serviced with fuel, food, water, waste disposal, and possible light maintenance and crew changes.

In order to transfer goods between ships and land transport, a port needs to have precinct land and a series of physical assets, technologies, people, processes and supporting activities. Some of these are managed by the port authority, others are provided on a contract basis. Often the relevant assets are operated by different parties including stevedores, truck companies and freight forwarders. As a result, the efficient performance of a port relies on cooperation among these parties, much of which is based on commercial contracts.

A port precinct needs to be serviced by train and truck handling facilities which connect at the port gate to the inland rail and road network. The networks, trucks and trains are operated by a variety of parties, some commercial, some governmental.

Depending on the type of goods handled and the geographic location, the supply chains from start to finish, of which ports precincts are a fixed part, are of differing complexities, from relatively simple single bulk commodity export supply chains to complex metropolitan container import supply chains. Figures 2 and 3 illustrate this.

At present, port supply chain participants generally need to share the use of off-port infrastructure, such as roads and railways, with other parties including car owners and urban passenger trains. In some cases, port supply chain participants use a relatively small amount of this infrastructure capacity, particularly further away from the port. However, in some supply chains, infrastructure is effectively dedicated to port related tasks. One example is the iron ore export supply chains.

Figure 2: Typical bulk commodity port export supply chain

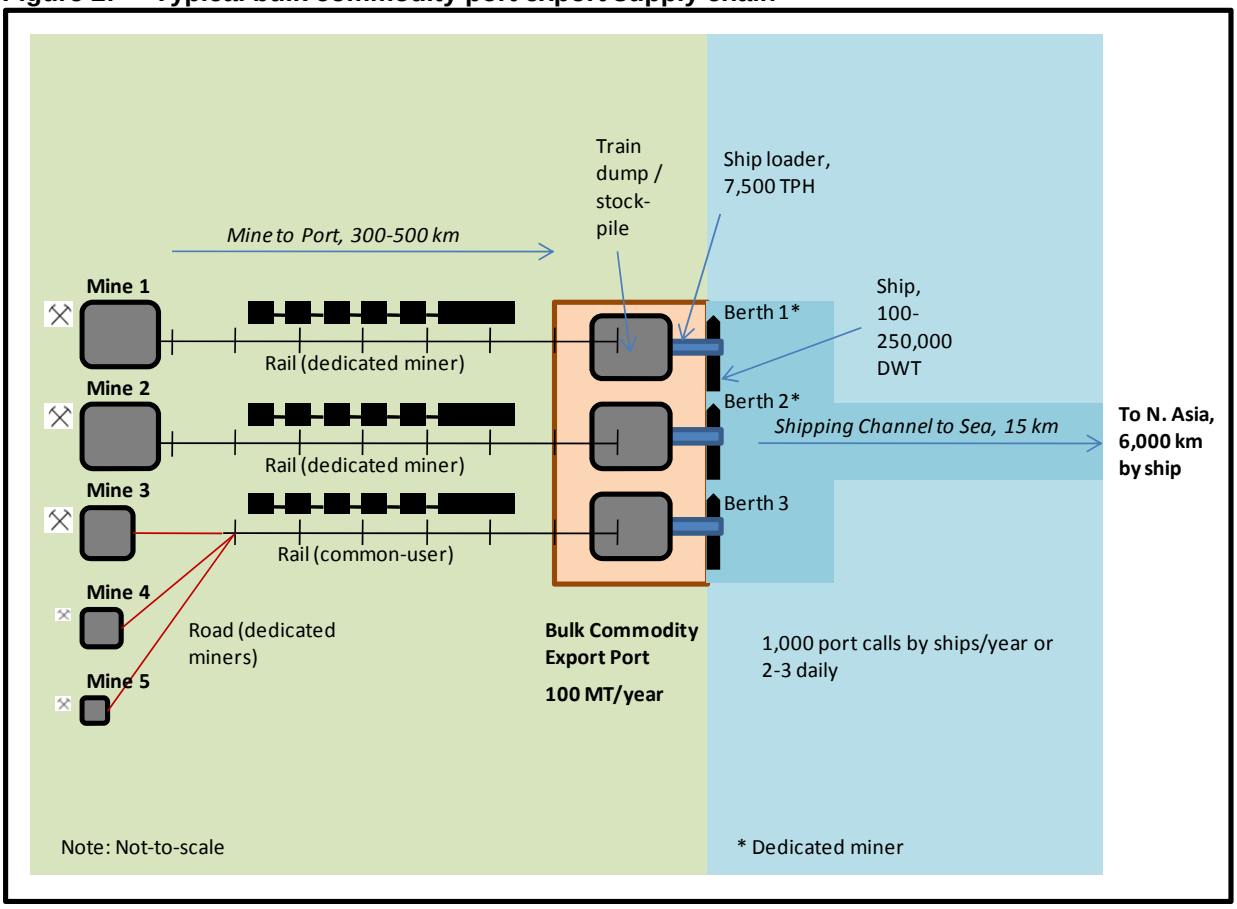
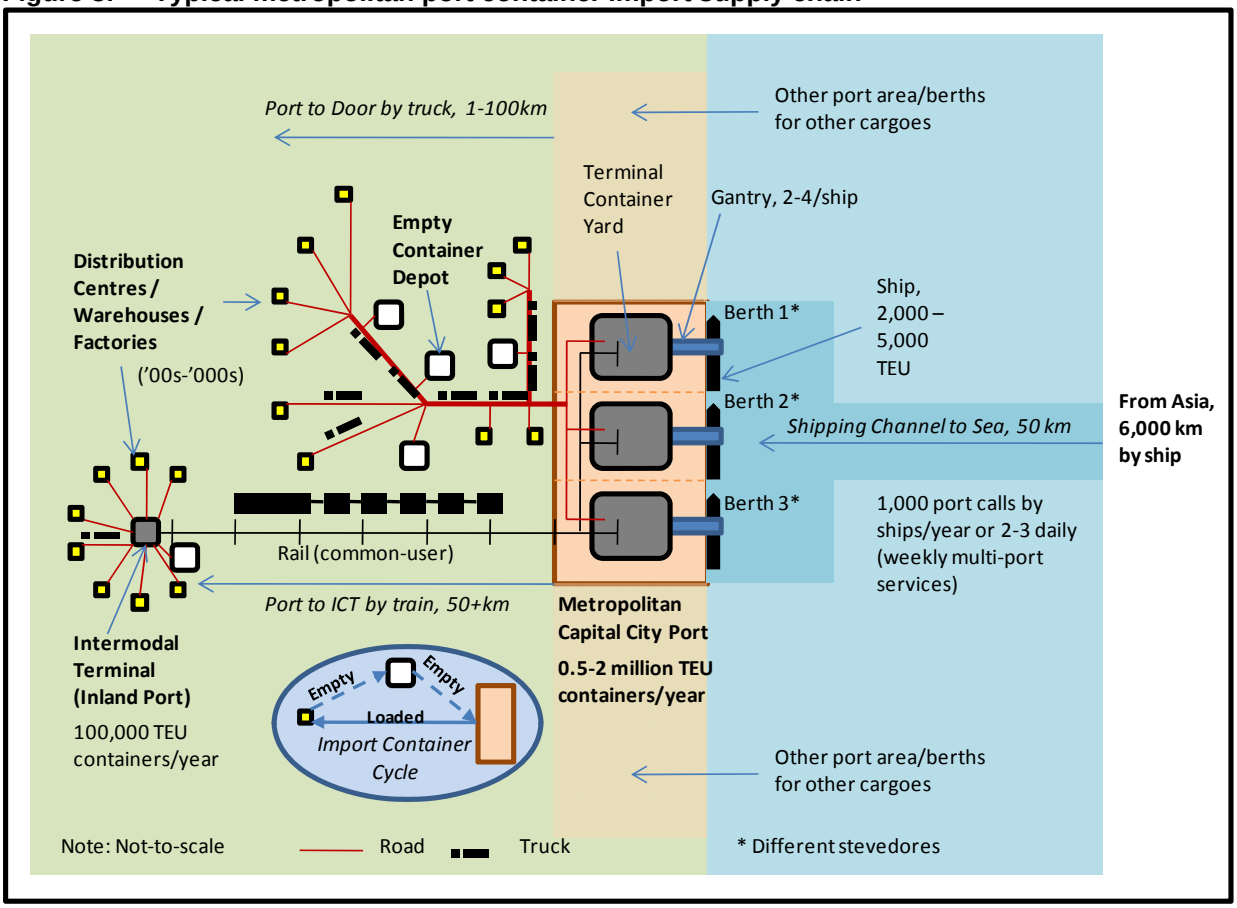


Figure 3: Typical metropolitan port container import supply chain



The port activities, providers of transportation, support services, authorities, and owners of the goods all rely upon operational planning and pre-planning using both internal and shared communication and information systems. The effectiveness of how well the planning and information systems work has an impact on the productivity and efficiency of ports.

In Australia in 2006-07, there were just over 26,000 port calls made involving around 3,800 different ships.[1] Ports have wider roles than just transferring goods to and from ships. They are international and national trade facilitators. In remote areas of Australia, they may also have a key community role as the only means of transporting goods and passengers around the country or to and from islands. They can also be strategically positioned for defence and emergency response purposes. Ports also play important roles in the regional economies surrounding them.

2.3 The relative importance of ports in national freight flows

In 2006-07, the total amount of freight moved domestically was 2,868 million tonnes (MT) of which 2,146 MT was moved by road, 666 MT by rail and 56 MT by coastal shipping. In terms of the total domestic freight task, this amounted to 507 billion tonne kilometres (BTK), of which 199 BTK was by rail, 183 BTK by road, and 126 BTK by coastal shipping. In comparison, during the same period, total metropolitan passenger kilometres travelled was 174 billion, of which 147 billion were by car.

Ports are an extremely important part of national freight flows. In 2006-07, a total of 734 MT of international sea-freight moved through Australian ports, of which 702 MT were bulk goods. If this is combined with domestic freight moved by coastal shipping, then around 30% of all freight moved domestically is handled by Australia's ports.

The relative importance of the ports, in particular the capital city metropolitan ports, can be further illustrated by comparing the amount of interstate non-bulk freight task moved by rail, versus container freight handled by Australian ports[2] and the associated landside task. In 2006-07, the interstate non-bulk rail freight task was 21 billion tonne kilometres. Australian ports exchanged a total of 5.3 million TEU[3] of containers, or an estimated 30 million tonnes of containerised goods with an estimated landside transport task (over 90% by road) of around 1,500 million tonne kilometres.

2.4 Throughput

Australia's port throughput in the financial year 2008-2009 was around 875 million tonnes of goods[4]. Around 87% of this comprised exports. In the financial year 2009-10, even with the impacts of the Global Financial Crisis, it is expected that the total throughput will have increased to levels exceeding 900 million tonnes.

Ports Australia statistics for 2008-09 show that the bulks accounted for 733 MT (90%), containerised general cargo for 53 MT (6.5%), and other non-containerised general cargo for 29 MT (3.5%).

Within the bulks sector, for 2008-09, iron ore exports accounted for 284 MT (39% of all bulks), coal exports for 264 MT (36% of all bulks), bulk liquids for 72 MT (10% of all bulks), and grain exports for 19 MT (3% of all bulks).

The 53 MT of containerised general cargo for 2008-09 represented a container volume of 6.1 million TEU, of which 4.6 million TEU were loaded and 1.5 million TEU were empty. 59% of the loaded containers were imports, and 41% exports.

[1] BITRE Australian Transport Statistics Yearbook, 2009

[2] BITRE Australian Transport Statistics Yearbook, 2009

[3] TEU is an abbreviation of twenty foot equivalent unit

[4] Estimate based on Ports Australia statistics adjusted with ports not reported upon by Ports Australia

Table 1: Overview of major Australian ports (2008-09)

Port	Major task	Share of that trade
Port Hedland WA	Iron ore export (159 MT)	44%
Dampier WA	Iron ore export (141 MT)	39%
Port Walcott WA	Iron ore export (55 MT)	15%
Fremantle WA	Containers (0.6 mln TEU)	9%
Hay Point Qld	Coal export (82 MT)	31%
Gladstone Qld	Coal export (56 MT)	21%
Abbot Point Qld	Coal export (14 MT)	5%
Brisbane Qld	Containers (0.9 mln. TEU)	15%
Newcastle NSW	Coal export (91 MT)	34%
Port Kembla NSW	Coal exports (13 MT)	5%
Sydney NSW	Containers (1.8 mln TEU)	29%
Melbourne Vic	Containers (2.2 mln TEU)	35%

The converse of ports being within supply chains is that these supply chains would not exist without the ports. Many of Australia's major ports service several supply chains. For example, out of the above table, substantial agricultural exports are handled through Fremantle, Brisbane, Newcastle, Port Kembla and Melbourne. The livelihood of agricultural producers depends on the 'access' they share with other tasks through the land transport systems and through these ports. Similarly, the agricultural sector relies on other Australian ports in regional Australia.

2.5 Facts about some of the major Australian ports

- There are over 60 ports in Australia, but more than 95% of volume is handled in 20 ports.
- By the year 2035, the port of Melbourne has forecast that it will be handling almost 8 million TEU of containers, an almost fourfold increase on 2008-09 levels.
- Most of Tasmania's interstate trade is handled through several ports.
- Port Botany has a rail transport mode share of 20-25% for the inland transportation of containers to and from the marine terminals, facilitated by dedicated freight lines and intermodal terminals in the metropolitan area.
- Port Botany and Sydney's Kingsford Smith Airport essentially form an economic precinct with land transport assets such as roads servicing both shipping and aviation.
- Townsville and Darwin are critically important to defence interests for mounting major exercises and operations, and to a lesser extent Cairns and Gladstone. Freemantle, Adelaide, Melbourne, Sydney and Brisbane also provide critical ship repair, maintenance, logistics and other support to the Royal Australian Navy and allied forces.
- Some trades are networked through several Australian ports, for example, containers across metropolitan ports, and agriculture across groups of regional ports.
- The Brisbane shipping channel, which provides maritime access, is 90 kilometres long.
- Of the ten commercial ports in South Australia, seven are controlled by a privately owned company, Flinders Ports Corporation.
- Port Hedland is expected to grow to 490 million tonnes per annum in the next 5 years, and plans are being developed for port facilities capable of handling an additional 400 million tonnes per annum.
- Ship queues at several coal export ports have attracted significant international and media attention, including claims of major costs being incurred by Australian exporters. Capacity responses include plans for port and terminal expansions.
- Newcastle is the world's largest coal export port and forecasts show in excess of 300 million tonnes per annum in this decade.

- The Commonwealth has decided to provide an equity injection into a new port in Western Australia – Oakajee, subject to advice from Infrastructure Australia. The port will handle substantial minerals exports.
- The port of Gladstone has a published port plan going out 30 years, including connections with regional industrial development.

These facts illustrate the range of differences and issues in Australia's port related supply chains, and the important role of the private sector. As a consequence, any national strategy for coordination across the ports sector needs to be broad and focus on facilitating efficient private sector activities.

Several substantial port related projects have been proposed to Infrastructure Australia. These include projects in each state, relating to port developments, road and rail infrastructure and intermodal terminals. An indication of the quantum of infrastructure requirements is outlined in Infrastructure Australia's June 2010 report to the Council of Australian Governments, *Getting the fundamentals right for Australia's infrastructure priorities*, although the projects are far from exhaustive.

One challenge for any national strategy is to connect a broad national level direction with specific outcomes so that it provides guidance about how long term infrastructure projects should be identified and addressed.

3 Development of a national ports strategy

3.1 Introduction

This section provides some policy context and outlines the methodology used to develop the draft strategy.

3.2 Policy context

The Australian Transport Council has agreed to a National Transport Policy framework that encompasses a purpose, policy objectives and guiding principles around which national transport policies are to be developed. The Australian Transport Council's *Vision for Australia's Transport Future* is at Appendix 1. However, details of these national policies for the major transport sectors such as for freight, personal transport or public transport have not been laid out.

The Council of Australian Governments has indicated that freight is a transport priority for 2010. Australia's major ports are the most important nodes of the freight systems. Because they are fixed facilities, freight is largely configured around the ports, and decisions regarding ports will have far reaching consequences along logistics and wider transport chains.

A national ports strategy is the logical starting point for the development of national transport policies that fill out the Australian Transport Council's policy framework. Significantly, major ports are located within or serve Australia's largest cities. Any national agenda for cities which considers freight must deal with these ports and their land transport requirements.

As is the case worldwide, investments and operations at ports largely depend on private companies. Governments set the framework for private investment and operation. In Australia all three levels of government are involved in setting this framework, and each has a vital interest in port and freight outcomes.

The Commonwealth has key port related functions including navigation, defence, security, environment, border control and competition policy. It finances or owns infrastructure assets including certain railways and roads, as well as lands suitable for freight activities. The Commonwealth has interests in national economic performance, international trade and interstate trade and commerce. It conducts foreign affairs, international investment controls, and national level economic and production forecasting.

The states and territories control the port precincts, adjacent land uses and in most cases the connecting transport systems. They can own and finance port related lands and assets and have environmental and safety regulatory responsibilities. Most states own port authorities. The states and territories also have responsibilities for cities and regions in which the ports are located and for the trade internal to their jurisdictions.

Local government also makes decisions that affect ports, including on matters such as land developments and road uses. These decisions impact on local communities, the environment, health and safety, and on the ports and land transport systems.

The effects of these different responsibilities overlap at the major port locations and throughout their supply chains. Coordination of the interests and activities of various levels of government provides the most certain and stable base for private investment in these areas.

Port freight supply chains are part of Australia-wide physical and economic networks. In many cases physical and technological interoperability is needed for shipping that serves several ports. Private parties also have port related investments and operations in several states. There is strong economic networking among some ports via competing or cooperating supply chains, for example to attract

export trade generated in hinterlands. Moreover, ports generate and rely on macro-level networking effects including allocations and calls on national economic resources such as skills, equipment and financial capital.

As coordination of network activities adds to national productivity so would coordination between the port precincts and key supporting land transport infrastructure.

The ports and freight supply chains involve long-life assets. Optimal government involvement in setting the framework for these assets, and optimal private investment and use of these assets, depends on all levels of government providing nationwide certainty of their functional intentions.

These factors point to a strong need for a nationally coordinated approach to major ports in which governments set the framework for the future development and planning of Australia's port and freight infrastructure. Given the diversity and distribution of ports, it would not be optimal for Australia to have a centralised national strategy that set out details for each port as part of Commonwealth policy. Rather, a national ports strategy needs cooperation and commitment from all tiers of government, the private sector and the community.

The variety of ports in Australia reflects different principal tasks such as the handling of bulk commodities for export, or containers for exports and imports. There are significant differences between the operating and institutional environments for the bulk and the container ports. These include location, the extent of integration of organisations in the supply chain, land transport arrangements, the markets they serve and growth prospects. There are also historical factors. There are further differences within these sub sectors, for example between grain ports and coal ports.

Given this diversity, Australia's national ports strategy should not be based on a mandated 'one size fits all' approach. Actual plans and practical on-the-ground outcomes need to be tailored around what is most suitable for the particular region and port. These plans and outcomes should deal with the largest trade tasks and other important tasks for particular ports.

Despite this diversity, Australia's ports share many common features. Among the most important is their largely immobile but pivotal position. Also relevant are the interaction of various organisations and policy fields at the port, and the private sector's need for long term certainty and stability in arrangements. This means that it is desirable to have national coordination around key principles that address these common features for port development, such as long term planning in the context of the region and jurisdiction, coordination among tiers of government decision making, and provision of certainty for private investors and the community.

Various parties have called for a national freight network plan or a national freight strategy. In Australia in the past, the Commonwealth interest in transport infrastructure focussed largely on its direct constitutional mandate, for example interstate trade and commerce, aviation and shipping. Community calls for a national freight strategy are essentially calls for greater coordinated action beyond the constitutional focus, involving governments, the private sector and the community to place urban and intra regional freight in a policy context appropriate to the importance of the tasks.

A natural starting point for developing such an approach is with Australia's major freight nodes – the large ports. It would not seem possible for a country like Australia to have an effective and credible national strategy for freight without a ports strategy. Consequently, a nationally coordinated approach by governments and the private sector to ports is a precondition for a national freight strategy, and a national freight network plan.

3.3 Methodology and consultation

The methodology used to develop the national ports strategy was:

- initial identification of possible issues
- refinement of these issues, and potential responses
- supporting research
- consultation on the proposed issues and responses
- consolidation into a strategy framework.

Initial identification of issues drew on published research in Australia and overseas, and consultation with a limited number of key stakeholders. The identified issues were refined into a number of themes, which included stability and transparency for port related investment, efficient operation of landside access, infrastructure requirements and governance.

Five background papers were released. These are available on the National Transport Commission's website.

GHD Meyrick IA NTC NPS Background Paper 1 - Governance Evaluation (196.43 KB)
GHD Meyrick IA NTC NPS Background Paper 2 - Current Port Planning Practices in Australia (219.02 KB)
GHD Meyrick IA NTC NPS Background Paper 3 - Landside Costs & Potential for Container Productive Gains (240.56 KB)
GHD Meyrick IA NTC NPS Background Paper 4 - Example Best Practice Port Planning Overseas (394.58 KB)
GHD Meyrick IA NTC NPS Background Paper 5 - Future Market Challenge for Relevant Ports (295.48 KB)

Consultation was undertaken through several processes. These included:

- one-on-one discussions with key private and government stakeholders to identify and refine issues
- a forum to further explore issues and potential responses
- further one on one discussions with targeted stakeholders
- a wider forum to consider an 'Exposure Draft', in effect a road test of ideas but not of a fully developed document
- further one-on-one discussions with stakeholders to explore matters raised at the Exposure Draft forum more deeply
- a draft national ports strategy released for public comment (http://www.infrastructureaustralia.gov.au/public_submissions/nps/files/National_Ports_Strategy_May_2010.pdf).

The submissions on the draft are available at http://www.infrastructureaustralia.gov.au/public_submissions/nps/index.aspx.

There were four groups of substantive comment. The first was that a strategy should work towards the use and reporting of performance indicators. The port community has offered to take this forward.

The second group of comments were that more detail could be provided on the expected content of the plans (at the jurisdictional, regional and port precinct level). This could possibly take the form of a template, and one offered reason was to provide greater certainty as to Council of Australian Government requirements.

However, such an approach would be overly prescriptive and involve detailed negotiation among jurisdictions. Also, it is unlikely that the adequacy of response to the proposals in the strategy could

be fairly assessed by reference only to completion of templates or other checklists. For this reason a different approach is proposed with reliance on advice from an expert panel of stakeholders.

The third group of comments related to the 'governance' of the strategy. For Australia, any national ports strategy should be a joint enterprise between governments, industry and the community. The essential test of its success is better private investment in ports and related logistics. Therefore the expert panel of stakeholders should include people with private sector experience to assist in meeting or assessing progress.

The fourth group of comments related to a wide variety of matters including recognition of regional differences and needs; transport infrastructure requirements, particularly in relation to road and rail; pricing; corridor protection; the environment, particularly climate change, and the need to implement internationally agreed performance indicators. The Curtin-Monash Accident Research Centre was concerned that the draft strategy did not sufficiently recognise the importance of safety, particularly the need for all occupational, community and transport safety issues to be comprehensively and holistically integrated into planning processes. The feedback received has been incorporated into the proposal for the Council of Australian Governments.

4 The future infrastructure requirements of ports

4.1 Introduction

One of the issues raised by governments concerned the future infrastructure requirements of Australia's ports. This section deals with general aspects related to that matter. It does so by briefly reviewing proposals put to Infrastructure Australia, forecasts and estimates of capacity. It then comments on some matters regarding assessment of future infrastructure requirements.

4.2 Proposals put to Infrastructure Australia

4.2.1 Proposals

In 2008-09 Infrastructure Australia invited proposals for inclusion in a national infrastructure priorities list. A substantial number of submissions were received and of these some were included in Infrastructure Australia's assessment.

The proposals generally related to individual projects, expected to be undertaken in the short to medium term, in the next few years. They included projects proposed by private proponents, in some cases without statements of priority support by the relevant jurisdiction. In most cases funding from government was sought, and only a few cases canvassed the potential of recovery of costs of investment from user charges. No proposal referred to national level forecasts.

Only one jurisdiction, Victoria, put forward a fully integrated plan for ports and freight, seeking Infrastructure Australia's support for some Commonwealth funding for particular initiatives.

Proposals from Queensland and Western Australia suggested adjacent industrial development to some port related land. This was to capture the synergies of development and also to provide some opportunity to buffer port expansions.

Infrastructure Australia assessed the proposals against the criteria of national significance, economic merit and deliverability.

In early 2009, the Commonwealth decided to provide an equity injection into two ports, subject to advice from Infrastructure Australia. These were for Oakajee in Western Australia, and Darwin in the Northern Territory. Both these proposals concern 'common user' infrastructure within or near an iron ore supply chain.

In 2009-10 further and modified proposals regarding port related projects were presented to Infrastructure Australia. These included ports projects that previously were not identified but could compete for trade with other proposals, new ports and changes to the scope or purpose of proposals put in 2008-09.

A list of proposals is in the Appendices.

4.2.2 Observations

An important issue for the Infrastructure Australia national infrastructure priorities process is: how does the process contribute to a nationally coordinated approach to ports? In this regard there are three main questions:

- whether proposals are integrated
- whether the full national significance of infrastructure requirements is identified
- the linkages of the proposals to forecasts and productivity estimates.

The question regarding integration concerns whether all port, land and sea requirements of a proposal are identified and whether the proposal would draw (potential) trade from another port. In most cases this has been difficult to ascertain.

The question regarding the full national significance of infrastructure requirements has wider dimensions than those of particular projects. The full national significance relates to all of Australia's trade and other calls on port resources, and a long term horizon.

Some major proposed port developments were not submitted to Infrastructure Australia. Also a long term horizon was not present in all proposals received by Infrastructure Australia. The reason for this may have been an expectation that Infrastructure Australia's role and function is to recommend government funding. Government funding is provided in budget contexts, and government budgets generally are much shorter term than port and supply chain investment needs. Hence a focus on funding might omit or downplay future infrastructure requirements for ports and related activities.

Similarly, some proposals put to Infrastructure Australia about ports and associated supply chains included other purposes. Examples included some roads in urban areas, the predominant benefits of some of which were claimed by proponents to relate to commuter car travel. While there were proposals for port intermodal terminals in Melbourne and in Sydney, virtually no proposals were put for port dedicated road or rail infrastructure. In some cases, an argument was raised that existing roads to ports are not adequately designed for the relevant trucks.

Hence, the totality of landside infrastructure port priorities put to Infrastructure Australia is less than likely national requirements. To date no official process, including that by Infrastructure Australia, has identified the future infrastructure requirements of Australia's ports.

Yet it is important to understand and address these requirements for reasons other than allocation of government funding. As noted later in this paper, stakeholders hold concerns regarding encroachment of ports and the slowness of approval processes. If decision makers are unaware of future infrastructure requirements, and the importance of ports, it may be difficult to address such concerns.

The question regarding linkages with forecasts concerns the relationship between proponent forecasts and those at a national level, via regional and jurisdictional forecasts. It is notable that forecasts provided to Infrastructure Australia generally were not referenced to national aggregates. Consequently there is a potential mismatch, overestimation or underestimation, of national infrastructure requirements.

In summary, the development of Infrastructure Australia's infrastructure priority lists has not yet given governments a deep understanding of the future infrastructure requirements of Australia's ports.

4.3 Forecasts and capacity

4.3.1 Forecasts

In this paper the term 'forecast' means estimated future volumes of particular trades.

At present forecasts for ports and related supply chains occur at two levels. The Bureau of Infrastructure Transport and Regional Economics and the Australian Bureau of Agricultural and Resource Economics produce certain forecasts of production or maritime traffic for the short to medium term, for up to ten or so years.

In 2010, The Bureau of Infrastructure Transport and Regional Economics commenced providing forecasts for maritime activity into the medium to long term. Figure 4 shows relevant forecasts for the container trade, and Figure 5 shows forecasts for all trades (vessel activity).

Figure 4: Bureau of Infrastructure Transport and Regional Economics container forecasts 2029-30

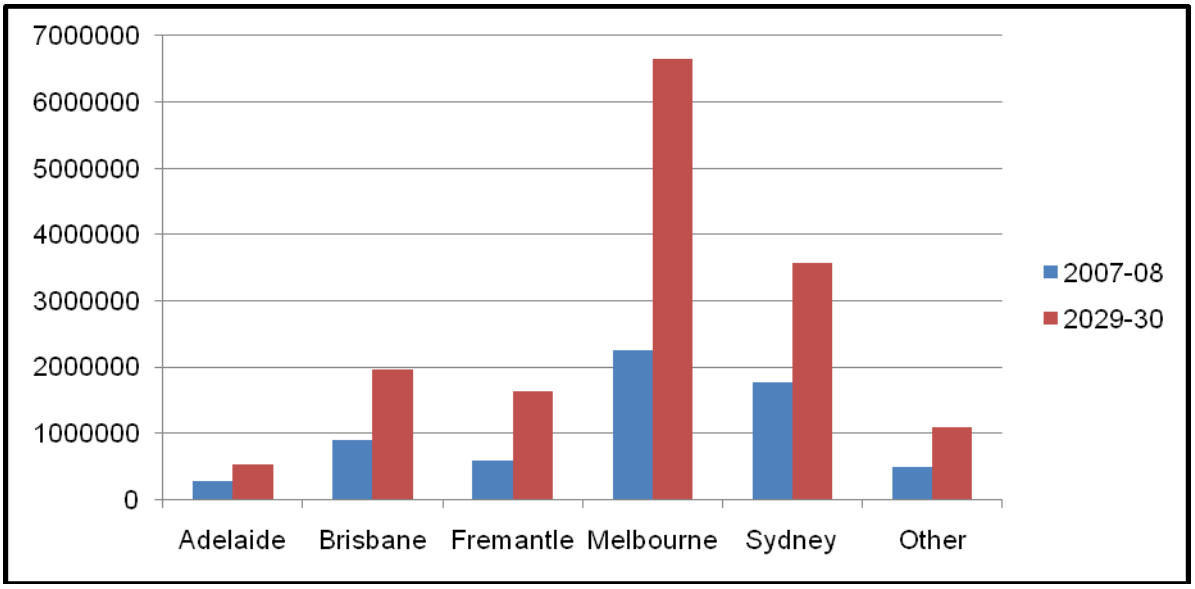
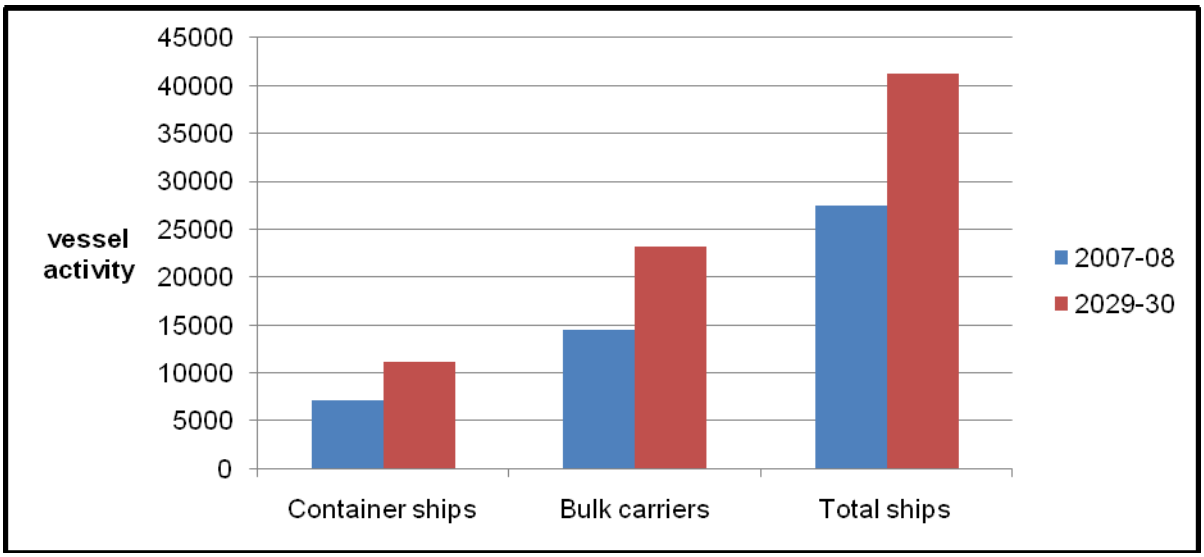


Figure 5: Bureau of Infrastructure Transport and Regional Economics vessel activity forecasts 2029-30



Both Figures 4 and 5 imply very substantial growth in Australia's port tasks. Especially notable is the expected container flows through Melbourne. Victoria's Port Futures documentation confirms this expectation, and indeed points to continuing growth in later years – to over 8 million TEU in 2035.

Typically, short term forecasts are expected to be more accurate than those for the medium or long term. The accuracy of short term forecasts may depend on business conditions, for example, the recent global financial crisis did impact on trade levels at some ports. However, some long term port and transport forecasts in effect are projections showing averaged trends, and are considered by some experts as being more likely to be accurate. There is an expectation that the volumes shown in the forecasts will occur, with the only real debate being about the exact timing of those volumes.

Transport is considered to be a derived demand, where levels of transport demand depend on factors such as demographic and economic growth. Land-use and other planning systems that influence the rate/ location of domestic growth will influence demand.

International economic conditions and developments will influence demand particularly for Australia's exports, and therefore the future infrastructure requirements of Australia's export ports, and for ports that are used for tourism services.

Some stakeholders have concerns about the availability/applicability to ports of relevant national level forecasts for these international matters. The issue has come to the fore in recent years with the very substantial increases in demand for Australian commodities due to strong growth in economies such as China. Given these developments, it has been argued that a national understanding of infrastructure use and capacity needs to be continuously updated.

Even some long term forecasts cover time spans considerably shorter than the life of most capital at ports and land transport systems.

Project proponents and individual ports also develop forecasts, although the relationships with national level forecasts are unclear. In many cases the individual proponent forecasts are not published.

The extent to which various national and international scenarios are included in forecasts, for example different outlooks for energy pricing and climate change, is unclear.

4.3.2 Capacity

Capacity refers to the ability to handle a trade volume. It is particularly complex, and different configurations of land, equipment and skills can produce the same capacity outcome. Similarly, different vehicle and ship sizes and types can have major implications for the type of necessary capacity. For example, some stakeholders noted that the current international trend towards larger iron ore ships has implications for competitive Australian channel depths. Another stakeholder suggested that the use of larger ships in container trades may have implications for berths, crane and wharf strength. Similarly, the cruising industry has highlighted the move to larger cruise ships.

Capacity estimation is important because when placed against forecast demand it indicates when or under what circumstances investment might be required to meet a trade task.

Capacity and its usage can be represented by performance indicators. As capacity utilisation moves towards 100%, delays and queues increase. Hence, main capacity performance indicators should include reference to utilisation, or proxies such as reliability and availability of infrastructure.

Currently some indicators relating to capacity and productivity are regularly reported nationally in the Bureau of Infrastructure Transport and Regional Economics Waterline series. However, this is limited to Australia's container ports. An example is Figure 6 below which shows an historical series of sea-side indicators – crane rate, ship rate and vessel working rate.

Figure 6: Five main Australian container ports - The Bureau of Infrastructure Transport and Regional Economics port productivity measures

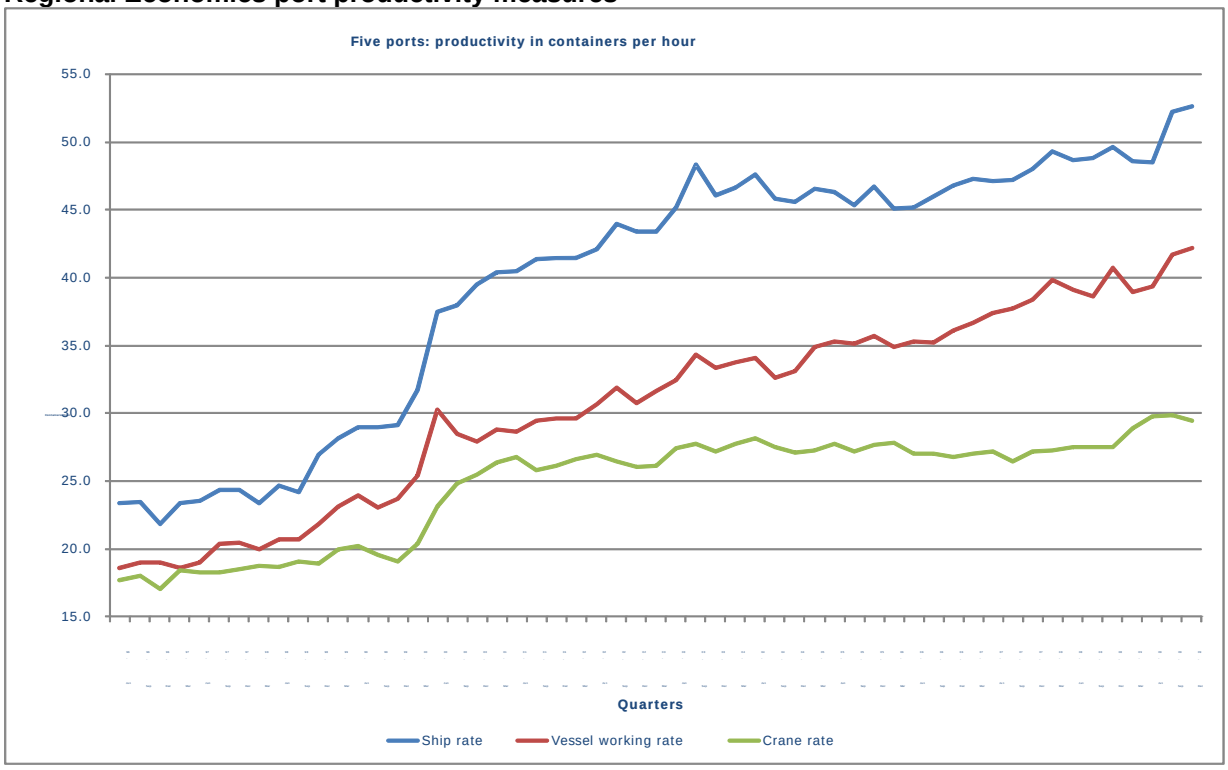


Figure 6 shows fairly continuous improvement in these sea-side productivity measures.

Some stakeholders indicated that current performance against some other key measures of capacity utilisation at these ports are relatively modest by modern international standards. An example cited was TEU per berth metre; the intensiveness of use quay line available for container shipping. There may be various explanations for this, including the nature of trades and shipping patterns. The Bureau of Infrastructure Transport and Regional Economics recently published a report on some international comparisons of such matters, broadly confirming this observation. There is no regularly reported series on this topic.

On the land-side, some capacity utilisation statistics are reported for road and rail infrastructure but these generally tend to be at a network wide level and are ad hoc. There is no comprehensive national overview. The work undertaken for the Council of Australian Governments on urban road congestion, and stakeholder comments about rail delays, suggest that there are currently land-side capacity constraints at least for the ports serving metropolitan areas. Understanding the extent of these constraints and their solution may require different indicators to the ones currently reported, and at least in the case of railways, operational modelling.

Information and communications technology potentially have a key role in increasing the efficiency and reliability of the flow of goods. Such soft infrastructure solutions may have the potential to significantly increase capacity of any given hard infrastructure configuration.

Capacity and capacity utilisation studies for the bulk ports tend to be specific to particular ports and supply chains. This is due to the different characteristics of almost every port precinct, for example stockpile sizes and channels, which reflects the relationship of the port area to other elements of the supply chain, including distances to and products from mining and agricultural regions. Various studies have been undertaken but relatively few are published: examples include those by Mr O'Donnell for the Goonyellah supply chain, and some limited reporting in relation to the Hunter Valley Coal Chain.

At a high level there are similarly few published studies or reports on bulk ports – an example is the *Exports and Infrastructure Taskforce* report (2005). Some refer to 'plate' or 'rated' capacity of the port, however, assessing levels and availability of capacity can require considerable expertise and analysis including of the roads and railway lines that lead to the port. This is shown in the recent Australian Competition Tribunal decisions on Pilbara railways.

4.3.3 Observations

At present there is little coordination or visibility in forecasting and capacity analysis for Australia's ports and related supply chains. Shared forecasting and capacity analysis is essential for supply chains that have economic or physical influence on each other.

The case for national coordination is particularly strong when ports are networked by trade flows or ship visits, such as is the case for container ports and cruise destinations. Coordination would allow proponents and ports to understand whether their assumed future tasks deviate substantially from national averages.

Centralisation of all forecasting is not essential to national coordination. Relevant ports already have considerable expertise in assessing their outlooks and constraints. Also, most jurisdictions are advantaged by the work of relevant freight and logistics councils which, through informed stakeholder representation, can pinpoint constraints within various supply chains, particularly in urban areas.

National level expertise in matters such as impacts on trade of changing patterns of world economic growth, industrial specialisation or demography, energy prices and climate change could assist in improving robustness of forecasts and capacity analyses.

Most indicators published for urban ports concentrate on the sea-side aspects (see section 5 of this paper). However, available data suggest there are real challenges on the land-side.

There are substantial differences across the supply chains of the bulk ports, including the degree of integration of supply chains, and the nature of operations. These differences suggest that any detailed studies may need to be focussed on individual ports.

4.4 Understanding future infrastructure requirements

The development of a national port strategy requires an understanding of future infrastructure requirements, including on the land-side.

Stakeholders have suggested that levels of trade and capacity utilisation are relevant to regulation and to the community. For example, levels of capacity utilisation are important for ascertaining access matters. Future capacity requirements also would relate to the land needed for port precincts and transport corridors. The understanding of such requirements therefore is critical for determining buffer strategies and corridor identification and preservation needs such as outlined in section 8 of this paper.

Under current policies of shared used of roads and (most) railways, future requirements for the infrastructure used by port related supply chains may depend on other traffic, for example car use of roads. To understand current constraints and future requirements it is necessary to understand assumptions made in modelling of such traffic including in relation to pricing.

Future infrastructure requirements are likely to change over time due to changes in forecasts and the introduction of new technologies, including wider use of information and communications technology which track and analyse freight and freight vehicle flows. In this respect, intelligent transport systems may play a significant future role in assisting the modelling task. Pricing of land transport infrastructure may also alter future infrastructure requirements, as might fully commercial pricing arrangements for all port related activities.

To understand future infrastructure requirements local forecasts need to be reconciled with jurisdictional and national level forecasts. The need to continuously understand issues means that a

process for reconciling local and national level views is needed. Such a process needs to go beyond that of applications for government funding.

Progress has been made towards understanding future requirements on a jurisdictional basis. Victoria, through *Freight Futures* and *Port Futures*, is the most advanced.

At least on the landside there is a relationship between assessing future infrastructure requirements for ports and those for a national freight network. Such a network logically would involve many of the major ports, and the types of major issues faced on the land-side by these ports are the same as those for a national freight network.

5 Efficient land-side access at container ports

5.1 Introduction

Future infrastructure requirements of Australian ports and related supply chains will be affected by the efficiency of their operation.

A particular issue identified in this regard is the land-side efficiency of the ports that serve metropolitan areas. This issue has implications for any national ports strategy and for an agenda for Australia's capital cities.

5.2 Costs in container transport chains

The largest and most rapidly increasing cost elements of the container transport chain in Australia appear to be on the land-side rather than on the sea-side of ports. Furthermore, the forecast rate of growth of container traffic combined with the growth pressures of Australia's cities suggests that these costs will increase even more rapidly in the future.

Arising from this is a need to understand the current situation of land (shore-based shipping) costs for containers. This includes ascertaining the factors giving rise to these costs, to identify opportunities for future minimisation.

Current public information regarding costs of container handling is in the Bureau of Infrastructure Transport and Regional Economics *Waterline* Port Interface Cost series. This covers the five major mainland container ports. The series shows that land-side costs (road transport costs) can exceed the total of all other port container supply chain costs. Figure 7 shows that they exceed all other costs in Sydney and Melbourne which handle the majority of Australia's international container trade.

Figure 7: Five main Australian container ports – The Bureau of Infrastructure Transport and Regional Economics port interface costs

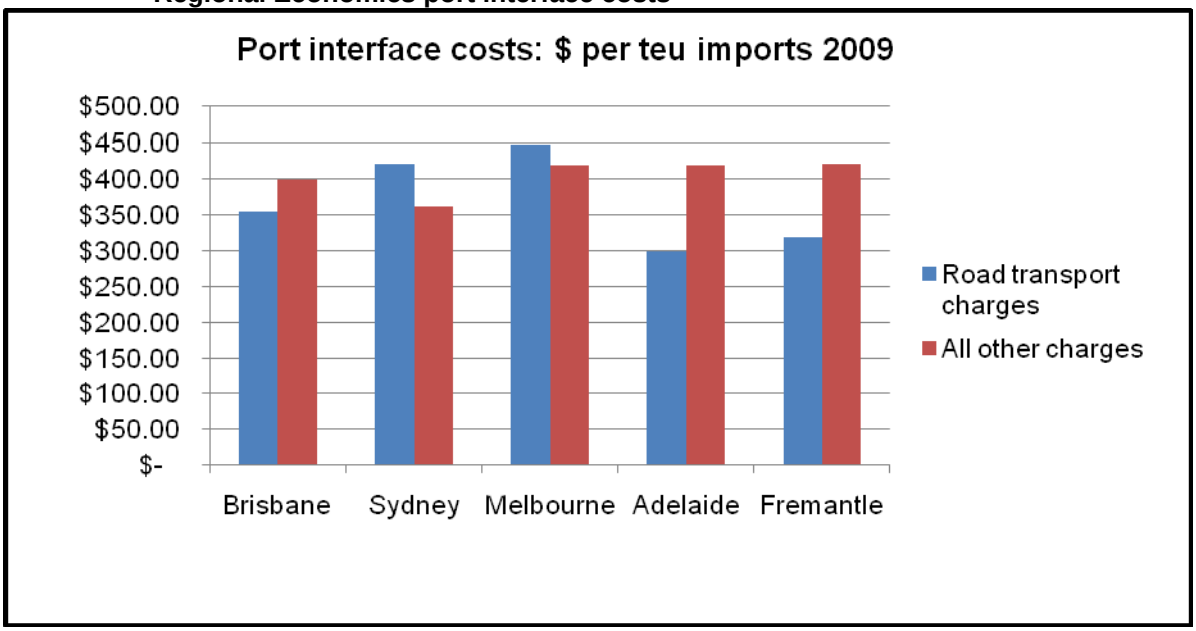
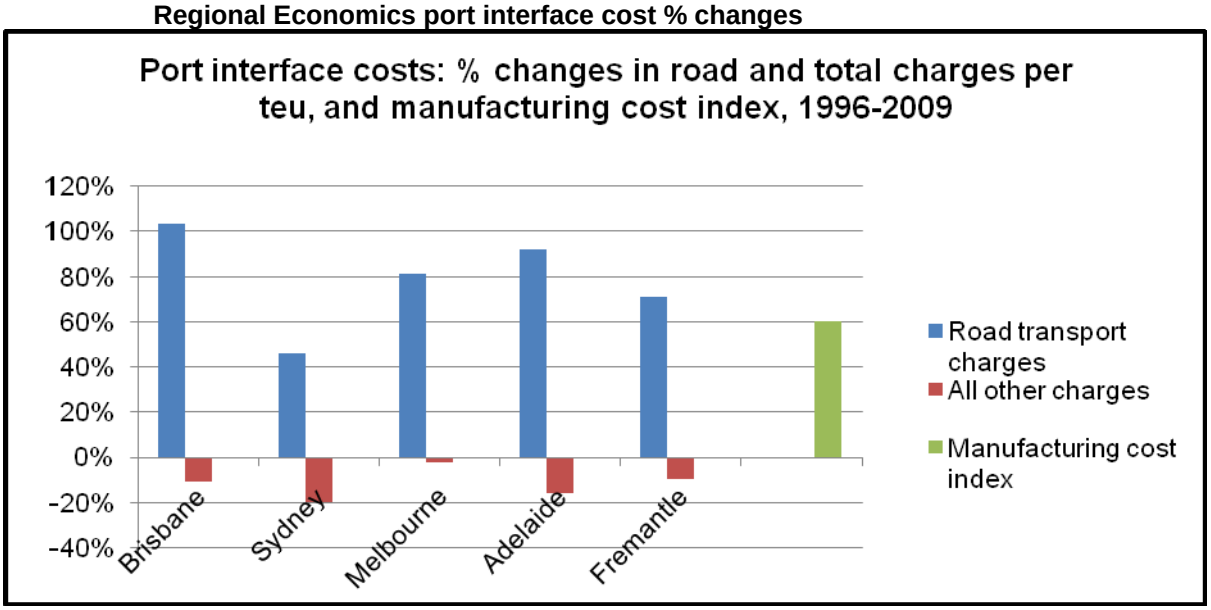


Figure 8 shows the changes in these costs over the life of The Bureau of Infrastructure Transport and Regional Economics interface series, in comparison with the manufacturing cost index.

Figure 8: Five main Australian container ports – The Bureau of Infrastructure Transport and Regional Economics port interface cost % changes



These graphs demonstrate:

- all of the growth in the reported interface costs over the last 13 years is attributable to land-side costs
- the rate of growth of land-side costs over the last 13 years has been substantially faster than inflation.

These results are consistent with the observation that containers are now moved for longer distances in more congested traffic conditions in Australia's cities.

The economies of scale that stevedoring and other activities can take advantage of have not been of benefit to landside access. Containers per truck movement have remained stubbornly low. There remains little use of rail for moving containers in the cities. This suggests that a focus for reform and infrastructure efforts ought to be on the landside, including increasing truck and train utilisation. Beyond increasing utilisation, there may be issues about the adequacy of capacity and future plans for infrastructure investment.

5.3 Bureau of Infrastructure Transport and Regional Economics cost indicator details

Prior to discussing these matters, several points about the Bureau of Infrastructure Transport and Regional Economics cost indicators are worth noting.

5.3.1 Components

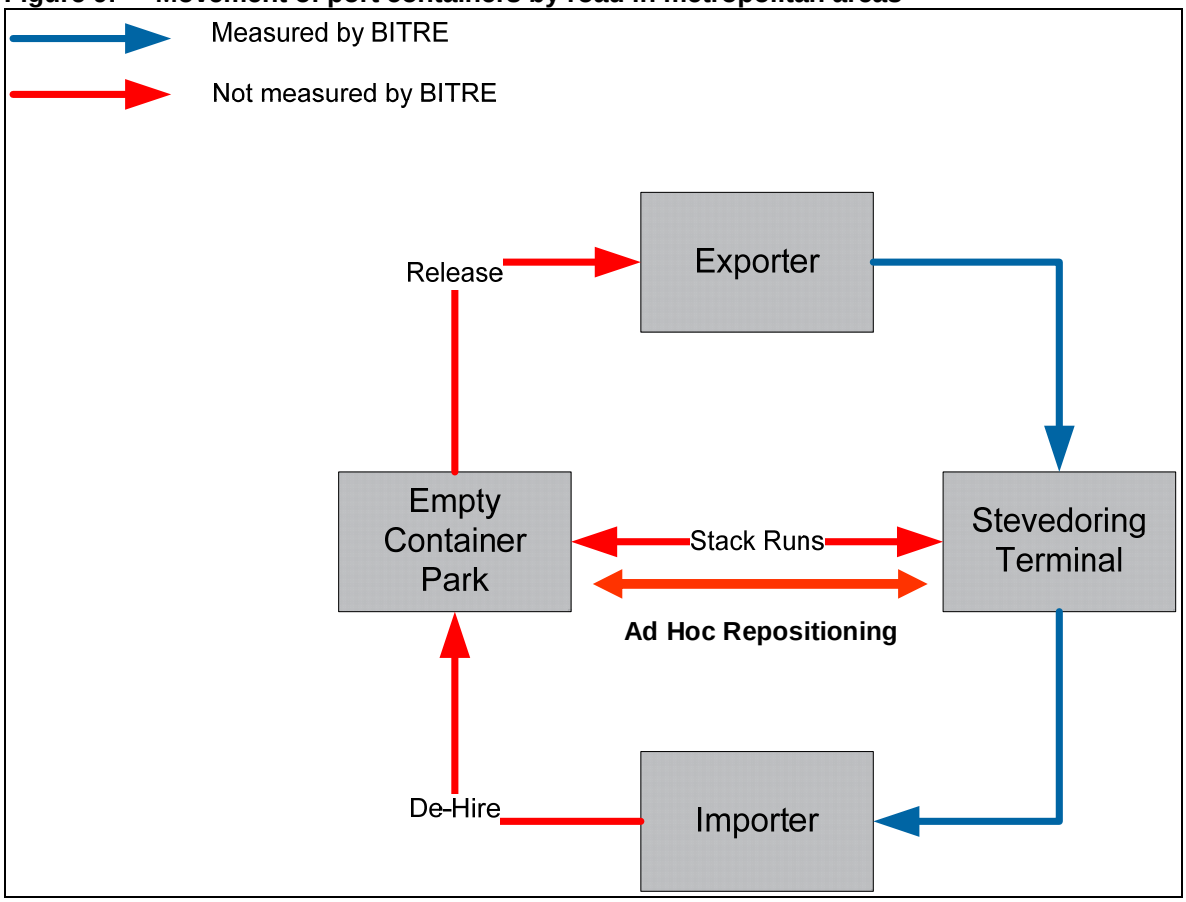
The cost indicators include thirteen components for each major container port. Of these, the land-side aspects are captured in only one: 'Road Transport Charges'.

The detailed and segmented monitoring of only sea-side costs suggests policy is not being focussed on land-side costs.

The monitoring being limited to road costs also suggests that little attention has been paid at a national level to the transport of port containers by rail.

The road transport charges in the Bureau of Infrastructure Transport and Regional Economics indicator reflect several activities. These relate to delivery of containers to and from the terminals at ports, to and from freight customers, and to and from empty-container stacks. This movement is shown in Figure 9.

Figure 9: Movement of port containers by road in metropolitan areas



An implication of Figure 9 is that the location and accessibility of the empty-container stack is a significant issue for landside costs. As in other transport matters, land use can be a determining factor in flows and costs.

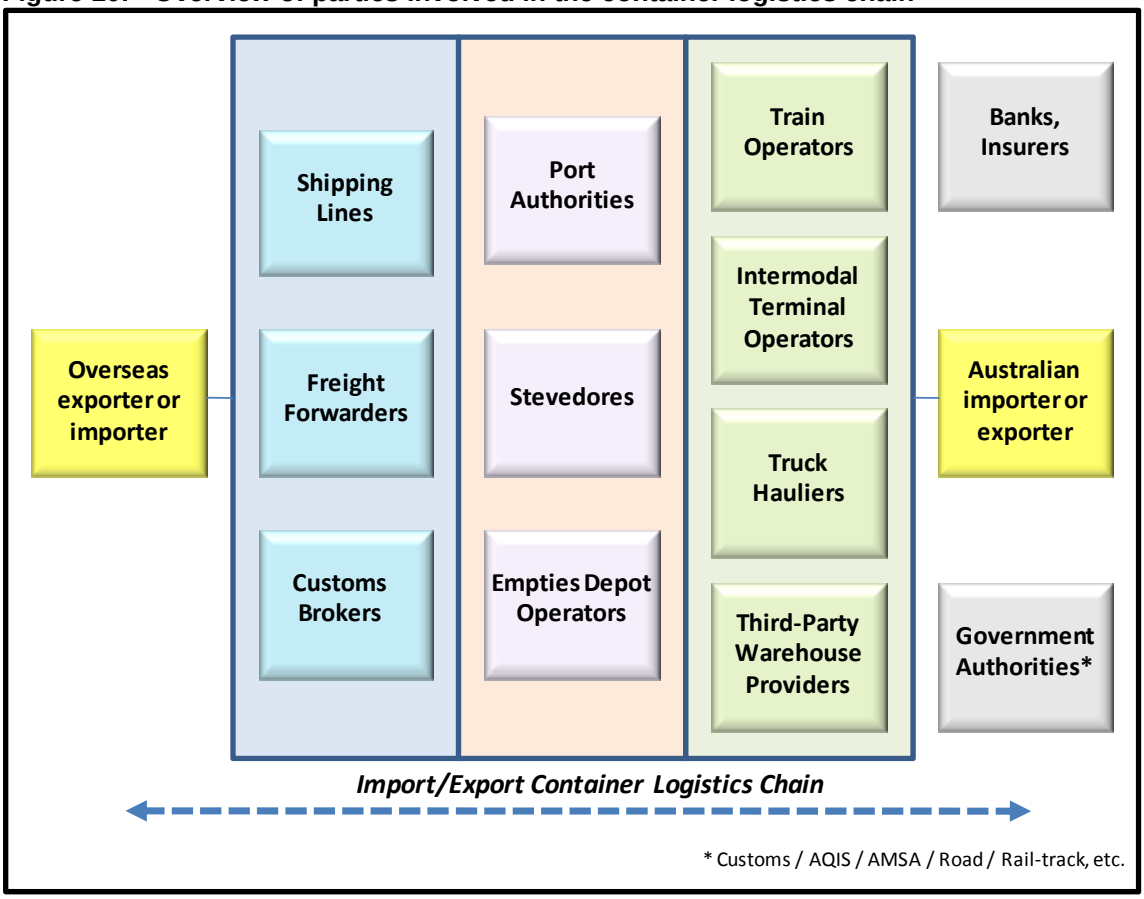
Empty-container stacks are important in Australia because most container ports have an import-export imbalance. More full containers are imported than exported. Consequently empty containers are exported, and this provides an opportunity for a 'stack run', or the movement of a large number of containers from the empty container park to the port. In principle this stack run can involve a relatively large and concentrated flow of containers.

5.3.2 Financial measure

The Bureau of Infrastructure Transport and Regional Economics port interface cost indicator is a financial measure.

It seeks to report the costs paid by freight customers which are attributable to various components of the logistics chain. There are multiple parties involved in the container logistics chain as shown in Figure 10.

Figure 10: Overview of parties involved in the container logistics chain



5.3.3 Costs

The actual cost faced by a customer at the end of the chain will be a function of both the physical costs of segments of the chain and of the commercial margins of participants in the chain. Hence it is possible that a reduction in the physical costs of the chain might not result in an equal reduction in the cost faced by a customer, or of the port interface cost indicator.

The commercial margins of participants in the chain may be influenced by competition and regulatory oversight by relevant authorities. Reductions in margins could discourage investment in modern equipment. Consequently the issues about appropriate levels of margins, and of competition in the supply chain, may best be addressed by regulatory authorities with expertise in this field. The authorities would need to look at competition as it potentially influences economic efficiency. These aspects of commercial margins suggest that the current indicators are not adequate for policy makers.

In the context of pre-existing appropriate economic-competition safeguards, an (additional) function of a port strategy should be to concentrate on reducing the dimensions of physical costs of container movement. Some focus on common national opportunities for reducing these costs is warranted.

The NSW Independent Pricing and Regulatory Tribunal undertook a review of the Port Botany Landside task in 2007-08. This pointed to a large number of cost related issues regarding the container supply chain in Sydney.

Some of these issues concerned the time taken for movement of containers through various segments of the logistics chain. This suggests potential reductions in physical costs might be achievable by reducing the time taken to conduct the freight task, for example by reducing truck turnaround time at empty-container parks, or by reducing truck transit time across the road network.

In addition to these, other studies have identified substantial costs arising from low truck utilisation and truck queues at port gates. The causes of these are unclear. Possible contributing factors include information or incentive problems, within the port or outside of the port.

Truck utilisation is shown in the Bureau of Infrastructure Transport and Regional Economics Waterline publication as containers or TEU per truck. In 2006, the five main container ports average was 2.1 TEU per truck turnaround at terminals, with this slightly increasing to 2.3-2.4 TEU per truck in 2009. There is no nationally reported measurement of truck queues, or of truck transit times/speeds/delays across road networks.

5.4 The National Transport Commission pilot study

A pilot study undertaken for the National Transport Commission identified the potential for increasing land-side transport productivity at Australia's container ports.

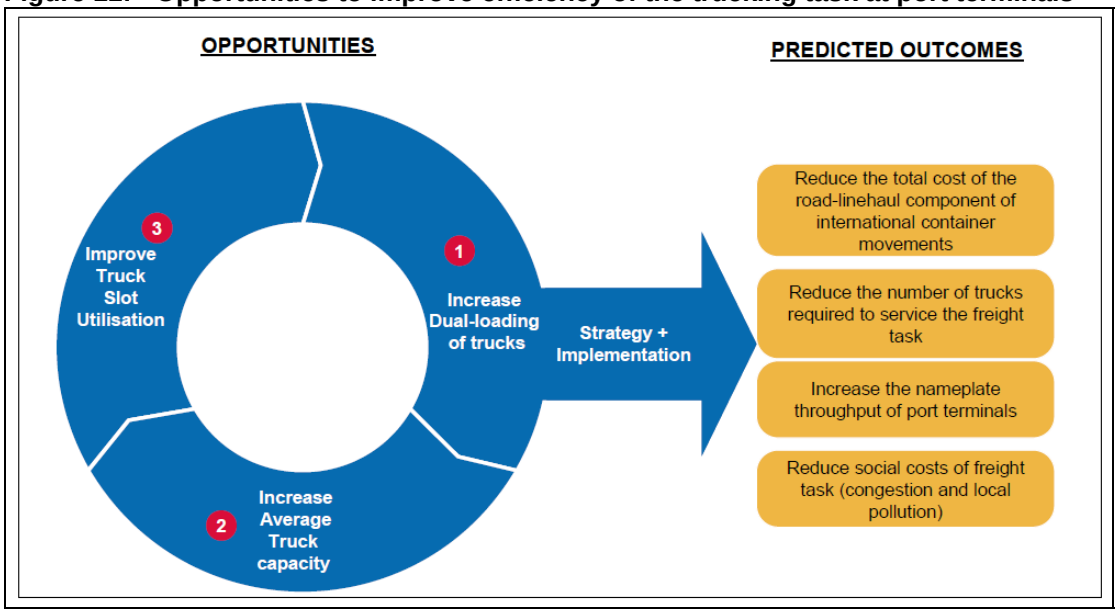
5.4.1 Truck use

The study argued that current physical costs arise from elements of under use of the truck fleet and estimated that optimisation of trucks would result in a significant reduction in truck numbers – a reduction in truck trips of over 50%. The full significance of this is appreciated in the context of an expected substantial increase in container movements.

Three opportunities were identified in the study (Figure 11):

- increase the dual loading of trucks
- improve slot utilisation on trucks
- increase truck capacity.

Figure 11: Opportunities to improve efficiency of the trucking task at port terminals



Source: NTC/Booz & Co – Intermodal Supply Chain, Towards Co-modalism (Jan. 2009), p49.

The opportunity for the dual loading of trucks refers to a situation where a substantial number of unloaded trucks enter or leave a port terminal. It was recommended that the various Vehicle Booking Systems be amalgamated into a central platform and standardised across jurisdictions. It was also recommended that there be some change to the Vehicle Booking Systems architecture.

The opportunity to increase truck capacity relates to 'high performance freight vehicles' on specific freight routes between port and inland terminals. Issues include regulatory and physical (network) impediments to the introduction of such vehicles.

The opportunity to increase slot utilisation refers to the current situation of trucks being only partially loaded. Proposed methods to improve this included amendments to the Vehicle Booking Systems.

5.4.2 Trains

The pilot study also identified a potential for rail to reduce land transport costs at ports.

There are a number of issues regarding rail not covered by the study. The more important strategic ones relate to rail access, which is the ability of freight trains to use the metropolitan systems to the ports. At present only in Sydney does rail undertake a sustained and significant proportion of the port task. However, there appears to be an ambition for other cities to increase the use of rail, and indeed in Sydney to also increase rail's share of the port task. Sydney rail provides some important pointers to those other cities which intend to increase the rail share of the port container task.

One of the issues in Sydney involves coordination in rail logistics. At present there are multiple train operators in Sydney and a large number of interfaces in the rail based supply chain.

At its simplest, performance of the train operator through the heavily congested Sydney rail network depends on coordination arrangements at the port and adjacent Botany yard. The layout at Port Botany is shown in Figure 12. The relevance of Figure 12 is that it shows that, at relatively low levels of rail traffic, the efficiency of rail operations depends on both rail spurs near the container yards at Brotherson Dock, and on the synchronisation of train movements.

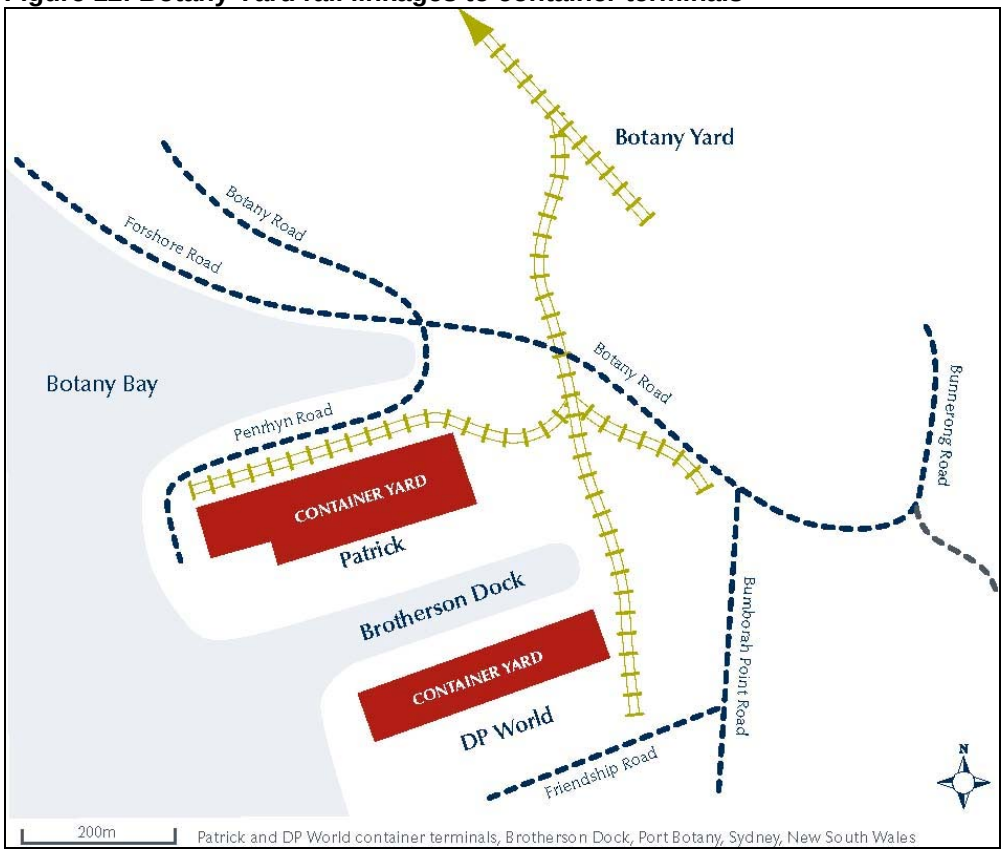
At present no part of the Sydney rail network is optimised for port traffic.

As is the case with other metropolitan rail networks, most of the track is used by both passenger and freight trains with priority accorded to the former. Sydney is fortunate in having a dedicated freight network in which freight trains can operate somewhat independently of the suburban timetable, although this is limited from Botany to Lidcombe and Sefton.

While the freight network is currently under the control of RailCorp, the NSW and Commonwealth Governments have agreed to this being taken over by the Australian Rail Track Corporation. However, the takeover may not guarantee priority for port related freight given the Australian Rail Track Corporation's focus on interstate line haul.

The suburban timetable governs port freight outside of dedicated freight segments. Given the different characteristics of freight and passenger trains, there is some question about the viability of a long term strategy of slotting freight trains around an increasingly busy passenger timetable.

Figure 12: Botany Yard rail linkages to container terminals



Source: Bureau of Infrastructure Transport and Regional Economics, Waterline.

5.4.3 Study recommendations

The Australian Transport Council has established a productivity sub-committee of the Standing Group on Transport officials to oversee development of the ideas presented in the pilot study.

The study recommended that the Council of Australian Governments consider an intermodal organisation to oversee relevant matters.

A different view is that national coordination might best be effected by an expert advisor in each city, rather than a centralised approach; because detailed local understanding of operating conditions and parameters is likely to be necessary.

For example, some knowledge of local train scheduling, track layout and window principles is needed to determine the opportunities for large scale movement of containers by rail.

In this regard, it is notable that most states do have well developed freight and logistics councils, which complement and support the Australian Logistics Council, and also could be of considerable assistance in the development of freight policies and freight plans.

5.5 Indicators for efficiency and reliability of cargo flow

5.5.1 Gaps in information

The above discussion illustrates some gaps in information currently available to policy makers.

At present there is little segmented nation-wide information available on road transport costs of container port traffic. There is no information available on rail transport costs. This contrasts with aggregate information available for within the port gate.

The use of a financial cost indicator in the Bureau of Infrastructure Transport and Regional Economics series for road transport does not reveal issues associated with physical productivity. For example, it does not identify the cost of empty container stack runs or truck congestion outside of the port gate.

Similarly while speed, reliability and volume are the standard indicators in any transport system, at present there is no national level monitoring or reporting of these across the container supply chain including the land-side. The monitoring that does occur relates largely to sea-side matters.

5.5.2 Observations

An increase in speed, reliability or volume represents an increase in efficiency. During consultations, it was put to stakeholders that indicators and policy initiatives might focus on the speed and reliability of cargo flows.

Some stakeholders expressed concern about this proposal. Some felt it was undue intrusion into the commercial elements of the supply chain. Some also felt that the thrust of this proposal was to increase a focus on stevedoring rather than on other elements of supply chains. It was claimed that there were uncertainties about the forecast of container growth, and that by modern international terminal standards, there remained substantial unused capacity in existing container port configurations.

While there are sensitivities, there has been a long acceptance of sea-side time related indicators such as shown earlier in Figure 6. Similarly for within the port precinct there are time related indicators such as truck turnaround time.

To assess productivity and assist in identifying land-side infrastructure requirements – such as for roads, intermodal terminals and railways - similar indicators could be developed for matters such as truck queuing time, such as truck distances, and truck transit and delay times. For rail, measures might include the number of usable train paths, and delays. Possibly these could be included in the Bureau of Infrastructure Transport and Regional Economics indicators.

The consultation paper did suggest that some changes to the Bureau of Infrastructure Transport and Regional Economics indicator series may be merited:

- focus more on physical movements rather than estimated dollar costs
- include segmentation of physical movements, and off-port storage
- include rail indicators
- consider the influence of within port or information issues.

Responses to the consultation paper included support for development of some physical performance indicators for the logistics chain in an international context, such as that of the Global Institute of Logistics of the International Cargo Handling and Coordination Association. The ports community indicated an interest in leading this work.

5.6 Infrastructure, information and incentive solutions

5.6.1 Nature of the problem

Reducing the physical cost of container movements in metropolitan port supply chains could involve infrastructure, information, communication or incentive solutions. In consultations, different stakeholders offered different views on mechanisms to reduce costs and improve productivity.

To determine the optimal solution it is necessary to understand the cause of the cost problems, which can be a complex exercise. Truck queues provide an illustration of this. A queue occurs when there is a mismatch in timing, for example, container availability at the port versus truck availability. Simplistically, the reasons for this might include:

- road congestion: trucks arrive at the port ‘too early’ in an effort to avoid general traffic peak hours. Solutions might be related to the road infrastructure capacity allocated to trucks.

- information and communication problems: trucks are not certain when containers need to be picked up, so they arrive at the port earlier than needed. Solutions might be related to provision of better information to relevant parties.
- parties involved in transactions have incentives to behave in a way that causes truck queues.

The following sections outline some relevant matters.

5.6.2 Infrastructure responses

It is claimed that roads and rail lines to several of Australia's container ports are congested. Proposals have been put to Infrastructure Australia for projects to increase road capacity in a number of cities. A previous section identified that the data on this could be strengthened.

It also is claimed that port related traffic comprises a relatively low percentage of total vehicle volumes on the road network, and does not contribute substantially to congestion. Rather, it is held that congestion is largely a result of car use. Nonetheless, it is generally accepted that congestion is non-linear and a small increase in vehicle use can have a disproportionate effect on congestion. Conversely a small decrease in total vehicle volumes could substantially reduce visible congestion in the absence of induced traffic.

Future projections for ports show substantial increases in container volumes. If it is assumed that other vehicle usage does not diminish, this points to an increase in congestion. Identification of future infrastructure requirements for the road task depends on forecasts of traffic. A difficulty in analysing this is the mixing of traffic.

An infrastructure response for port trucks should include that port traffic influences the design of major port related roads. The dominant economic purpose of some such roads would be freight.

The Council of Australian Governments Road Reform Agenda relates to improving the incentives of infrastructure owners to match capacity to freight demand. It would appear logical that major freight roads to container ports could be used as a test bed for this reform Agenda.

At higher traffic levels there may be a case for dedicated freight infrastructure for at least some route length. This is the case in the US, France and Japan. A study of this issue could be useful.

5.6.3 Information and communication solutions

The National Transport Commission supply chain study noted that the movement of cargo and information exchange occurs in parallel. The inference is that slow or inadequate exchange of information can inhibit the reliability and speed of cargo flow. An example might be that inadequate or late documentation might delay customs clearance and therefore increase the amount of time the cargo is held at the port, with resultant storage costs, and possibly increased costs associated with the number of physical movements the container is subject to.

One way of increasing the efficiency of physical flows is the use of information and communication systems to minimise movements. In turn, this requires information to be made available to relevant parties in advance of when they need to deal with cargo. The further in advance this information is provided, the lower the physical cost of dealing with the task.

Ports Australia and the Victorian Government submitted a proposal to Infrastructure Australia regarding port community information systems. This issue was also raised by a number of stakeholders, including Tradegate which noted that the origins of port community information systems were in response to an earlier inquiry into shore-based shipping costs. Tradegate was established pursuant to this.

Ports Australia noted that port community information systems are currently in place in a number of ports around the world and are being progressively introduced in others. It is understood the information provided relates to the physical movement of cargo and describes what otherwise is directly observable.

Ports Australia also noted the potential productivity gains for similar information exchanges in all Australian container ports. This is because international container ships generally visit several of these ports, and certain stevedoring companies hold tenure at several ports. Consistent information systems across these ports would support the 'one nation one set of rules' agenda.

There appear to be two primary challenges in advancing the ports information community concept.

The first is its purpose in the eyes of the port and freight community, and their willingness to provide information to others. An opt-in arrangement may deal with many issues. The corollary is that opt-out approaches may cause difficulties.

The second is its control or management. At present there is no agreed best owner or manager. This reflects the many participants in the port logistics sector. Ownership outside of the ports community, for example by a government, may not result in it being most conducive to port productivity.

It has been reported that some port community participants take the view that there are potential trade practices concerns regarding information sharing. The view is within a wider issue that there are trade practices constraints to supply chain coordination discussed in the governance section of this paper.

Nonetheless there is strong support for creation of a port community information system.

5.6.4 Incentive solutions

Incentive type solutions to improve physical costs of moving containers, consistent with Australia's international trade obligations, would depend on satisfying three conditions.

The first is that the incentive would relate to some physical attribute of performance, for example that a container was made available on time, or that a truck arrived at a certain point, on time. This implies that an incentives regime would need to be accompanied by performance indicators and monitoring to an acceptable level of detail and proof.

The second is that the organisations facing the incentive would be able to adjust their behaviour to take advantage of the incentive. For example, the organisation could influence whether the truck arrived at a certain time. A corollary is that the organisation would need to know in advance whether it would be possible to do this. This means advance information to the organisations about the physical state of the supply chain would be necessary for such incentives to function.

The third is that current incentives are inadequate. Most transactions along container supply chains are between private parties who could be expected to seek out profits. To provide a stable basis for decision making, transactions between government, organisations and the private sector need to be consistent and streamlined. Such transactions include regulatory processing of containers, leases and other arrangements with port authorities and rail transport (given that roads currently are not priced).

6 Governance of ports and related infrastructure

6.1 Introduction

Governance of ports is a matter raised by governments for attention in the national ports strategy. This section outlines some issues.

There has been considerable attention paid to one part of port governance - the application of ownership and regulatory principles for port authorities. However, governance issues in the port function extend beyond ownership and regulation, and beyond the scope of the port authority.

A special focus of attention to date has been the role of government including in how it relates to Government Trading Enterprises (GTEs) such as port authorities and railway track owners. Important principles in good governance include the identification and measurement of key objectives and deliverables, accountability and transparency.

In public sector governance, transparency is especially important to maintain confidence in the integrity of government. The importance of transparency is heightened further when publicly owned organisations make decisions or announcements that have long term or major consequences for markets. This is the case with ports.

6.2 Themes

The Competition and Infrastructure Reform Agreement reviews recently covered some matters related to governance. Taking these as given, three further governance themes were identified in the development of the national ports strategy. These are:

- the relationship between governments and port owners
- interfaces among organisations in the logistics chain
- the regulation of ports.

6.2.1 Relationship between government and port owners

There has been extensive institutional reform in the port sector over the last three decades. The focus has largely been on the port precinct, on government owned port authorities and on government owned railways. Some port authorities have been privatised.

Although the details of the models adopted in each state vary, the general thrust of reform has been to establish port authorities as commercial enterprises with financial objectives. In general, the reforms that have been undertaken are consistent with national competition policy and with the direction of port ownership reform across the world. They have led to significant improvements in port authority performance.

Since the 1980s there has been a trend towards privatisation of railways and ports. In Australia, privatisations include nearly all state government freight rail operations, substantial track segments, and the port of Adelaide. Queensland has recently privatised its freight rail interests and the port of Brisbane.

Simplistically, corporatisation is a step short of privatisation. It envisages that public sector organisations which participate in markets (GTEs) would be treated and behave as if they were privately owned. For example, GTEs are subject to normal business laws, such as the *Trade Practices Act (1974)*. Port authorities, like the remaining government rail track owners, are GTEs.

Among the implications of corporatisation is that government owners are expected to behave as if they were shareholders of the port authority. At law, the roles and responsibility of shareholders differ from that of a corporation's board and management. Hence, it is expected that government owners do not 'manage' the port authority; rather, they provide policy direction.

Another implication is that the port authority is expected to deal with private participants at the port, such as stevedores, on a commercial basis. It is expected to enter contracts, cover costs and make a return on the capital investments it makes and the assets it controls. It is expected to treat all private participants fairly and equally.

Financial monitoring can provide a good guide to the performance of the port authority and its micro-economic productivity. During the 1990s and 2000s, the Productivity Commission monitored the financial performance of GTEs. It found that in some cases port authorities were not making adequate returns on capital. Some port authorities were undertaking activities that were not considered part of the marine port function and were operating outside of the scope expected of a 'normal' port authority.

Usual port owner roles include leasing of land to private parties such as stevedores, and the management of the environment, safety and security across the relevant precinct. There may also be a role in relation to maritime functions such as pilotage, towage and linage. Some port authorities also provide 'common user' infrastructure, such as berths and adjacent hardstand and facilities.

While a number of organisations undertake activities at a port, typically government expects the port authority to take responsibility for ensuring that the activities are coordinated and undertaken efficiently and effectively.

Notwithstanding the changes made to formal governance mechanisms, there remains criticism that there is a lack of transparency and clarity in the assignment of responsibilities from government to port authorities - that the GTE model has not been fully implemented. A comment made in the context of development of this strategy referred to '*meddling'* by government that '*essentially led to an investment strike in some ports over the period to about 2008-09'*.

While there are some problems with the application of the GTE model to the port sector, no convincing alternative to the model was identified in consultations. Consequently, the preferred approach needs to be based on reinforcing the GTE model.

Especially when it is publicly owned, a port authority needs to take a lead role in planning for not only the port precinct but also for the land and sea-side approaches to the port. In order to do so, the port authority needs power to execute published port precinct plans. Investors need to know whether there are conditions on this, for example the need to gain further government approvals for the use of land, or environmental approvals. This is discussed in parts 7 and 8 of this paper

6.2.2 Interfaces among organisations in the logistics chain

The scope of a national ports strategy of the nature requested by governments is not limited to the port precinct or to the port authority. It also relates to the major elements of the supply chain. When a number of organisations are involved effective governance needs to address interfaces.

An interface occurs where different organisations rely on each other to undertake an activity. Two principal infrastructure interfaces in the ports sector are:

- between a port and its hinterland land transport chain
- across ports which undertake similar tasks for similar customers.

Figures 2 and 3 show the potential for a large number of interfaces in even simplified port functions.

Inevitably, there will be some difference between the objectives and procedures of each party. This may increase the cost of joint activities necessary to perform a function, but equally it may enhance competitive forces in some markets. There are also often opportunities for organisations to merge so that a function is conducted by a single organisation. Of course there may be competition concerns regarding mergers or about a monopoly operation.

Where governments own certain industry participants, there may be no market based possibility of merger even if there were no competition concerns about such a merger. One example would be a

government owned port authority and a government owner of dedicated rail track that leads to the port or a rail yard solely used by port trains. Another example would be several port authorities owned by a single government.

Where it has been necessary to deal with greater supply chain segmentation due to historical or government policy factors, for example in some coal systems, there have been progressive attempts at formal and informal coordination. The Hunter Valley Coal Chain is generally held by stakeholders to be a good example of how these segmentation issues might be addressed.

The organisational interface comes up in debates about vertical integration, separation and access. This has been particularly controversial in the case of railways.

Australia's competition policy envisages third party access to the services of essential infrastructure facilities of national significance in certain circumstances. Access can be granted for the use of infrastructure services that are under the control of a vertically integrated organisation or for infrastructure services that are vertically separated.

Submissions to Infrastructure Australia for some port precinct infrastructure projects refer to new 'common user' infrastructure, which in most cases would be vertically separated. In some of these cases it is argued that the private sector cannot efficiently fully finance the construction of new common user infrastructure, and that government investment (or ownership) is needed, at least in the first instance. It also is generally recognised that such investment should be recoverable from users, via access charges.

There is a view that government ownership and mandated separation means that the logistics chain cannot truly and commercially reflect the markets it serves. This issue was raised by some stakeholders in the bulk minerals chains, who pointed to the differences between the minerals logistics chains on the east coast and west coast of Australia. One view was that the west coast supply chains were more responsive than those on the east coast to recent surges in minerals demand because they were more integrated; that is, because they had fewer interfaces and, or, because there were few government participants in the supply chain. This echoes observations made in the Exports and Infrastructure Taskforce report.

Comparisons between public sector separation on the east coast and private sector integration on the west coast have been the subject of much commentary subsequent to the Taskforce. Included in the discussion are ship queues which are seen off some east coast ports, notably Newcastle and Dalrymple Bay, but not off the west coast or at least not to the same degree and duration. Most commentary has assumed that the queues represent a net loss to national productivity.

A focal point in debates about ports is privatisation. This too involves interfaces, although much of the logistics chain is in private hands already. Submissions received by Infrastructure Australia and the National Transport Commission made arguments about the inclusion or exclusion of assets and conditions that should attach to any privatisation relating to ports. Arguments included claims that government ownership may affect the level and timing of investment at ports. Stakeholders have conflicting views on this point with some arguing that governments are more able to invest in advance of demand and head off any capacity constraint, while others argued that governments may be reluctant to allow GTE investments that would 'add to the government balance sheet'.

The interface issues are especially important among government owned organisations which have different objectives or modes of operation. An example is port authorities and road authorities. Port authorities have a commercial charter, are funded by user charges and deal with the port precinct. Road authorities do not have a commercial charter, are not funded by user charges, and typically have objectives to optimise or operate the entire road network for all users, not just those roads that go to the ports and on which freight predominates.

A further potential interface may be across ports that undertake similar activities for similar customers. For example, a port may wish to expand the potential for container facilities to attract trade from another container port. Or, a ship that visits several ports will have several interfaces, the impact of which might be minimised by consistent procedures and information systems in each port – along the

lines of a port community system identified in section 5 of this paper, or interoperability. This is thematically related to a national freight network.

6.2.3 A possible response to interface issues

In submissions and consultations strong cases were put for and against the vertical integration of ports and of railways, and of supply chains more generally. There are many other forums and processes in which similar issues are raised; for example in the context of recent amendments to the *Trade Practices Act (1974)*, and decisions on rail access in the Pilbara. Although this clearly is a matter which industry wishes government to note, a national ports strategy may not be able to resolve this debate at this time.

The matter of ship queues appears to be extremely complex. A wide variety of suggestions have been raised about how this might be addressed, including infrastructure solutions, changes to organisations, and new types of shipping contracts. While very important, it is a relatively detailed issue when compared with other challenges that need to be addressed in the current stage of development of a national ports strategy.

While there are a range of views on its merits, there has been an international trend towards privatisation of GTEs over the last decades. In some other transport fields, for example public transport, it has been claimed that privatisation has not paid sufficient attention to planning future capacity requirements. Proposals for improved planning, outlined in sections 7 and 8 of this paper, could assist to overcome this concern.

Interfaces among government participants in the supply chain could also largely be addressed through planning; for example integration of port authority plans with regional plans that show proposed road, rail and intermodal terminal capacity and investments.

The Australian Transport Council has expressed a desire for the introduction of market principles into transport. In principle this also would reduce interface problems. One option is to allow port authorities to act more like private sector firms. This could provide an opportunity for port authorities to commercially invest in the development of assets beyond the traditional landlord-at-precinct role. Already, there are examples of such investments in Australia and overseas. These include the Enfield site in NSW, and the Alameda Rail Corridor in Southern California, USA. Of course any such investment should be subject to competition laws.

The case for such investment would be strongest for assets used predominately or exclusively for port related tasks. This raises the issue of freight priority or dedicated infrastructure. Priority in this sense may include asset configuration, scheduling as well as day to day running, and would be acquired through pricing mechanisms. The Council of Australian Governments' Road Reform Agenda may provide an early opportunity to test the feasibility of this approach.

Resolution of interfaces across ports may need to be done at a level higher than port authorities, and in advance of port precinct plans. A logical place for this is with the state governments.

However, the concept of coordination of port planning, discussed in the next section (7) of this paper, does not require direct central or Commonwealth control of ports.

6.2.4 Regulation of ports

Regulation generally restricts some type of activity. It can be categorised into laws generally applicable to all, and sector or activity specific rules. The latter includes economic regulation aimed at curbing monopoly behaviour. The regulatory issues raised by stakeholders were extremely broad.

Some questions regarding the economic regulation of some ports were covered in the Competition and Infrastructure Reform Agreement (CIRA) reviews. These reviews examined the organisational structure of functions at port precincts, and the economic regulation that applies to the organisations undertaking these functions. As is the case with other governance elements, there are differences among the jurisdictions on these matters, and therefore among the nationally significant ports.

The CIRA reviews were conducted on behalf of the states which owned the port authorities. Not all of Australia's most significant ports were included in the reviews. The reviews generally found existing arrangements to be satisfactory from a competition policy perspective.

In consultations for this current work, it appeared that some stakeholders believed competition policy dominated other aspects of policy. Other related issues were raised by stakeholders including access under the *Trade Practices Amendment (Infrastructure Access) Bill 2009 [Provisions]*.

Significant comments were made regarding the application of the *Trade Practices Act* to the ports and related logistics sectors. Two main issues were the impact of authorisations and access regimes.

Some private stakeholders expressed a view that the current application of the Act has a dampening effect on supply chain coordination. In their view, authorisation was required for cooperation and also for the sharing of information. These stakeholders felt that this supposed requirement inhibited coordination in the supply chain, and impeded the resolution of interface issues within the private sector.

The matter of authorisations was raised with the Australian Competition and Consumers Commission (ACCC), which is responsible for enforcing the relevant elements of the Act. The ACCC takes the view that the ports and related logistics activities form a part of a much broader supply chain. There would be difficulties in having different laws in one segment compared with others, particularly when tests for the law include effects on upstream or downstream markets. In the ACCC's view, many of the concerns arise from a misunderstanding about the Act and the stance of the Commission. The Australian Competition and Consumers Commission has offered to communicate more broadly and frequently on these matters and to identify the types of activities requiring authorisation. It is understood this is occurring already.

Some stakeholders raised strong views and a variety of arguments in relation to the regulation of access, including some suggestions that there should be different principles for assets (not) generated with government funds. A view was put that while there is uncertainty about the precise application of regulation, such as for 'light handed' negotiate and arbitrate access, there is a dampening effect on private investment in infrastructure facilities.

Some stakeholders also suggested that regulation regarding access to essential facilities is more effective at allocating existing capacity than it is at stimulating new capacity. At law, regulation attaches to a legal entity rather than to an activity. As such, regulation generally may be relatively ineffective in addressing coordination or interface issues unless it assigns responsibility to one party.

Stakeholders also raised non-economic regulation such as occupational, community and transport safety, environmental laws and planning approval laws. There was concern about the certainty and length of processes for approvals, and also about overlaps of jurisdictions.

Application (or lack thereof) of such regulation on other sectors can impact on ports and related supply chains. Examples were provided indicating that local government decisions to permit sensitive uses of land have effectively encroached on major ports and nationally significant freight corridors.

7 Planning

7.1 Introduction

Meeting the future infrastructure requirements of Australia's ports and related logistics systems will require high levels of private investment. As one stakeholder noted, the investment task '*is an overwhelmingly one for the private sector. Policy then must be geared to giving the private sector confidence in that investment*'.

While it is generally accepted that investment in ports and related infrastructure should be on a commercial basis, involving private decisions, the framework in which those decisions are made is set by governments. Important aspects of that framework include planning and regulation.

A challenge for a national ports strategy is to set the right framework and environment for private investment. A central issue in this environment is the setting out of government intentions for ports and related infrastructure – planning. This section addresses that matter.

7.2 Ports and planning

Planning for ports involves identification of a future desired design and the steps to be undertaken to progressively move towards that future. Necessarily this calls up issues relating to the evolution of the port to date, its relationship with land transport systems and the local regions, and constraints. It will involve use forecasts and capacity analyses.

Different ports have different tasks. Some ports are more constrained than others, and their options for growth are limited. Safety and security issues need to be planned and managed and these may differ among ports. It would neither be feasible nor desirable for a national port strategy to set out a detailed template plan for all ports or for each port. Local differences abound.

It is desirable that there be clear directions for the future of each of Australia's nationally significant ports to provide guidance about where and when private investment opportunities might arise. This would assist in generating a 'pipeline' of infrastructure investments available for private participation, and unlock significant capital. It also is desirable for consistent and understood planning processes to be used across Australia.

For this reason, planning in a national ports strategy concerns processes that involve the public sector rather than prescribing the layout of each port and related logistics chain. It will, however, be important for the private sector, governments and the community to be able to view layouts. The need to understand future intentions extends beyond the major commercial tenants or customers of particular ports to other parties including those with special or limited requirements.

There are some parties with very strong interests in specific ports that do not represent the largest traders. Examples include defence interests, agriculture and cruise shipping. Each of these would also have interests in the operation of some of the smaller scale or specialised ports. Examples are defence at Darwin and Townsville, agriculture at some of the southern Australian ports, and cruise shipping with its berthing requirements near the centre of capital cities. These parties need to see the proposed layout and arrangements for relevant ports into the future to determine their own strategies based on their business and operational requirements. They should be consulted or participate in planning processes.

7.3 Government planning and ports

7.3.1 Levels of planning

Government planning for ports occurs at three levels.

At the highest level is planning for the entire jurisdiction. This type of planning sets out the roles for the various ports in the jurisdiction, roles which are then implemented through government policies.

Input by Commonwealth agencies such as customs, quarantine and defence can be significant at this level; for example, in relation to the general location of naval facilities.

The second level of planning is within the region or area that the port is located or serves. This includes metropolitan planning. Relevant aspects include the capacity of landside transport and communications systems even if they are not within the control of the port authority.

The third level is the most specific level. Port planning covers matters such as internal layout and design, common user or lease areas and berths and channels. It can involve precinct master-planning and the control of uses within the port environs. It can also include master-planning of facilities or lands acquired for the port but which are not within the traditional port boundaries, an example may be an intermodal terminal. Security, defence, health, safety and environmental issues also are addressed specifically at this level, including through matters such as security by design. The ability of the port authority to do this is determined by the state government.

At this specific level, analogies can be drawn with the masterplan required for each major Australian airport.

Various parties participate in the drafting of these plans. For example, port authority staff generally draft the most specific level of plans for the precinct, and these are overseen and 'approved' by the authority's board. However, in most cases, government has the final say in what can go ahead. As government is the ultimate decision maker, the plans need to be considered in the context of other government plans.

Once plans are approved, government allocates responsibilities for execution.

Private sector parties use these plans to determine how they might participate in the port and logistics functions through, for example, investment in equipment or the taking of leases. Frequently the context for their investment includes comparison with opportunities for similar activities elsewhere in Australia and overseas. To be useful, such plans need to be available to potential investors etc.

Some stakeholders expressed a view that the critical planning issue is that of understanding government intentions. In their view the corporate strategies of private sector firms is a different matter and it might not be appropriate for there to be requirements for these to be publicly disclosed.

7.3.2 Other principles for planning

Ideally, the three levels of planning cross reference each other and be consistent with other significant government plans. For example, the planning for a metropolitan port should be able to be cross referenced to the type of metropolitan plan resulting from the strategic capital city planning processes sought by the Council of Australian Governments.

Given the nodal nature of ports and the large concentrated freight flows along land corridors, the port aspects should be among the most important yet the simplest and clearest aspects of any city plan or any freight plan. A capital city plan (apart from that for Canberra) or freight plan would be inadequate if it did not reference relevant ports and the key landside infrastructure that is used to service them. If an adequate ports plan cannot be developed, there is little prospect of planning for other much more complex activities. Hence, plans for relevant ports should be among the highest priorities for Australia's urban agenda.

Similar comments could be made in relation to regional plans and public sector controlled ports.

Given government involvement, the principles for sound public sector governance should attach to these levels of planning. These principles include transparency, accountability and timeliness in decision making, adequate consultation and appropriate levels of detail and stability.

7.4 Current Australian port planning

In comparison with these ideals, performance in published port planning (planning and execution, including landside connections) across Australia currently is patchy. For Australia as a whole, it is poor.

Some ports have clearly communicated and detailed plans for future development which allows confident private investment. For these ports, port authorities are then empowered to execute the plan without further guidance or direction from government. However, most do not have such published plans.

Of existing published port plans, very few can be placed in the context of either jurisdiction or local areas. This is because there are no state or metropolitan-level freight plans that are published, except for Victoria.

In some cases, the status of a port plan is unclear. It is not known whether those with the power to accept or modify a port plan, for example, government, have in fact approved the plan.

In other cases, the planning horizon is far too short; shorter than the private investment perspective or equipment cycle; and, in extreme cases, shorter than the time taken to achieve relevant approvals or construction. This creates obvious issues about lack of certainty for private investment, where capacity constraints are foreseeable but outside of the formal planning horizon. They may also generate a false sense of comfort about the challenges of growth to the efficiency of the transport system and the welfare of the community.

Against this, stakeholders pointed to considerable efforts now being made by jurisdictions to develop ports and freight plans, particularly after the announcements regarding the cities agenda and a national ports strategy. Most jurisdictions are able to rely on strong work undertaken in relation to some of Australia's ports. Leading examples include Gladstone in Queensland and Melbourne in Victoria.

The Victorian Government has gone further, and in 2009 published its ports and freight plans, *Freight Futures* and *Port Futures*. Victoria is considering the matter of planning controls over sensitive land uses near some of its ports, and not just over port activities. An advisory committee is considering whether current controls '*are adequate to ensure the protection of the ports against the encroachment of sensitive uses'*.

A matter of great importance is highlighted by Victoria's *Port Futures* and in the Bureau of Infrastructure Transport and Regional Economics container forecasts of section 4. This relates to a forecast for growth of Melbourne's container trade to 8 million TEU by around 2035 – 25 years from now. Were other ports to have similar rates of growth, or face similar levels of demand in the long term, there may be major shortfalls in actual or permitted capacity in the medium to long term. In this regard, the benefit of planning for Victoria is to place that jurisdiction in a relatively good position to deal with the difficult challenges of the future. There also has been a benefit to Australia of identifying a potentially significant issue for future port infrastructure requirements.

7.5 Progressive practice in planning

The current Australian situation for seaports might be contrasted with more progressive international examples. National plans or strategies for ports and transport systems have been introduced in the United Kingdom (2007-2009), Canada (2006), South Africa (2007) and the Netherlands (2009). There are also calls for a national ports strategy in the United States.

A more progressive approach to planning also covers international gateways that are privately owned or operated. For example, in Australia it covers privatised airports and the port of Geelong. It is accepted that such plans are a positive influence for all stakeholders. Some stakeholders advise that

the main argument is that some of these plans could do more to address regional or jurisdictional issues.

7.6 Potential concerns about planning

It is appreciated that governments may feel constrained about publishing plans, and it may be argued that a plan reduces government flexibility. However, the fixed location and long life infrastructure of ports means there is little flexibility with or without a plan.

A plan in this context simply provides an opportunity to reduce economic, financial and social costs associated with very strong pressures for port and industrial development. The airport masterplans and Victoria's *Port Futures* are examples.

A further factor in some cases is the assumption that privatisation allows government to avoid responsibilities regarding plans. Privatisation might change who drafts a plan but does not replace a government's responsibility for ensuring that plans are made. Again Australia's airport plans provide a relevant model.

Another issue is that there have been periodic reversals of the planning context for major ports and related developments. In some cases, there is speculation within industry about the intentions of governments in relation to how projected freight tasks might be dealt with by ports. In other cases, government decision making has not been timely and this has created doubts about intentions.

The current lack of clarity with planning begins with an absence of policy certainty. The relationship between specific port precinct plans and the broader objectives and strategies of government, via the higher level regional and jurisdictional plans, is often unclear.

In all of these cases, private investors may look to place their scarce investment dollars elsewhere, at least until the issues are resolved. In the interim, skills, equipment and technology used at a port may become outdated, less competitive internationally, and there may be higher risks of adverse community and environmental outcomes.

As noted earlier, ports differ greatly in their scale, geography and complexity. Stakeholders advise that overly prescriptive planning requirements would be counter-productive. However, without some guidance, there is a risk that the relevant levels of plans will not provide the certainty necessary to ensure the integrated development of the port system, provide comfort for potential investors in port and related facilities, and deal adequately and proactively with community issues.

8 A national ports strategy

8.1 Introduction

This part draws on the previous sections and outlines the proposed national ports strategy. It includes a discussion of recommended directions and actions.

The essential context of such a strategy is that ports are of critical significance for the national economy as well as for the other needs of the community including defence, security, and health and safety. Infrastructure Australia and the National Transport Commission are concerned with improving the productivity of Australia while ensuring these other community needs are met.

8.2 Vision and objectives

Government strategies typically include a statement of 'vision' or purpose, 'objectives' and 'priorities'.

The vision or purpose of a national ports strategy should be to drive the development of efficient sustainable ports and related freight logistics that together balance the needs of a growing Australian community and economy with the quality of life aspiration of the Australian people.

The objectives of such a strategy should be to improve the efficiency of port related freight movements across infrastructure networks, minimize externalities associated with these movements and influence policy making in areas relevant to freight. Other national goals including defence, security, health and safety also need to be addressed in the meeting of these objectives.

8.3 Priorities in general

8.3.1 Overview

To progress the objectives, it is necessary to establish some priority actions, and agree on the role of government and other parties in undertaking those actions.

Priorities are important matters to address first. To set priorities it is necessary to understand the current state of play.

At present, the most important fact is that there has never been a national ports strategy for Australia. Hence priorities at this time should relate to actions needed to commence the nationally consistent approach requested by governments. It is desirable and likely that this approach will mature. As a result new priority actions will arise over time.

The prior absence of any national ports strategy means that it will be necessary to identify start-up activities and to consider general oversight arrangements.

8.3.2 Activities

Ports are the fixed nodes of Australia's freight and international trade systems. They incorporate long life infrastructure, and decisions on ports have profound and lasting effects on the economy and community. Governments play, and will continue to play, a key role in the framing of those decisions.

Private investment, which is necessary for ports and related infrastructure, is heavily reliant on this framework. Potential growth in trade, other port tasks, and greater intensity of nearby land use, will increase the significance of ports to Australia's well being, and hence the importance of this framework.

These matters point to the central importance of long term planning for ports and related infrastructure.

The request to Infrastructure Australia and the National Transport Commission referred to:

- the future infrastructure requirements of Australia's ports including road and rail links
- the most effective regulatory and governance frameworks
- ways to improve land planning and corridor preservation
- a nationally coordinated approach to the future development and planning of port and freight infrastructure.

Improved planning is central to each of these. Future infrastructure requirements will reflect and need to be included in plans. The most important regulatory fields are planning approvals, environmental approvals and competition policy and the most important governance issues relate to the commercial nature of the supply chains. Improved planning would strengthen the effectiveness of the framework within which commercial decisions are made. Better land planning and corridor preservation requires improved planning. National coordination should take place through planning processes rather than centralised approaches or directives.

Any national approach to Australia's ports should start from the point of improving government planning. Hence the highest priority for a national ports strategy at this time is to progress towards publication of plans – long term intentions – for relevant ports. This should involve a range of efforts across areas such as forecasting and capacity analysis. It should include consultations with stakeholders, including private sector parties as well as the major areas of national interest such as safety and national security objectives, defence, border management and transport security.

Other priority areas should follow from and support such planning. They should include protection of the ability to execute plans, improving landside efficiency, and some governance matters.

The priority areas are discussed in more detail below. Within each priority area, a number of actions are recommended. The recommendations indicate which party is considered to be in the best position to undertake a particular action. Different actions are assigned to different parties.

There also is a need for oversight of the delivery of these actions – of implementing the strategy as a whole – and on reporting to governments on progress.

8.3.3 General oversight

Given that this is the initiation of a national approach to ports, oversight should carefully keep in mind the purpose and objectives of the strategy, as well as the themes and reasons for priorities.

The principal theme is to provide stakeholders with confidence about future government intentions for ports.

With the diversity of Australia's major ports a mandated a long list of detailed and highly granular activities would be counterproductive. Hence detailed and prescriptive oversight, or seeking compliance with itemized lists, 'one size fits all' criteria or tightly specified 'templates' should be avoided.

Some stakeholders expressed real concerns that a 'template' approach could result in bureaucratic intrusion and inhibit progress towards the objectives.

Similarly, most stakeholders indicated a strong preference for cross jurisdictional cooperation as distinct from centralization of activities, and for whole of government cooperation as distinct from treating 'ports issues' as the domain of any particular portfolio.

In keeping with this, necessary oversight should be conducted on behalf of governments and the community by an organisation which does not have responsibilities to represent any particular jurisdiction or portfolio. Infrastructure Australia is the logical body and it should report to the heads of government on progress.

The degree of confidence held by stakeholders about future intentions is best assessed from the perspective of stakeholders. For this reason, a panel of parties with experience in private sector leadership and investment in ports should assist Infrastructure Australia in overseeing implementation and reporting on progress to heads of government. Such a panel would assist in providing rounded perspectives on progress and on any issues, and logically would include parties with experience in major customer segments including bulk commodities and general freight. Industry stakeholders are strongly supportive of such a panel.

Infrastructure Australia and the panel also should consult with key national agencies, such as defence, on implementation and reporting.

The objectives of improving freight movements across infrastructure networks, minimising externalities associated with these movements and influencing policy making in areas relevant to freight do not end with ports. There also is a need for a national freight network strategy to be drafted. This should be undertaken by Infrastructure Australia in consultation with relevant parties

8.3.4 Review and improvement

It is clear that there are substantial gaps in the data and research base for any national approach to ports in Australia. Each of the priority areas includes actions aimed at redressing these gaps.

An implication is that new information and analyses may come to hand that require some improvements to the directions proposed in the strategy. For this reason, the strategy should be regularly reviewed, again in the context of improving stakeholder confidence in the intentions of governments in relation to ports.

Some stakeholders have pointed to a potential for new concepts for ports, or for ports of the future. These may embody new ways of organization, operation and relations with the supply chain and the community from current ports. Possibly locations and interactions with other ports also come into play. It would be preferable for Australia to be 'ahead of the curve' in this, and in some respects some of Australia's ports are recognized as world leaders already. However, at present at a national government level, significant work needs to be done to develop national coordination and a base on which such concepts can be tested and built.

8.4 Specific priorities

8.4.1 Planning for relevant ports and infrastructure

A cornerstone of any national ports strategy is that those ports with national economic significance have published plans. To effect this, it is necessary to identify the ports for which such plans are to be made. This is best done by responsible jurisdictions, with the Council of Australian Governments approving a list prepared by Infrastructure Australia and the National Transport Commission. The list should include those ports listed in the appendices.

As a guide, some 20 ports conduct over 95% of Australia's trade, and a number of other ports have special significance for defence and national security. These are listed in Appendix 4. Plans would be most important where there is reliance of public sector decisions such as on financing or new requirements for access. In principle, the totality of the planning could provide some indication about the future infrastructure and financing requirements of ports, and help to inform jurisdictions' investment decisions.

More ports could make and be subject to such plans as new ports are developed or as existing minor ports become more economically important.

Critical transport corridors, (freight corridors) should be identified and treated as if they were part of the relevant port. This reflects the reality of the importance of the few access roads and railway lines to the relevant ports. It is assumed that relevant sea channels would be considered part of each relevant port.

Publication of planning documentation is essential to begin to address the very substantial port and freight challenges facing Australia. The documentation needs to reflect, recognise and address environmental, health and safety issues in any area for which the port has responsibility or influence, and any other impacts on the community.

Planning (and implementation of plans) could be considered part of a 'social licence to operate' as is understood within the mining industry and its relevant ports. This involves a system that is financially profitable, technologically appropriate, environmentally sound and socially responsible. As part of this there also should be transparency in the public sector decision making processes regarding ports.

The planning documentation needs to show how future capacity matches future trade demand. The horizon for this is necessarily long to reflect the long life of the investments in relevant ports and related corridors and facilities.

Australia's ports have substantial differences and, reflecting this, there will be differences in government plans and approaches taken to ensure capacity meets future demand. The plans need to take into account local conditions. Additional capacity should be provided on a commercial basis as market demand conditions dictate. A 'one size fits all' approach is not appropriate. The intention is not to centrally direct how capacity should meet demand, nor is it to intrude into private investment decisions. Rather it is to allow stakeholders to consider the intentions of the jurisdictions and experts in this field.

As discussed in section 7, there are three 'levels' at which matching capacity to demand is important, and hence for which planning is important. The first level is jurisdiction wide. This involves broadly identifying port locations and tasks to show how forecast trade will be accommodated. An implication is that there would need to be a forecast of trade passing through each jurisdiction, and such forecast would need to deal with major commodity flows, for example mineral types, agricultural products and consumer and industrial products, as well as passenger flows. The sum of the trade passing through each jurisdiction should relate to a national total.

The second level concerns the integration of the port with the regions it serves. An important aspect of this is synchronising the capacity of the relevant port with the capacity of channels. Another important aspect is the capacity available to freight on roads and railway lines, including port freight corridors with capacity for large vehicle sizes and loads. In this respect the plans regarding ports serving metropolitan ports should be included in capital city plans which are to result from processes agreed by the Council of Australian Governments.

It is also expected that at this second level ports would be integrated with any national freight strategy. Simplistically, this could be done by considering land transport corridors leading to most major ports to be part of a national freight network. Importantly, this level of planning should consider better infrastructure use reforms to address landside efficiency issues, and engagement of the community to improve the acceptability of efficient freight movements.

By its nature, trade is not contained within borders. In a few cases, some port catchment areas are spread over a number of jurisdictions. In these instances, jurisdictional plans and regional level plans would need to be cooperative.

The third level concerns the planning of land use at the port precinct. This would include the availability of assets such as berths for various users. These plans would include as relevant availability of land and facilities for purposes such as defence and national security, border management and biosecurity. They would need to take into account matters such as security by design principles (in planning and construction phases), operational security planning processes, environmental and health and safety considerations. A number of stakeholders requested specific reference to identifying cruise ship demands and infrastructure requirements.

The content of this third level of plan is analogous with that of major airports. Stakeholders and the community would be directly consulted in the development of these plans. This may include formal consideration of matters such as safety and national security objectives, defence, border management and transport security. Restrictions or conditionality on proposed developments need to be recognised.

All of the three levels of plans need to be aligned.

The plans should be assessed for the Council of Australian Governments against how well they achieve the aim of providing the community and investors with confidence about future intentions for the operation and development of Australia's most significant ports, corridors etc. This type of assessment should differ from that for the airport plans which are assessed by an Australian Government Minister.

To conform with the Council of Australian Governments' cities agenda, port plans should have an outlook horizon of a minimum of 15-30 years, and be updated as needed and at least every five years.

Part of any planning is the forecasting of future demand. Commonwealth research agencies such as the Bureau of Infrastructure Transport and Regional Economics and Australian Bureau of Agricultural and Resource Economics can provide a basis and expertise on which jurisdictions can develop their forecasts. Again this promotes the concept of a single national economy. At present, however, the Bureau of Infrastructure Transport and Regional Economics and the Australian Bureau of Agricultural and Resource Economics work programs do not include such forecasting tasks.

With such planning underway, consideration may need to be given to high level testing of 'external' scenarios such as:

- demographic change
- climate change
- other environmental goals including energy efficiency, waste management and sustainable cargo handling
- energy pricing
- emergence of new industries, resources, exports and tourism
- international trade.

Such testing would improve the resilience of ports and related infrastructure by pointing to matters such as optimal standards for asset or system designs and change management / readiness.

8.4.2 Ensuring plans can be executed

There would be little point in making a plan that cannot be implemented. Approvals are needed to implement some critical activities that would be identified in the plans for relevant ports.

Stakeholders and private participants in ports and logistics chains argued that approval processes are lengthy, uncertain and untimely. One said that the role of a national ports strategy should be: '*to enable the ports to plan with certainty to introduce additional capacity to meet trade forecasts, unimpeded by unnecessary and capricious regulation and process'*.

Some sensitive community land uses and activities can be incompatible with freight. Approvals for these activities can effectively constrain or 'encroach' on the ability of a relevant port to undertake its forecast tasks. Such encroachment could occur near the port, or near identified freight corridors.

To address these matters it is recommended that there be:

- a nationally consistent environmental management regime
- use of strategic and streamlined assessment processes
- use of a lead agency framework in each jurisdiction
- introduction of 'buffer' strategies in policies and plans
- assessment of the effectiveness of the above.

The argument for this group of recommendations relates to the long term national economic importance of the relevant ports. This goes substantially beyond arguments made for facilitation of 'major projects' or of projects greater than a certain cost. Each project associated with a relevant port meeting the forecast trade growth would be expected to have noticeable impacts on national productivity.

All of the likely ports, sea channels and major freight carrying corridors have been near their present sites for a very considerable period of time, in many cases well before more recent regulatory or development condition overlays. Moreover, these ports cannot practicably be moved, and even if they could, there would be widespread disruption to industry and localities with attendant environmental and community impacts.

The interests of the Australian community are best served by application of necessary safeguards to future projects and forecast trade activities at the relevant ports rather than debate about the appropriateness of locations or their trade facilitating activities.

The time for making decisions regarding make-or-break issues about relevant ports and freight corridors should be many years in advance of the need for a particular project or increase in trade activity. If it is believed that activities to support forecast trade levels should not be conducted at a particular port, then there would be a real question as to whether the forecast trade should be facilitated at some other place in the jurisdiction.

A nationally consistent environmental management regime would see predictable processes and timeframes suitable for decision making about long term investments. It could involve an integrated process encompassing all relevant governments' assessments and approvals with target time periods for each stage of the process, and reporting on conformance with this.

The actual environmental requirements may vary from place to place due to different environmental circumstances of the different ports. However, there is a need to understand the economic, immobile and hub nature of ports, and the requirements of investors in long life assets. As is the case of other approvals, a key issue to be addressed is the timeliness of decision making in relation to when capacity is required. Therefore, a national regime should, wherever possible, build on existing legislation and processes, using bilateral Commonwealth/state agreements, and Commonwealth legislation.

Any national ports strategy should deal with stakeholder concerns that approval processes may be lengthy, uncertain and untimely. Strategic assessment processes offer the opportunity to streamline approvals. Because of their national significance, as a matter of course, major projects related to relevant ports and freight corridors should be nominated for expedited and simplified assessment processes which recognise economic criticalities.

Similarly, a lead agency or coordinator general framework has been successfully applied in several jurisdictions to facilitate the approvals process. This also is recommended.

The duration of approvals is a concern to some. Approvals given for less than the life of an investment or plan create uncertainty about whether the plan can be executed. Investment is inhibited even if there is an expectation that approvals will be renewed etc. It is recommended that approvals be referenced to the outlook horizon for each plan.

Encroachment potential onto the functions of relevant ports includes residential developments along nearby waterfronts, near major freight routes and near potential intermodal terminal sites. These may lead to community disputes over freight activities and ultimately restrictions on those activities. One way of addressing this is through buffer strategies. Buffer strategies involve some separation of households and other sensitive locations and activities from freight. The case for buffer strategies recognises the adverse impact of freight on community sentiment, and the challenge this poses in the context of inevitable and economically desirable substantial increases in freight activities in particular locations.

Separation of communities from high density freight activities is desirable for both the community and for the freight industry. Relevant ports and their freight corridors have among the highest freight densities, which are very likely to substantially increase in the future in terms of volumes each hour and in terms of hours of operation. Dedicated freight corridors, and early identification and reservation of lands for major freight corridors, may provide some unique opportunities for buffer strategies.

Again it is critically important that plans outline where increased port related freight flows are expected to occur, and if possible provide some guidance, direction or channelling to identify those places that need to be buffered.

Similarly, it is vital that city plans being developed under the Council of Australian Governments' processes clearly identify these major freight flows and how they will be accommodated. In this respect, the almost universal view of stakeholders has been that, up to this time, freight has been treated as a 'poor cousin' in the urban planning context.

8.4.3 Improving the landside of container ports

Given the costly and constrained nature of the urban environment, arguably the importance of long term planning is greatest for metropolitan (container) ports. An immediate focus on constrained metropolitan ports and their land transport routes also is opportune given the Council of Australian Governments cities agenda. Improving the landside of container ports should include activities related to efficiency, reliability, security, and safety.

Australia's competitiveness is adversely affected by container transport costs. Symptoms include increases in cost indices and truck congestion. Potential causes include supply chain disconnects and urban growth, but an analysis of underlying causes is incomplete. Actions to address these issues include:

- research to provide a better understanding of the issues, and of the success of various approaches
- some oversight of coordination within the container supply chain
- where possible and appropriate, introduction of incentives into the supply chain
- using some port roads as a test case for the road reform program
- use of information and communications technology
- greater understanding of regulatory constraints on sharing of information
- greater supply chain coordination.

Although significant research has been undertaken into various aspects of landside container costs, not all of this is in the public domain. Topics should include best practice high level arrangements for port and related logistics and on conditions for the introduction of dedicated freight infrastructure for container port logistics chains. Such research needs to be highly cognisant of local conditions, but be referenced nationally. Monitoring of land efficiency and costs also is warranted. The Bureau of Infrastructure Transport and Regional Economics is well placed to lead the research in cooperation with local experts.

In addition to performance monitoring, oversight of the coordination of the container supply chain is useful to identify particular impediments to efficiency and the strategies that may overcome these, while honouring existing agreements. This could be included in the regional aspect of the port planning matters. While local conditions will determine the optimal approach, a useful model might be the cooperative arrangements for the Hunter Valley Coal Chain.

There are inherent efficiencies in early completion of port transaction regulatory formalities such as customs documentation.

It may be possible to introduce incentives into the supply chain that more directly focus on maximising the efficiency and reliability of cargo flows. These may include incentives to spread peaks, increase

truck loads, encourage rail. They might also include leases of port or related lands, although current contractual arrangements should run their course.

Any transport productivity agenda should include roads and rail. The Council of Australian Governments Road Reform agenda concerns direct charges for truck use of roads. Given the high truck use of to-port roads, and the relatively limited number of such roads, port freight corridors may provide a good test bed for road freight pricing.

Information and communications technology should be part of any approach to improve performance, particularly in relation to supply chain coordination and interoperability among ports. There may be regulatory issues arising in some such coordination, and a process is needed to ensure there is a common and widespread understanding of any limitations. A further aspect of information technology relates to whole of port business continuity arrangements.

8.4.4 Clarity, transparency and accountability

Governance of port functions could be improved to support the necessary planning activities. Relevant matters include:

- principles for the role and functions of authorities in control of relevant ports
- principles in relation to identified port freight corridors and roads
- achieving consistency in legislation and regulation.

The considerable debate about aspects of the governance of port functions touches on many issues including privatisation, the role of port authorities, access regimes, the role of the Commonwealth, competition policy, economic regulation, and community service obligations. Many of these issues have implications extending beyond ports and related logistics chains. Many of the issues are being raised in other processes. A particular challenge is to maintain the coherence of policy and build any strategy on already agreed national directions.

The application of the Government Trading Enterprise reform agenda encourages ports to be run as businesses. Many, including the most successful ports, already are. The agenda sees consistent treatment of port authorities whether or not they are owned by government. The implication is that any government financial investments in Australia's most economically significant ports should be on a commercial basis. For this direction to be successful, there must be adequate planning to ensure commercial viability and to avoid supply chain disconnects.

The potential integration of off-port facilities and possibly port related dedicated freight infrastructure, subject to agreed competition principles, should be encouraged.

Current governance for roads differs markedly from that for other infrastructure in supply chains, including the ports. In section 8.4.3, it was suggested that the Council of Australian Road Reform agenda be advanced by use of some identified port freight corridors as a test bed. If so, then freight priority principles should be applied.

For any national ports strategy, it seems logical that there be some review of the consistency of legislation and regulation across jurisdictions to provide an understanding of whether coordination is adequate and follows best practice principles, or whether appropriate coordination would be constrained. Such jurisdictional reviews would differ from the recent reviews conducted under the Competition Infrastructure Reform Agreement which focused on economic regulation and market structure.

It is important that governance engender confidence in public decision making. This is among the reasons that as far as possible plans (section 8.4.1) should be made public, and that public sector decision making in relation to ports should also be transparent.

Appendix 1

Submissions received in relation to the national ports strategy

Title	Proponent
The Strategic Importance of Australian Ports	Department of Defence
Untitled	Bunbury Wellington Economic Alliance
Victoria's submission to the draft national ports strategy	Victorian Department of Transport
National ports strategy: A response from the Freight and Logistics Council of WA & Ports WA	Freight & Logistics Council of Western Australia and Ports WA
Draft national ports strategy	Curtin-Monash Accident Research Centre
Consultation Response to National Port Strategy	City of Geraldton-Greenough Climate of Opportunity
Submission to Infrastructure Australia and the National Transport Commission on the proposed National ports strategy	Transport & Logistics Industry Skills Council Ltd
Submission on the Proposed National ports strategy	Town of Kwinana WA
Submission on 'The Proposed National ports strategy'	Asciano
Comments on draft National ports strategy	CSIRO
Towards a Seamless Supply Chain	Australian Logistics Council
National ports strategy	Chamber of Commerce and Industry WA
National ports strategy	NSW Department of Transport
Draft National ports strategy	Department of Transport, Energy and Infrastructure
Submission on the proposed national ports strategy May 2010	Minerals Council of Australia
Untitled	National Farmers' Federation
South West Group Submission on the proposed national ports strategy	South West Group WA
Draft national ports strategy	Assoc Prof Philip Laird
Shipping Australia's contribution to the draft national ports strategy	Shipping Australia Limited
Comments to Infrastructure Australia and National Transport commission on 'The Proposed National Ports Strategy'	Port of Melbourne

Draft National Ports Strategy Comments to the Infrastructure Coordinator, Infrastructure Australia	Engineers Australia
Submission to Infrastructure Australia and National Transport Commission Submission to Infrastructure Australia and National Transport Commission response to 'The Proposed National Ports Strategy'	Tradegate
The Draft National Ports Strategy	Western Australian Department of Transport
The Proposed National Ports Strategy	SA Freight Council Inc
National Ports Strategy	Tourism & Transport Forum
National Ports Strategy – Response to Request for public Consultation	P & O Automotive & General Stevedoring Pty Ltd
Draft National Ports Strategy	EPA Victoria
Submission on Draft National ports strategy to Infrastructure Australia and National Transport Commission	Lynda Newnam
Untitled	Queensland Department of Infrastructure and Planning
Submission on draft National Ports Strategy	James Point
Submission on Draft National Ports Strategy to Infrastructure Australia and National Transport Commission	Australasian Railway Association Inc
'A Port of Difference' Submission to National Ports Strategy – Port of Eden NSW	Bega Valley Shire Council
National Ports Strategy Submission	Carnival Australia
Australian Competition and Consumer Commission (ACCC) submission to the Proposed National Ports Strategy	Australian Competition and Consumer Commission (ACCC)
Infrastructure Australia and the National Transport Commission 'The Proposed National Ports Strategy' May 2010	Western Australia Local Government Association (WALGA)
Submission: Infrastructure Australia and the National Transport Commission – The Proposed National Ports Strategy	NSW Business Chamber
Draft National Ports Strategy	Victorian Freight and Logistics Council

Appendix 2

The Australian Transport Council National Transport Policy Framework

The Australian Transport Council Vision for Australia's Transport Future

"Australia requires a safe, secure, efficient, reliable and integrated national transport system that supports and enhances our nation's economic development and social and environmental well-being."

Transport Policy Objectives

To achieve this vision, Australia's Transport Ministers commit to the following policy objectives:

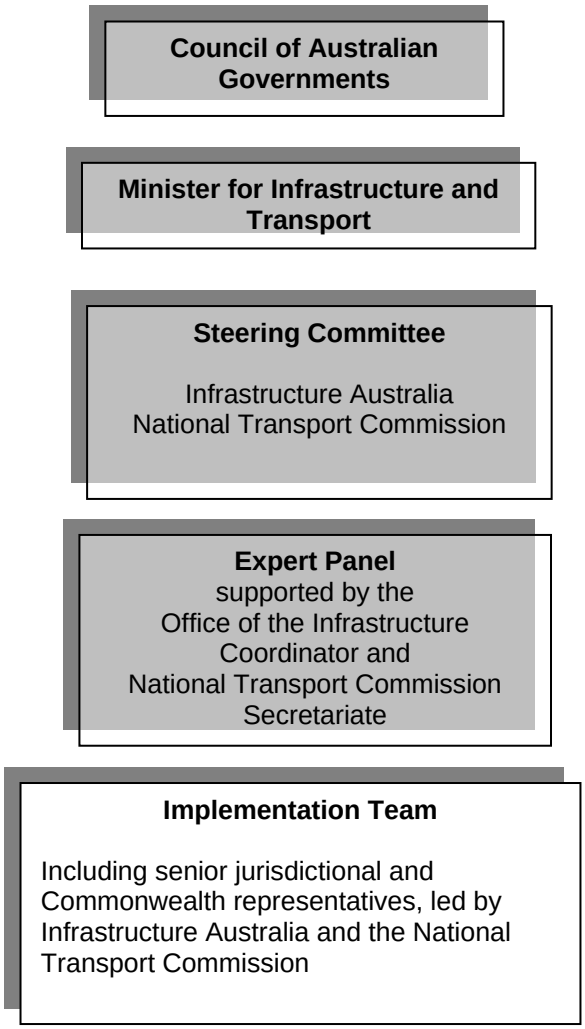
- *Economic* - To promote the efficient movement of people and goods in order to support sustainable economic development and prosperity
- *Safety* - To provide a safe transport system that meets Australia's mobility, social and economic objectives with maximum safety for its user
- *Social* - To promote social inclusion by connecting remote and disadvantaged communities and increasing accessibility to the transport network for all Australians
- *Environmental* - Protect our environment and improve health by building and investing transport systems that minimise emissions and consumption of resources and energy
- *Integration* - Promote effective and efficient integration and linkage of Australia's transport system with urban and regional planning at every level of government and with international transport systems
- *Transparency* - Transparency in funding and charging to provide equitable access to the transport system, through clearly identified means where full cost recovery is not applied.

Australia's transport policy framework is underpinned by the following guiding principles:

- Infrastructure Pricing - Sending the appropriate signals to influence supply and demand for infrastructure
- Competitive Markets - Establishing competitive markets wherever possible to minimise the need for regulation
- Private Sector - Involve the private sector, where it is efficient to do so, in delivering outcomes
- National Regulation - A national perspective should be adopted where regulation is required
- National Markets - Encourage national markets where possible
- Customer - Customer focussed. Equitable access for all users.

Appendix 3

Proposed oversight of the implementation of recommendations of the national ports strategy



Appendix 4

Ports which may be included for planning purposes in a national ports strategy

Portland
Melbourne/Hastings
Geelong
Bell Bay
Sydney/Botany
Port Kembla
Newcastle
Brisbane
Gladstone
Hay Point and Dalrymple Bay
Abbot Point
Townsville
Darwin
Port Hedland
Dampier/Port Walcott
Geraldton/Oakajee
Fremantle/Kwinana
Bunbury
Albany/Esperance
South Australian Ports
Adelaide

Appendix 5

List of ports and related project proposals Infrastructure Australia 2008-09

Port Projects identified in *Report to the Council of Australian Governments*, December 2008

Initiative	Location
Port of Hastings	VIC
Abbot Point multi-purpose harbour	QLD
Darwin Port	NT
Bell Bay	TAS
Oakajee Port & Rail	WA

Port Projects identified in *National Infrastructure Priorities,* May 2009

Initiative	Location
Abbot Point Multi-Cargo Facility	QLD
Bell Bay Port Expansion	TAS
Bonython Port	SA
Darwin Port Expansion	NT
Donnybrook Intermodal Terminal	VIC
Hastings Port	VIC
Moorebank Intermodal	NSW
Oakajee Port Common-user Services	WA
Port of Brisbane Motorway upgrade	QLD
Port of Melbourne Freight Terminal	VIC
Bruce Highway – Abbot Point State Development Area bypass	QLD

Port Projects identified in *Getting the fundamentals right for Australia's infrastructure priorities*, June 2010

Initiative	Location
Bell Bay Intermodal Expansion Project	TAS
Expanding Capacity at Port Hedland Harbour to Enhance Iron Ore Exports	WA
Pilbara Cities	WA
Kimberley – Point Torment Supply Base	WA
Port Hedland Inner Harbour	WA
M5 East Upgrade	NSW
Abbot Point Multi Purpose Harbour	QLD
Gateway Motorway North	QLD
Gateway Motorway South	QLD
Port of Brisbane Motorway Upgrade	QLD
South West Industrial Parks Linkages to the Port of Bunbury	WA
West Link	VIC
Truck Action Plan	VIC
Western Interstate Freight Terminal and Donnybrook Interstate Freight Terminal	VIC
Melbourne International Freight Terminal	VIC
Planning for the Port of Hastings (including Peninsula Link Rail Freight Corridor)	VIC
Smart Port ICT	All container Ports
Port Bonython	SA
Multi-User Iron Ore Export facility at Port Hedland	WA
East Arm Port Expansion	NT
Moorebank IMT	NSW
Oakajee Port	WA

Appendix 6

Proposed Architecture of national freight policy