

# Ports & Shipping Policy in Australia in the 21st Century – a ‘Wicked Problem’

Macquarie Lighthouse lecture series – Craig Carmody, Port of Newcastle CEO

Monday 4 March 2019

Good evening and thank you for taking the time to come out tonight to participate in this lighthouse lecture.

## **Wicked Problem**

Many of you may be wondering why I refer to Australian ports and shipping policy as a “wicked problem”.

A “wicked problem” is a loaded term for those of us who have had the opportunity, dare I say pleasure, of having studied public policy.

It is a term given to the most complex, intractable, open-ended policy problems.

The definition of a “wicked problem” has been written about since 1973<sup>1</sup>. In my opinion, the original definition work by H. W. J. Rittel and M. M. Webber, both urban planners at the University of California, Berkeley, is still relevant today.

Rittel and Webber identified some key characteristics of a “wicked problem, including;

- Solution is dependent on how the problem is defined,
- Stakeholders have different views and frames for understanding the problem,

---

<sup>1</sup> Wicked Problems in Public Policy, Public policy 3(2), January 2008

- Constraints that the problem is subject to and the resources required to solve it change over time, and
- The problem is never solved definitively.

I believe all of these characteristics exist when considering potential solutions or future directions of Australia's shipping and ports policy.

Unfortunately, in order to reach agreement on how to fix this "wicked problem"; there first has to be agreement that a problem exists.

For Australia's importers, exporters and consumers – everyone in this room at some point – different stakeholders have different versions of what the problem is. Some even question if there is a problem at all.

### **The policy vacuum**

The proposition I advance tonight is; when it comes to ports and shipping policy, the problem is that there is a policy vacuum in Australia.

In effect, national and state policy makers have ceded the space to the private sector and this has created policy misalignment.

You may find this somewhat an ironic statement given my current role as CEO of Port of Newcastle and my previous role in helping to shape national shipping policy during my time with the former Deputy Prime Minister, Anthony Albanese. But it does uniquely position me to comment in this space.

Having worked for the past four years within the Maersk Group – which includes the world's largest container shipping company, moving 12 million containers every year to every corner of the globe – it is immediately evident that ports policy, the responsibility of state governments, bears little to no relationship to what is happening globally in shipping.

And this presents significant risk for Australia's future. Port operators are in effect stewards or custodians of infrastructure assets of key national significance.

Port operators have been left to determine the infrastructure and asset needs of Australian importers and exporters into the future.

Actually, to be accurate – with the exception of NSW – port operators have been left to determine the infrastructure and asset needs of Australian importers and exporters into the future.

In other words, they have been left to plan Australia's future freight and logistics supply chain.

I stated a moment ago that the answer to the question of whether there is a wicked problem regarding ports and shipping policy in Australia will depend on who has been asked.

#### **The Australian policy scene – past and present**

So, let us create the framework for the discussion. When we talk about ports and shipping policy, we must consider:

- Water-side infrastructure – the channel and berth length, depth and width, turning basin capacity, the ease of access and egress to the port and whether the water-side infrastructure can grow or accommodate increased volumes if required.
- Land-side infrastructure – wharf infrastructure capability and capacity, rail and road connectivity, storage space (e.g. vacant land), urban congestion, last mile access easy or difficulty and whether the land-side infrastructure can grow or accommodate increased volumes if required.
- All of these considerations should be informed by global trade, transport or logistics developments or trends.

Globalisation has taught the world that being part of global trade is critical to a nation's economic development and its population's increased quality of life.

In the case of Australia, this is doubly so.

Yet, for an island nation primarily reliant on sea trade, shipping policy forms very little of the national lexicon around the international freight challenges and opportunities.

Even when we do discuss shipping policy in Federal politics, it is always domestic and very insular. Coastal shipping has generated multiple reports, parliamentary inquiries and political debates since the 1990s. But, it is always focused on the movement of goods around Australia. The recent discussions about a strategic shipping fleet are too embryonic to be able to provide commentary.

This state of affairs is not surprising, when you consider Australia sold its international trading national shipping line (ANL) back in 1998. Since then, the Australian Government has not had a need to focus on international shipping developments or trends.

This lack of focus is reinforced by the fact that ports and ports policy is a state responsibility. It is up to the ports to ensure Australia keeps pace with international transport and logistics developments and opportunities.

In the past, Australian ports had to be subject to good public policy decision making. One would hope so, given ports are crucial to our economy, our standard of living and our future prosperity.

To put this into context. Around 98% of Australia's trade travels by sea. We are the fifth-largest maritime freight task in the world.

Good public policy creates the greatest good to the largest numbers of the community. Hopefully, no one will argue against that statement.

In the case of infrastructure, over the years we have seen both government **and** the private sector achieving this. Sometimes public and commercial policy are actually pursuing the same thing.

I would put ports into this basket. Good public policy calls for ports to be as large and as modern as global trade requires and to be responsive to global shipping developments. Clearly, that ensures the public is best served. The private sector would want the same thing for commercial reasons.

In the past, port policy has been an Australian priority.

In the 1960s, a new freight technology called **containerisation** emerged. It consisted of twenty-foot, enclosed steel boxes; they were uniform and intermodal – capable of transport across trucks, trains and ships without changing the handling gear.

Australian governments saw the cost advantages of this disruptive technology, and during the 1960s and 70s the East Coast ports established new container ports. They were Port Botany, Swanson Dock in Melbourne and Fishermans' Islands in Brisbane.

Obviously, this immediate response to global developments has paid dividends for Australia. And, continues to do so.

### **Global containerisation and vessel size growth**

The global container trade has now grown by 8.1 per cent per annum since 1980<sup>2</sup>. Over the next 15 years Australia's container ports will see volume growth of 4.2 per cent per annum<sup>3</sup>.

The growth in containerisation has seen a corresponding growth in the size of the vessels built to carry the containers. The reason for this development is easy to understand.

Containers are about volume. The more containers on a vessel, the lower the unit cost per container. So the trend for larger vessels.

- In the 1970s, container ships carried around 2,500 twenty-foot containers or TEUs,

---

<sup>2</sup> Houston Kemp p. 9

<sup>3</sup> HK p. ii

- In the 1980s, ships increased to around 4,500 TEUs,
- In 2006, the Maersk shipping line introduced a ship that carried around 15,000 TEUs – the Ultra Large Container Vessel (ULCV), and
- Over the past few years the shipping companies have launched container vessels of 20,000 TEUs and more.

Today, around 45 per cent of newbuild capacity is for container vessels 15,000 TEUs and over<sup>4</sup>.

ULCVs can replace up to three conventional container ships and steeply reduce the 'slot cost' – the cost of shipping one container. In Europe, a ULCV has a slot cost 52% lower than a 5,000 TEU vessel.

### **Global ports response to vessel size increases**

But to get those savings, ports have to be able to handle these large vessels and, most importantly, quickly.

Ports in Europe, East Asia and the United States have been upsizing their infrastructure to service these larger vessels. They are ensuring they have deeper and / or wider channels, longer quay lines and quay cranes.

I mentioned the importance of speed. For larger vessels to deliver the productivity benefits possible, wharf-side and land-side efficiency is an absolute.

That means clearing containers from the wharfs and getting them into intermodal centres, in great volumes, quickly. To achieve the volumes, global ports are moving to automated handling equipment and long trains – all orchestrated by digital management platforms.

---

<sup>4</sup> Lloyds List January 6 2019, quoting Deutsche Bank Report: <https://lloydslist.maritimeintelligence.informa.com/LL1125743/Port-of-New-York-and-New-Jersey-sees-7-growth>

In California the Ports of Los Angeles and Long Beach are in the middle of a massive build-out of their port infrastructure to take the Ultra Large vessels. China has just completed an automated container port outside Shanghai, specifically for the larger size vessels.

But the efforts of the global ports do not stop “inside the port boundaries”.

For example, the Ports of New Jersey and New York spent US\$1.7 billion raising the Bayonne Bridge specifically so they could fit Ultra Large ships into their container docks.

Back to the Port of Los Angeles. The California government is closing down the Harbor Freeway that connects the San Pedro area with the City of Los Angeles.

Why would the home of cars decommission a freeway? The answer is their container ports.

San Pedro is home to the Ports of Long Beach and Los Angeles, the largest container ports in the United States. For decades the Harbor Freeway has been the Ports’ trucking route south to the CBD.

But no more.

California has a project called America’s Global Freight Gateway: Southern California Rail Project. It responds to a number of issues we would recognise in Sydney:

- The Los Angeles container ports will double their throughput by 2035,
- The ports cannot flood the roads with more container trucks,
- Transport infrastructure has to comply with emissions and environmental regulations, and
- The ports must match the container volumes on the new ULCVs

So, Los Angeles is building its container ports around trains. In summary, California is taking ports and shipping policy seriously.

## **What is Australia doing about the ULCV future?**

So what's happening on Australia's East Coast, where our container ports facilitate 80 per cent of Australia's container trade?

Unfortunately, they are not able to handle these new ships. And, in one case, prefer to ignore this problem.

The East Coast container ports typically accept container ships of about 5,000 TEUs. In Port Botany's latest half-year trade report, 86% of ship visits were 6,000 TEUs or below<sup>5</sup>.

You will find that in a report from HoustonKemp available in the room. This report is particularly relevant to this discussion. Port of Newcastle commissioned this report. We did so to understand the containerisation market and impacts and opportunities for Australia.

Placed in the context of the policy vacuum I mentioned, a regional port needed to commission a state of industry report on global shipping trends, containerisation and port capacity in Australia and New Zealand.

One would think that this would be readily to hand with our national and state policy makers eagerly looking over the trade horizon and asking, 'what's next?'

The report confirms what is well known in the global shipping industry – container vessels are getting larger and their capacity continues to grow.

For Australia, this means, that some of our channels are not big enough for these vessels and the available land area in our existing ports is constrained by urban encroachment – thereby restricting the ability of existing ports to efficiently handle the volumes of these larger vessels.

---

<sup>5</sup> NSW Ports, 'Port Botany Trade Statistics Bulletin 1 July 2018 – 31 December 2018', p. 8

One way to solve the land constraints is to move the containers away from the port as quickly as possible.

The best mode of transport for this is rail – since, unlike most of the world, Australia does not rely on transshipment.

Unfortunately, the East Coast container ports cannot get long trains onto the dock. Global experience demonstrates that an efficient port train is ideally 1200 to 1800 metres long. Port Botany's capacity is 680 metres<sup>6</sup>; Port Melbourne is 640 metres<sup>7</sup>. Port of Brisbane is not connected to a designated rail freight system and none of these ports connect to the Inland Rail in the first stage.

Consequently, the East Coast ports rely on trucks to shift the overwhelming majority of their containers<sup>8</sup>.

This is all publicly available information by the way – just in case you thought I was being selective in my use of data.

I argue that the port owners on the East Coast cannot truly respond to the global move to ULCVs. They actually need to significantly upsize their infrastructure to be able to handle the larger vessels, let alone the ULCVs.

But to do that is to require very courageous State Governments.

For example, in Melbourne, they would need to raise the Westgate Bridge to allow 10,000 plus TEU vessels access. In Brisbane they would need extensive land resumptions through residential areas to build the rail connections required. At Port Botany, perhaps they could move Kingsford Smith Airport and somehow double or treble their trains and have a fully freight dedicated network.

Another way forward is to convince the public and governments that container vessels will stay the same size they were in the 1990s – so there is nothing to worry about.

---

<sup>6</sup> HK p. 33

<sup>7</sup> Houston Kemp p. 32

<sup>8</sup> Deloitte p. 24

## **New Zealand**

A month ago I was at a parliamentary hearing and heard NSW Ports give evidence that Australia was 'decades away' from having to worry about container ships of 10,000 TEUs.

The problem with that statement is that we already do have a port in our region that services container vessels over 10,000 TEUs – actually, up to 11,500 TEUs. The port is in New Zealand.

Auckland Harbour is limited in the ships it can take. So, the New Zealand Government encouraged the development of a secondary container port, 180 kilometres south, in Tauranga.

As an aside, Newcastle is approximately 200 kilometres north of Sydney.

Port of Tauranga dredged a channel and built a port that takes large vessels. They are now on a trade route that includes East Asia, North America and South America. The Port of Tauranga overtook Auckland a few years ago and is now facilitating container numbers similar to Port of Brisbane.

The New Zealanders are applying a simple policy: if you increase port infrastructure for the large ships, the trade will come and your customers will have lower costs. The economy wins.

And, if your existing port cannot do that – build a new one so the economy and population wins.

That, to me, is an effective and good public policy.

I should note at this time that this inertia, wilful or structural, is not universal in Australian ports. Australia's resources ports have all expanded to service the massive Capesize vessels and other large bulk or oil and gas vessels. These decisions have been made with little or no fanfare and in response to global demand and vessel developments.

And, why were they made? To ensure Australia's competitive advantage in Asia for the next 20 years<sup>9</sup>.

---

<sup>9</sup> National Freight and Supply Chain Priorities', p.12

The Ultra Large Container Vessels are not a novelty – something that is 45% of the global ship new build program cannot be called a passing phase.

ULCVs are the way we will trade, creating significant economic benefits for the nation. Assuming they can access our ports.

### **Policy Withdrawal by The State**

Okay, so let's step back for a second and ask ourselves how we got here?

Let's run through the milestones:

- In 1998, the Commonwealth sold ANL and moved out of the shipping business.
- From 2010, state governments started privatising their ports; the Crown Jewel of which was the fast-growing capital city container ports, and, I would argue, moved out of port infrastructure policy.

One of the outcomes of the government withdrawal from ports and shipping ownership was the disappearance of experienced policy people in the Public Service. These days, if a government needs a policy paper on ports or shipping, they go a consultancy firm or they assemble an industry panel of people who work at the privately-owned ports.

The states have consequently become short-sighted. Most port policy is actually an extension of the roads policy, concerned with building roads to alleviate congestion around city ports.

The policy reflects what the port owners want – which, in the major East Coast cities, is public roads and train lines to help them shift more boxes and not incur the wrath of the commuting public. Because, one day the commuting public might ask why the container port has to be in the centre of the city clogging up the roads of the capital city.

Another problem that is looming, that this policy vacuum is not addressing, relates to the international nature of shipping laws and regulations.

Australia has always recognised the importance of having a voice at the International Maritime Organisation. As an island nation so reliant on shipping, this has always made obvious sense.

But with such standing comes clear obligations. One is that Australia has always ratified IMO regulations.

We are a good maritime player – even if we only account for 14 flagged vessels today.

Now, consider what the IMO's 2020 regulations on sulphur dioxide from bunker fuel will mean for Australia. Most of the older, smaller ships visiting our ports burn this bunker fuel.

But fixing these ships is so expensive that the shipping lines will probably scrap the older vessels or pay the penalties levied against them - which they will pass on to Australian businesses. Some international ports will decide to ban the sulphur-emitting ships altogether.

Either way, Australia is in trouble by relying on these ships. The older, smaller container vessels will be dirtier, less efficient and the slot price will be higher for importers and exporters compared to our global competitors. This is just one aspect of deciding or being unable to adapt to global shipping developments.

Another area is human capital. Australia really does not develop maritime jobs any more. We have the Australian Maritime College and a couple of other training institutions. But, the numbers being turned out for an island nation is insignificant.

At the Port of Newcastle, we are more interested in the land-side jobs. Where are the schedulers, the surveyors, the terminal supervisors and operators, the freight and logistics managers and planners coming from? Where are they going to be trained?

Take for example, Port of Newcastle's plan for a fully automated, electric ULCV container terminal. Let's speculate that the NSW Government removes the impediment preventing the port from building Australia's first ULCV container terminal this year. Best case, the Newcastle Container Terminal will start operations in 2023-24.

In terms of skill sets, that would mean the port will need computer programmers, freight and logistics analysts, automation electrical and mechanical engineers and programmers, remote controller operators, warehouse and distribution managers, designers, intermodal managers and operators. The list goes on.

But given the automatic and electrified nature of the container terminal, the education foundations for a lot of these jobs will be in STEM. Now, we will need some of these people with these skills in five years.

That means students in year 12 this year need to be thinking about working for Newcastle Container Terminal now.

The one clear benefit the port has is its proximity to Williamstown. The home of the Joint Strike Fighter. We are aware that the skill sets needed for the JSF program are similar to those needed for a fully automated container terminal, intermodal and warehouse / distribution centre. But of course that will mean the port will have to compete with the Department of Defence for these highly skilled people. So, the labour pool may be tight. If that is correct, the pool needs to be wider and deeper.

How agile is Australia's education sector to respond to such a demand – especially, when the port cannot even say when we will be able to build the container terminal. It is a key task for the container terminal project team to work with educational providers to map out a solution.

### **The resistance to change**

Speaking of waiting for someone else to fix your problems.

Having sold the container ports, State Governments, deliberately or otherwise, allow the private owners to formulate policy, often from their own data. NSW Ports issued a major report two weeks ago, through a Big

Four firm – but the report’s disclaimer revealed that some of the data had come from the port owners themselves.

I am reminded of the words of Daniel Patrick Moynihan, New York Senator, that *“Everyone is entitled to their own opinion, but not to their own facts.”*

In NSW, the impediments to responding to global developments in shipping is exacerbated by the way the NSW Government privatised the ports of Botany, Kembla and Newcastle. The first was that two ports were sold together, so that killed competition there. Then there is the condition that Newcastle has to pay a penalty to Botany if we handle more than a token number of containers.

A key characteristic of a monopoly is that where it cannot benefit from a change in the marketplace, it will oppose that change.

Of course, one of the truisms of economics is that regulator intervention is required in the event of market failure. However, in NSW, regulatory protections have actually been put in place to ensure an incumbent monopoly can prevent the efficient operation of the marketplace.

This is not speculation on my part. This is precisely what is happening in NSW. This is policy. The NSW Government has decided which regions can be winners and which areas must wait – if at all – for the right to compete for global container trade and vessels.

I put it to you that when you have monopolies, the vested interests are not only opposed to change but they are increasingly non-commercial – the very reason for privatisation in the first place.

When you look at New Zealand and California, you see the public and commercial policy operating together. In both those jurisdictions, the port owners strive for greater productivity and efficiency because they compete in a global marketplace.

We do not see that in our container ports. We have policy designed to prop up soon-to-be uncompetitive ports, with endless public spending on surrounding roads. And all this for ports that cannot be a part of the new global shipping system.

So let's look at what port policy could be in this country, especially in container ports.

In the first place, policy should recognise that Australia needs the capacity to trade with the large, low-cost ships, and those ships come from other countries. Trade is global.

So a good starting point for port policy is that we – Australia – are competing or cooperating with other countries and their ports, to get the most efficient supply chains.

If we accept that we should follow global best-practice for container shipping, then good policy would encourage greenfield sites in Australia where the infrastructure can be built without urban encroachment. This means port policy that encourages regional ports with an abundance of land and good channels, to develop secondary ports for the ULCV trade.

My experience in government was that you would kill for a viable, private sector regional development opportunity. Our capital cities are struggling under overpopulation, urban growth and congestion issues that require billions of dollars to solve – if they can be solved at all.

All colours of the political spectrum argue for regional development and growth. If they really care about regional development, they encourage the development of regional ports. They are great economic amplifiers and they connect the regions into the world.

They also connect our own cities and states. Encouraging regional ports to compete for container trade would enable a coastal feeder-port system, where the very large ships come in to one port, and the smaller container vessels tranship around Australia.

This is what happens in New Zealand and in Asia, Europe and the Americas.

In the end, however, the most important test of ports policy is this: does it work for Australians? Does it drive lower trade costs and boost our economy?

If the port and shipping policy setting is not about reducing costs or encouraging the most efficient and cleanest shipping by ensuring our state or national port infrastructure can handle them, then the policy is delivering the worst of all worlds.

You are not offering a good public outcome, e.g. lower transport costs and you are not offering a good commercial outcome, e.g. private owners constantly improving their productivity and efficiency in response to market forces.

In conclusion, I think there is a vacuum in ports policy that governments have to fill, in partnership with the ports. Ensuring that private port owners are looking to the future, is a non-controversial role for government.

Rather than putting their efforts into maintaining port monopolies, governments should be more concerned with promoting the public good which is usually served by competition and improved efficiencies.

The crux of good policy is a striving for the greatest public good.

One of the possible strategies for tackling wicked problems is the collaborative strategy. This particular approach has been proven to most effective in dealing with wicked problems that have many stakeholders amongst whom power is dispersed. At the core of collaboration is a win-win view of problem-solving.

I suggest the strategy for solving the wicked problem of ports and shipping policy in Australia is for governments to do their job of understanding the global developments in shipping and ports and to ensure that private operators of maritime infrastructure are preparing for these future developments. Private port

operators need to be fully aware of global developments both from a business development opportunity and as the custodians of some of Australia's most critical infrastructure.

Together, the governments and private port operators then need to agree on how to ensure sharp edge competition delivers the benefits of lower transport costs, a place for Australia in global trade but a certainty that the critical infrastructure is upgraded as required for the benefit of the national – in a commercially sensible manner.

**Thank You**