



# **Logistics Industries ENVIRONMENTAL SCAN**

**November 2011**

**Stevedoring  
and Ports**



This page is intentionally left blank.

## Overview

Ports are a critical link in the logistics chain. They are a necessary gateway to international markets for the State's exports and are the entry point for imports. They are a key requirement at the end of road and rail infrastructure for the effective transit of freight, be it mining exports or consumer products.<sup>1</sup>

Port performance and land-side logistics chains are critical to facilitate innovation, productivity gains and economic growth in Australia. Growth in international trade has reshaped port operations, which have become increasingly complex.<sup>2</sup>

Port operations need a highly skilled and flexible workforce that can meet the requirements of a time-sensitive integrated logistics system. Efficient ports rely on cooperation and coordination across transport modes and the development of strong relationships with key customers.

The types of cargoes typically shipped through Australian ports fall into six broad categories:<sup>3</sup>

- 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.

Most Maritime Pilots in WA are sub-contracted to two businesses who co-ordinate their placement throughout the State. Some regional ports also employ Pilots directly to handle all ships going in and out of the port. This is more likely to occur in privately operated ports in the north west of the State.

Stevedoring operations are generally carried out by private companies, under contract to the ports they are servicing and the ships that enter them. There are three major stevedoring companies operating in the larger ports in WA, with many smaller operators providing the service in the smaller regional ports. Some Regional ports also employ their own stevedores.

Stevedores were once the supervisors of dockside workers with unskilled labourers performing the bulk of the tasks. Now the stevedoring industry is comprised of highly skilled workers at different levels, performing a variety of tasks that revolve around the loading and unloading of cargo to and from ships.

Traditionally not a lot of training has occurred for stevedores. There is also difficulty in accessing training in the North West as registered training organisations in this field are based in Melbourne.

Container shipping companies handle the ships in and out of the ports and sell cargo space. WA has both large and small companies who either deal with only WA Ports or oversee operations for all Australian Ports. In WA these companies represent the owners of the shipping lines, with the two largest maritime companies in the world based in Scandinavia operating in WA Ports. Staff are required to ensure all documentation is accurate for the ship to enter and leave the port, meet the ship and arrange stevedoring services and deal with sale of container space, often to intermediary businesses such as Freight Forwarders who on-sell the space.<sup>4</sup>

As the supply of skilled port workers decreases and demand for them increases, Australia's ports sector will have to focus on establishing alternative career paths and entry points to occupations. This will require collaboration between all stakeholders – industry, unions, regulators and policy makers – in the process of skills development.<sup>5</sup>

## Trends Analysis

Significant gains have been made in recent years in the time required to load and unload containers in the ports; this has been brought about largely through the implementation of world class dockside loading technologies.

Fremantle Port undertook a channel deepening of the Inner Harbour, which was completed in 2011. This has enabled the port to allow larger tonnage ships to enter, and the capacity for the port has already increased. This has resulted in an increased demand for stevedoring services, as well as pilotage and other related port activities, including the movement of containers in and out of the port precinct.<sup>6</sup>

The Kwinana Bulk Terminal is also about to undergo expansion, with new train unloading and ship loading equipment to be built, which will enable an increase in the amount of coal and other resources to be exported from that port. This is expected to be completed before the end of 2011. Kwinana has also increased its bulk exports, up 35% on last year.<sup>7</sup>

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.

Expected growth in trade volumes means increased demand for Marine Pilots. There is an increased demand for Marine Pilots from the offshore oil and gas sector, which is currently being met through sourcing of experienced Pilots. However, competition for these skills has resulted in higher salaries and favourable working conditions that attract qualified workers away from ports that are not associated with the oil and gas sector. As a result, there is evidence of localised skill shortages for Marine Pilots in some ports, especially those in the south of the State.<sup>8</sup>

## Stevedoring and Ports

### Stevedoring Services

The primary activities of companies in this industry are:<sup>9</sup>

- Ship loading or unloading service (provision of labour only)
- Stevedoring

Projected growth of the shipping task will continue to increase demand for these skills. Technological advancement has led to demand for a broadening of stevedore skills, in particular those associated with the use of specialised equipment. Crane Drivers present the greatest challenge for terminal operators to recruit as this job requires people with a skill set comprising pre-existing aptitude and acquired competencies, which take significant time to develop.<sup>10</sup>

### Water Transport Terminals

This industry consists of units mainly engaged in the operation of ship mooring facilities or of passenger or freight sea transport terminals (including sea cargo container terminals and coal or grain loaders) used for the loading or unloading of vessels.

### Port Operators

This industry consists of operations mainly engaged in the maintenance and leasing of port facilities to facilitate the land-sea transition of goods and passengers.

### Services to Water Transport

This industry is comprised of operators who provide navigation services, towage services, and other services to the water transport sector.

The primary activities of companies in this industry are:

- Distressed vessel towing service
- Harbour and port services (other)
- Lighterage service
- Navigation service, water transport
- Salvage service, marine
- Ship registration service
- Shipping agency service
- Ships agency service
- Towboat and tugboat operation
- Waterways, navigable, operation

### Regulatory requirements

In accordance with regulation 9A of the Shipping and Pilotage (Ports and Harbours) Regulations 1966, a person must hold a valid pilot licence to act as a pilot in a port unless the person is either exempt from a licence as authorised by the Department, or is undergoing training to become a licensed pilot and is acting under direct supervision of a licensed pilot.<sup>11</sup>

All Port workers must have a MISC Card as a minimum entry requirement. The MSIC (Maritime Security Identification Card) is a nationally recognised identification card which demonstrates that the holder of the MSIC has been cleared by the Australian Federal Police/ASIO (AusCheck) and is not a threat to the maritime or offshore industry. All Ports have their own security requirements on top of the MISC, which does cause some confusion for those servicing the ports.

## Demographics of Workforce

### Stevedore

This is a very male dominated workforce due to the historical heavy manual labour required to perform the job. Although the role has now changed, with a need to use the high tech equipment more important, there has been very little interest from females to enter the industry.

It is difficult to find good statistics on this part of the workforce as waterside workers are classified as Freight and Furniture Handlers by the ABS for all reporting purposes. However, there are some assumptions that can be made from discussion with industry and looking at the reports. This is a younger workforce than other sectors, due to the heavy work and the early exit from the sector. There is low educational attainment due to very low occurrence of formal training on the job.<sup>12,13</sup>

### Marine Pilot, Ship's Pilot, Sea Pilot

This occupation has relied on long-time sea service as the seafarer progresses through the hierarchy of licences on the way to becoming a Marine Pilot. This means that labour shortages in underpinning occupations have a flow-on effect to the availability of Marine Pilots. The present pool of Marine Pilots has an average age of 45 years and a significant proportion is approaching retirement.<sup>14</sup> Certain ports are more disadvantaged than others because of their location, i.e., remote regional ports. These ports often resort to using the services of private pilotage companies or recruiting overseas for suitable candidates.<sup>15</sup>

### Harbour Masters

The average age for Harbour Masters is estimated to be 50 years. As this role in the past has been considered one for an experienced Master, there was a tendency to employ older workers who are now nearing retirement. Maritime skills are still considered essential and critical to effective and safe port operations, particularly for Harbour Masters, yet the pool of available workers has declined, especially with the higher wages being paid to sea going masters. This has led Ports to source their workforce from overseas, and the decline in Australia's bluewater fleet has done nothing to ensure there will be future Masters available for the roles. Remote Ports are most affected, especially those with poor social infrastructure and many experience shortages for considerable periods of time.<sup>16, 17</sup>

## Impact of Globalisation

The move to a more global marketplace has seen the increase in volume of freight from all ports, which in turn has impacted on the available workforce, as all countries are competing for a diminishing labour market. As more raw product is exported to meet a world need, WA is in turn importing more products than ever before, leading to the increased demand for port services.

## Impact of Government Policy/Decisions

The Minister for Transport has appointed a steering committee to conduct a governance review of Western Australian Ports, including Port Authorities and non-Port Authority ports. The review is intended to investigate how ports do their future planning and are used; especially as the increased demand for infrastructure spending is occurring. The outcome of this review is expected in early 2012.<sup>18</sup>

## Technological

The marine cargo handling industry provides the service of loading and/or unloading cargo from ships (provision of labour only). This involves both crane (approximately 70%) and non crane operations (approximately 30%).

The impact of technology is being felt in stevedoring in Australia. In Brisbane, Patrick's groundbreaking project, the world's first automated straddle carrier (AutoStrad) terminal, is now servicing all Patrick container volume. The automated 10 metre high, 65 tonne straddle carriers are fitted with sophisticated motion control and navigation systems which allow them to operate unmanned – moving and stacking containers from the quay into holding yards and onto vehicles and back to quay cranes with pinpoint accuracy. There has been strong indication that this type of automation will move to other ports throughout Australia within the next few years.

## Economic Drivers

These include the cost of fuel, costs and staffing related to compliance with regulatory requirements. The annual domestic shipping task is increasing to an estimated 26.6% by 2013.

There is a critical seafarer labour shortage with the potential to disrupt the price and labour and the development of Australia's energy resources. As more resource projects come on line, both land based and offshore, there will continue to be a growing demand for the maritime sector to respond in a timely and cost effective manner, which may not be the case as the world's economy recovers and demand for maritime workers becomes more globally competitive.

## Size and Distribution

There are eight port authorities (Albany, Broome, Bunbury, Dampier, Esperance, Fremantle, Geraldton, and Port Hedland) and nine non-port authority ports (Carnarvon, which includes Cape Curvier and Useless Loop; Onslow, which includes Airlie Island, Thevenard Island and Onslow; Barrow Island; Varanus Island; Port Walcott, which includes Cape Lambert; Derby; Port Preston; Wyndham; and Yampi Sound, which includes Cockatoo Island and Koolan Island, operating in WA. They are located along the 12,500 kilometres of the Western Australian coastline and handle over 4,000 international trading vessels plus thousands of interstate, intrastate, fishing and recreational vessels every year.<sup>19</sup>

The non-port authority ports are usually comprised of one or more single user export facilities. Unlike other non-port authority ports, the Port of Wyndham handles general cargo and provides export facilities for the Kimberley region as a common user port. These ports and related facilities are generally operated by resource companies with limited guidance from the State Government. The Department of Transport engages with these ports on issues relating to marine safety, blue water environment and general policy.<sup>20</sup>

The Pilbara ports of Dampier, Port Hedland and Cape Lambert are world leaders in mineral and gas exports. Bunbury, Esperance and Geraldton also handle mineral exports, with the addition of grain exports and manufactured exports such as alumina.

Grain exports dominate Albany's trade currently, but future mineral and wood-chip shipments are anticipated. Fremantle, the State's main general cargo and container port, handles a wide variety of bulk and non-bulk commodities.

Fremantle Ports has negotiated commercial arrangements for the future use of the Kwinana Bulk Terminal by Mineral Resources Limited for the export of iron ore, which will facilitate the export of up to 4.4 million tonnes of iron ore through Kwinana annually, with Mineral Resources undertaking the installation of a new product handling system. Griffin Coal, which was acquired recently by Indian infrastructure group Lanco Infratech, has been exporting coal through the Kwinana Bulk Terminal since January 2007. Fremantle Ports' capacity allocation to Griffin Coal will enable the export of 750,000 tonnes of coal annually over four years. Significant upgrading of facilities at the Kwinana Bulk Terminal is required to ensure efficient servicing of the needs of these and other customers and it is planned that this work will begin in the first half of 2011, subject to approvals.<sup>21</sup>

## Regional Activity

WA led the way in national seaborne trade in 2009/10, handling 53 per cent of Australia's trade volume and 30 per cent in trade value terms. The Port Hedland and Dampier port authorities were ranked as the top two largest tonnage ports in Australia in 2009/10. Port Walcott in the Pilbara and the Fremantle Port Authority were also among the top 10 Australian ports by volume of trade. WA ports have experienced an increasing trend of trade volume over the past decade. Trade volumes have increased by 122 per cent from 224 million tonnes in 2000/01 to 498 million in 2009/10. The trend is expected to continue into the future.<sup>22</sup>

Those shipping companies operating in the north west and moving ore are struggling to keep up with the demand, with the activity expected to double in the next two to three years. They are also facing staffing problems related to office space and accommodation in places such as Port Hedland, where the cost is prohibitive, and accommodation for three staff costing as

much as \$3.5m. They also need to offer staff other incentives to work in the north west, such as car, house, subsidies, and longer annual leave, as many do not stay long due to family concerns.<sup>23</sup>

Significant work is being done to either expand or build new regional ports. There is expected to be a significant growth in ports with the planned new facility at James Price Point; the Oakajee Project; expansion of the port at Port Hedland; port development at Cape Preston, about 70 kilometres south west of Dampier; Mount Anketell, which is located within Port Walcott; Ashburton North, which is within the Port of Onslow and the Gorgon gas project on Barrow Island.<sup>24</sup> The many projects, both planned and underway include the following:

- A study has been conducted into the demand for additional berth space in the Gascoyne region to support local growth in salt and gypsum production and opportunities in the live cattle export trade. South Bejaling and Darwin Reefs are considered suitable for the export of all potential commodities identified from stakeholder consultation and desktop study. Dampier Salt has stated that it would not share infrastructure at Cape Cuvier with other salt or gypsum exporters.<sup>25</sup>
- Dampier Salt intends to increase annual salt production, which will result in an increase in the size of bulk carriers loading at Cape Cuvier shiploading facility, which in turn will mean larger, more powerful tugs will be required to manoeuvre carriers at the mooring buoys. A new tug berthing facility will be built within the small boat harbour and third tug purchased.<sup>26</sup>
- **Esperance Port Access Transport Corridor**, involving major improvements to facilitate future expansion of the port. This will significantly improve safety for all road and railways users, enhance community access across the transport corridor, improve transport efficiency of freight in and out of the port and reduce freight costs.<sup>27</sup>
- **Woodchip Export Facilities** - Elders Forestry plans to commence construction of a facility at the Esperance Port to stockpile and handle woodchips during the first quarter of 2012, subject to the company meeting all relevant environmental and works conditions required by the port and agencies.<sup>28</sup> Initial production could start at approximately 100,000 tonnes in 2012 and will reach a maximum of 450,000 tonnes a year by 2013.<sup>29</sup>
- **Esperance Port Upgrade (\$300 million)** - Esperance Ports Sea and Land, in partnership with Cashmere Iron Limited (CIL), is investigating the development of a multi-user iron ore facility to cater for projected iron ore throughput from the Yilgarn region. It is expected that this process, incorporating a definitive engineering study, environmental approvals and confirmation of funding by CIL, will be completed by October 2011. Pending ministerial approval to proceed to the next phase of the project, it is expected that construction will commence in 2012 for completion by mid 2013.<sup>30</sup>
- A \$2.6 billion magnetite project near Wellstead is being developed by Grange Resources. It is planned to produce 10 million tonnes per annum of high grade magnetite concentrate to be shipped from Albany Port, via an underground slurry pipeline. The concentrate will be processed into pellets in Kemaman Malaysia.<sup>31</sup> The Albany Port is undertaking dredging to accommodate larger iron ore ships as part of this project.<sup>32</sup>

- The Port of Broome supports the Browse Basin offshore oil and gas exploration industry including seismic and supply vessels. To optimise the potential benefits from the offshore development opportunities associated with the proposed LNG precinct, the Broome Port Authority is planning to provide project ready land, additional logistic handling equipment and infrastructure modifications. Other port business includes the importation of petroleum products and cement, livestock exports, cruise liners and expeditionary cruise vessels, coastal trading vessels, pearling, fishing and tourism charters.<sup>33</sup>
- **Mount Gibson Iron/Geraldton Port Authority** – Port Train Unloader Upgrade – Upgrade to increase iron ore receival rate to 3,000 tonnes per hour, extend port rail network to accommodate longer trains, align existing iron ore ship loading capacity with receival capacity and reduce reliance on road network to transport iron ore to port.<sup>34</sup>
- **Oakajee Port and Rail** - Development of heavy freight rail to link proposed northern mines to proposed Oakajee Port and development of an import/export multi-use, multi-function deepwater port to support a world class industrial estate, both projects under the terms of a State Development Agreement signed on 20 March 2009. Planned to commence in 2012 and be completed in 2014.<sup>35</sup>
- The Geraldton Port remains the initial solution to export iron ore products from Karara to China. Facilities upgrades at the port will include new dedicated Karara storage facilities, train unloader and a new berth/shiploader. The facilities will provide the capacity to export up to 16 mtpa. The proposed Oakajee Port, north of Geraldton, remains the planned export port for the future expansion of Karara.<sup>36</sup>
- The Dampier Port Authority has expanded its focus to consider the facilitation of trade across the West Pilbara region and to provide expertise and support to initiatives in the region, eg Pilbara Cities, Greenfield port developments, working with proponents on new export developments and improving safety and environmental management across the port locations.<sup>37</sup>
- **Bunbury Port** - The Bunbury Port is a seven-berth deep water facility that services the South West region. Commodities trade through the Port has grown significantly to 13.866 million tonnes in 2009/2010. This represents a 52% increase over the preceding 10 years. Trade is expected to increase by 50% in the next five years and double over the next decade.<sup>38</sup> The Port is also planning the development of a container handling service, which will directly connect South West exporters to overseas markets and facilitate trade through the Port<sup>39</sup>

## Sustainability

Ports are the gateway to the State and as such have a responsibility to ensure nothing enters or leaves that could pose a risk to the environment or community. This has required strict testing in all areas, stringent monitoring of freight and a need for appropriate licences for those who operate in and around the port precinct.

There is also a major issue regarding congestion around the ports which is set to increase as a result of growth in freight movements. This has seen the Ports investigate more sustainable practices for the movement of freight, with rail becoming a major focus and a need for multimodal hubs away from the port precinct to handle the freight.<sup>40</sup>

## Qualification Profile of Workforce

Shipping Companies experience challenges in attracting and retaining staff, with no formal training pathway identified and many moving on to more interesting and financially advantageous jobs. Companies have become smarter at multi-skilling workers to maintain their interest and are looking at ways to attract new workers into their companies.

Stevedores do not require formal qualification to work, but are governed by regulations regarding safety, security and operation tickets, which require some training. Although there are formal qualifications available for Stevedores up to Certificate IV, the uptake has been minimal, with training predominantly occurring through an eastern states provider and not appearing on WA statistics.

## Social Impact

With the majority of Ports located regionally, attracting and retaining the workforce has proven difficult for some Ports. This is especially true where the support and community services are not in existence, such as some of the remote ports, and the workforce is not attracted to be permanently based in some areas.

Although there has been a lot of commentary on the negative impact socially for FIFO, the two major Pilot contacting companies have found their workforce has stabilised since they introduced the scheme. Instead of regional ports now employing pilots direct and basing them in the region, they now use FIFO contactors, month on month off, and provide accommodation for them. All contract pilots are now based in Perth and surrounding areas with their families, and find the scheme works well as they are all former seafarers who were used to long periods away from home.<sup>41</sup>

## Critical Skills Shortage Occupations

Marine Pilot  
Harbour Master  
Stevedore – Crane Driver, Forklift Operator  
Port Engineer  
Tug Master

## Reference – End notes

- 
- <sup>1</sup> WA Ports Review Issues Paper 11 February 2011
  - <sup>2</sup> TLISC 2011 Environmental Scan – [www.tlisc.org.au](http://www.tlisc.org.au)
  - <sup>3</sup> National Ports Strategy Background Paper December 2010 – Infrastructure Australia and the National Transport Commission
  - <sup>4</sup> Industry Stakeholder Consultation
  - <sup>5</sup> TLISC 2011 Environmental Scan – [www.tlisc.org.au](http://www.tlisc.org.au)
  - <sup>6</sup> Fremantle Ports 2011 Annual Report
  - <sup>7</sup> Fremantle Ports 2011 Annual Report
  - <sup>8</sup> Industry Stakeholder Consultation
  - <sup>9</sup> Australian Bureau of Statistics, ANZIC codes 1993
  - <sup>10</sup> TLISC 2011 Environmental Scan – [www.tlisc.org.au](http://www.tlisc.org.au)
  - <sup>11</sup> Department of Transport – [www.transport.wa.gov.au](http://www.transport.wa.gov.au)
  - <sup>12</sup> Industry Stakeholder Consultation
  - <sup>13</sup> Australian Government. (2011) Job Outlook – [www.joboutlook.gov.au](http://www.joboutlook.gov.au)
  - <sup>14</sup> TLISC 2011 Environmental Scan – [www.tlisc.org.au](http://www.tlisc.org.au)
  - <sup>15</sup> Industry Stakeholder Consultation
  - <sup>16</sup> Industry Stakeholder Consultation
  - <sup>17</sup> TLISC 2011 Environmental Scan – [www.tlisc.org.au](http://www.tlisc.org.au)
  - <sup>18</sup> WA Ports Review Issues Paper 11 February 2011
  - <sup>19</sup> Ports Handbook 2010
  - <sup>20</sup> Ports Handbook 2010
  - <sup>21</sup> Optimising our port infrastructure and planning for growth, Dept of Transport and Fremantle Ports, June 2011
  - <sup>22</sup> WA Ports Review Issues Paper 11 February 2011
  - <sup>23</sup> Industry Stakeholder consultation
  - <sup>24</sup> Department of Transport – [www.transport.wa.gov.au](http://www.transport.wa.gov.au)
  - <sup>25</sup> Bejaling Deepwater Port Study, 15 October 2010
  - <sup>26</sup> Gascoyne Development Commission, Gascoyne Development Plan 2010-2020
  - <sup>27</sup> Goldfields Esperance Development Commission, Major Projects Summary (revised July 2011)
  - <sup>28</sup> Goldfields Esperance Development Commission, Major Projects Summary (revised July 2011)
  - <sup>29</sup> Goldfields Esperance Development Commission, Major Projects Summary (revised July 2011)
  - <sup>30</sup> Goldfields Esperance Development Commission, Major Projects Summary (revised July 2011)
  - <sup>31</sup> Great Southern Major Projects Update October 2011
  - <sup>32</sup> Department of Transport WA, Ports Handbook, Western Australia 2010
  - <sup>33</sup> Department of Transport WA, Ports Handbook, Western Australia 2010
  - <sup>34</sup> Mid West Development Commission, Mid West Major Projects Summary March 2011
  - <sup>35</sup> Mid West Development Commission, Mid West Major Projects Summary March 2011
  - <sup>36</sup> Gindalbie Metals Pty Ltd website, [www.gindalbie.com.au](http://www.gindalbie.com.au)
  - <sup>37</sup> Department of Transport WA, Ports Handbook, Western Australia 2010
  - <sup>38</sup> Roads to Export – Greater Bunbury Infrastructure Investment Plan – 18 October 2010
  - <sup>39</sup> Department of Transport WA, Ports Handbook, Western Australia 2010
  - <sup>40</sup> Industry Stakeholder Consultation
  - <sup>41</sup> Industry Stakeholder Consultation